EVOLUTION OF NATURAL MEDICINE AND BIOMEDICINE AND THEIR FUTURE ROLES IN HEALTH CARE

PETER THOMAS SHERWOOD

A DISSERTATION SUBMITTED IN TOTAL FULFILMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

SCHOOL OF HEALTH SCIENCES

FACULTY OF HUMAN DEVELOPMENT

ST ALBANS, VICTORIA, AUSTRALIA

VICTORIA UNIVERSITY

2004

TABLE OF CONTENTS

ABSTRACT

This thesis investigates whether the natural medicine and biomedicine professions could cooperate for the benefit of patients within an integrated medical model. The investigation contains a substantive narrative and historical overview of the evolution of medicine. This provides a background to the investigation and an explanation of how the different medical paradigms evolved.

As the natural medicine industries in Australia, the United States, and the United Kingdom evolved through private sector activity, they have only relatively recently attracted the interest of academia. For this reason the number of completed *natural medicine* doctoral theses is not considerable, and none appear to have been in the area of this thesis. Further, although there are numerous texts relating to the history of medicine, none adequately detail the evolution of the history and philosophy of natural medicine. Therefore, in order to comprehend the history and philosophy of biomedicine and natural medicine, and other related topics, the thesis critically evaluates a diverse range of secondary source material using philosophical-historiographical inquiry.

Analysis of the research literature clarifies — particularly from the perspective of natural medicine — the evolution of medicine from prehistory to the Middle Ages when natural medicine practice was separated from Church and State approved medieval physick. Also, as medieval physick evolved into biomedicine, it further separated from natural medicine. It developed new paradigms, identified and treated new diseases, and made significant gains in clinical science, surgery, technology, drugs and other products. However, its safety and efficacy is coming under increasing academic scrutiny. Research also shows how natural medicine usage increased in the 20th century, particularly from the 1960s, and is currently used by 80 per cent of the world population.

For the natural medicine paradigm to be as equally regarded as the biomedicine paradigm in a new integrated medical model, it needs to retain, amongst other things, its differences — particularly the natural medicine concepts of holism, vitalism, the mind–body connection,

spirit, detoxification, digestion and immunity — which are clarified in the thesis. The thesis also investigates various models of integrated medicine and determines that the Australian Voluntary Integrated Model allows biomedicine and natural medicine practitioners and their clients to cooperate within a model underpinned by mutual recognition and respect.

The strengths and limitations of this thesis arise from its originality. Because it traverses new academic territory it will be a useful base for future research. Also, the sections relating to the evolution of the history and philosophy of natural medicine are immediately available for use in natural medicine and other educational programmes. The thesis concludes by discussing future research opportunities, which appear to be open to several academic disciplines.

DECLARATION

I certify that this dissertation does not incorporate any material previously submitted for a degree or diploma in any university. To the best of my knowledge, this dissertation does not contain any material previously published or written by another person, without acknowledgement, and where due reference has not been made.

Signed: .....  ..... Date: 26/8/04.....

Peter Thomas Sherwood

PRELIMINARY NOTES ON TERMINOLOGY

It appears that the schism between advocates of the biomedicine and natural medicine paradigms has resulted in differing views as to the meaning of frequently used terms. Power holders often reinforce their position by seeking to determine the linguistic agenda, and thus dictate the parameters within which most people think, or more often do not think, about the power structures and relationships within their societies (Fanon & Noire, 1952). Therefore, some preliminary notes on the terminology used in this thesis are required.

Micozzi (1996, p. 3) suggests that the term *allopathic medicine* is interchangeable with the term *biomedicine* and that its difference from the "alternatives" is its "scientific" underpinning. Biomedicine is described as:

> a scientific paradigm with a particular history, as much influenced by social history as it is by scientific laws ... Contemporary biomedicine conceptually uses Newtonian physics and pre-Darwinian biology [and] relies on a projection of Newtonian mechanics into the microscopic and molecular realms. As a model for everything, Newtonian mechanics has limitations ... The biological science of contemporary medicine is essentially pre-Darwinian in that it emphasizes typology rather than individuality and variation. (pp. 4–5)

Some writers describe biomedicine as "allopathic", "scientific", "Western", "modern" or even "cosmopolitan", implicitly claiming the glamorous cachet of modernity, comprehensive competence, sophistication and global acceptance (Capra, 1982, p. 121). Even more confusing is the word "traditional", which is sometimes correctly used to mean natural medicine (Bodeker, 1996, p. 279).

Medieval European university medical education was influenced by Graeco-Roman theories, particularly those of Galen. The word *physick* is used to describe both its medical practice and its physicians. Physick became accepted by the Church and government as the orthodox or conventional medicine. Physick evolved to become the allopathic-scientific method, which was later referred to as the biomedical method, which mainly involves the

use of pharmaceutical drugs and surgery. Physick was considered to be *Regular* medicine (and its practitioners the *Regulars*) because of its acceptance by the authorities. Consequently natural medicine, which was sometimes merely tolerated by the authorities, was referred to as *Irregular* medicine (and its practitioners the *Irregulars*). The term *Heroic medicine* was given to at least part of physick in America for "the recklessness of this practice", particularly its excessive bloodletting and overuse of toxic remedies such as the mercury-based calomel (Griggs, 1997, p.153).

In this study, the term *natural medicine* is used in the sense that the medical treatment received assists the *whole* person to heal naturally or to maintain a positive health profile. Hippocrates used the term similarly when he referred to "the healing power of nature" (Porter, 1997, p. 59) and advocated that health required a temperate, balanced, holistic life (pp. 59-60). He urged his followers to "do no harm" (p. 62) and recommended the use of only safe, conservative, holistic treatments (pp. 60-61). Therefore, the word *natural* in the term *natural medicine* refers to the effect of the treatment and not to the treatment *per se*. Consequently, treatments such as acupuncture are not excluded from the inventory of skills available to natural medicine practitioners.

It is broadly accepted in the natural medicine industry that the term *natural medicine* has great public appeal and has contributed to the growth of market share. Jonas and Ernst (1999) claim that the term "natural medicine" is used frequently in Germany and elsewhere, and "attracts people to CAM [complementary and alternative medicine] practices who may be afraid of the side effects of conventional therapies. People may assume that therapies labeled *natural* are inherently safer, which is not always true" (p. 91). Powell (2003, p. 1) suggests that the term is confronting to many biomedicine practitioners and health bureaucrats. This may be the result of its success in the medical marketplace; perhaps it implies a health paradigm that is too alien to biomedical science. Whatever the reason, the term itself seems to have become a barrier to communication.

The terms applied to natural medicine are no less diverse than those for biomedicine. Words like "alternative", "complementary", "integrated" and "original" should be value-free, but

are often used in a pejorative sense to suggest that natural medicine is peripheral, trendy and unreliable. This study will show that it is natural medicine that has been normal, traditional or mainstream for most people throughout history and pre-history, and it is the biomedical method that is the new, the unusual, and the alternative.

The use of the word *alternative* to describe natural medicine suggests that biomedicine is the method used by most people, and that natural medicine is secondary or peripheral. As Stewart (1999, p. 10) points out, *alternative* suggests that the practice is a fringe or unorthodox activity. Natural medicine is thus implicitly or explicitly denigrated as being "fringe", "new", "trendy", "temporary", "unscientific", "unprofessional" and essentially "unreliable" (Benson & Stark, 1996, pp. 234–235). Statistically, in terms of usage rates, natural medicine cannot be considered to be "fringe" at all.

Increasingly, parts of academia and government appear to be supportive of the word *complementary* in preference to the word *alternative*. The term *complementary medicine* has the connotation of "that which completes or makes perfect ... the quantity or amount that completes anything ... either of two parts or things needed to complete the whole" (*The Macquarie Dictionary*, 1996, p. 368). The suggestion here is that natural medicine is the "complementary" partner. However, the term *complementary medicine* could equally be applied to either biomedicine or natural medicine, as in reality they complement each other to provide one whole medical market. It is in this latter sense that the term is more appropriately applied.

Powell (2003, p. 1) states that some natural medicine practitioners believe that the use of the term *complementary medicine* would, by comparison, seem to be less confronting, and thus have the potential to open more bureaucratic and political doors to the natural medicine industry. This could eventually improve its political influence and lead it, also, into the corporatisation fold — with the resultant government financial and other support, and all the restrictions that accompany corporatisation. However, Nester (1999, p. 25) explains that the current use of the term *complementary medicine* incorrectly suggests that the role of natural medicine practice is to merely complement biomedicine practice. Because of this, Powell

(2003) sees the use of the term *complementary medicine* as a "propaganda tool designed by the Establishment to make natural medicine practice subservient to biomedical practitioners" (p. 1).

Although the main trend is towards the use of the term *complementary medicine* to describe modern natural medicine, the term *integrated medicine* is also emerging. Integrated medicine suggests a free medical market within which biomedicine and natural medicine components would work in harmony for the primary benefit of patients. This term has the advantage of emphasising the idea of union: "to bring together (parts) into a whole ... to combine ... systems ... into one unified system" (*Macquarie Dictionary*, 1996, p. 913). However, the term is incorrectly used in the United Kingdom (UK), the United States (US) and the World Health Organisation (WHO), to suggest also that natural medicine merely complements biomedicine and is subservient to it.

A recent trend in some professional circles is to use the term "complementary and alternative medicine" for modern natural medicine (Jobst, 1998, p. 123), which merely confuses the discussion. The term *original medicine* could perhaps also be used with accuracy, but for the purposes of this study the term *natural medicine* will be preferred.

The concept of *corporatism* is crucial to analysis of the provision of medical services. Newman (1981, p. 47) states that corporatism is a method of societal organisation in which individuals have few rights and effectively no voice except in so far as they are members of or subject to a "corporation" through which governments license or control activities. Within medicine in developed economies, this has usually resulted in a "representational monopoly" for the biomedicine industry which receives most government funding "in exchange for observing certain controls on their selection of leaders and articulation of demands and supports" (p. 47). Corporatism therefore distorts the medical market through the discriminatory allocation of government funds.

This multitude of terms becomes important when we consider the programmes being conducted by various educational institutions. When the term *modern natural medicine* is

used in this study, it generally refers to the body of knowledge and skills development provided for in degree and post-graduate natural medicine programmes offered in the Australian private and public education sectors, and also to the professional services provided by the graduates of those programmes.

Most modes of natural medicine are consciously holistic in their approach, appreciating the "tendency in nature to produce wholes from the ordered grouping of units" (*Shorter Oxford,* 1992, p. 974). Capra (1982) explains that "holistic" derives from the Greek *holos,* meaning whole, from which the words "holy, hale, health and healing" also derive, and "refers to an understanding of reality in terms of integrated wholes whose properties cannot be reduced to those of smaller units" (p. 21). In the WHO definition, (1978; in Bodeker, 1996), it means:

> viewing man in his totality within a wide ecological spectrum, and ... emphasizing the view that ill health or disease is brought about by an imbalance, or disequilibrium, of man in his total ecological system and not only by the causative agent and pathogenic evolution. (p. 280)

Practitioners of natural medicine therefore focus on treating the whole person, taking into consideration all aspects of the disease process, all signs and symptoms, life history, lifestyle, work, social and domestic environments, age and emotional state, and utilise a range of techniques. This is in contrast to the approach of biomedicine, which has tended to focus on the diseased condition of one organ or system in isolation, sometimes taking no extraneous factors into account.

Natural medicine has traditionally included a variety of forms and approaches, many of which are currently available. These include botanical medicine, food as medicine, nutrition, massage, homeopathy, chiropractic, osteopathy, and exercise therapy. Other therapies involving life energies, meridians and chakras include acupuncture, tai qi, qi gong, reiki, yoga, vibrational work, and shiatsu. Other traditional elements include meditation, religious activities, cultural events and processes, psychodramas, rites of passage, mentoring and counselling, and supportive social structures. The fundamental philosophy of natural medicine as practised professionally at the beginning of the 21st century is that

> the human body possesses enormous power to heal itself. The principle known as *vis medicatrix naturae*, the healing power of nature (from the Hippocratic text *On Ancient Medicine*), is the foundation of natural medicine philosophy and practice. Natural medicine, in all its modalities, is a holistic approach to health. It takes into consideration physiological, psychological, spiritual, social and lifestyle factors affecting health. Disease is seen as a process rather than a self-contained entity. An understanding is developed of the individual as an expression of the dynamic processes of life. There are no single causes for disease: instead, there is a circular (or perhaps spiral) interrelationship and interaction between physical, emotional, material, psychological, psychospiritual and lifestyle factors, which can ascend to health or descend to illness. (Copeland & McQueen, 1998, p.1)

Some natural medicine practitioners prefer to view those who seek their help as *clients* rather than *patients*. Nester (1999) says that the use of the term *client* ... acknowledges the idea that people "can be *partly* responsible for their own health through their decisions, actions, and lifestyle" (p. xviii). Nester says that the term *patient* connotes a dependent person passively receiving therapy, but "the term *client*, in contrast, suggests a person who is essentially independent and capable of making judgments on the advice given ... by their [*sic*] health care practitioner" (p. xviii). Where appropriate, the term *client* will be used in this dissertation even though some natural medicine practitioners prefer to use the term *patient*.

The study also refers to "quacks" which was a term usually derogatively ascribed to irregular practitioners, whose practice was referred to as "quackery" (Martyr, 2002, p. 8).

This thesis suggests that the lack of agreement on natural medicine terminology may arise because natural medicine has only relatively recently attracted the attention of academia, and the number of completed theses is minimal. This thesis may therefore contribute, amongst other things, to further informed discussion on the usage and meaning of natural medicine terminology.

ABBREVIATIONS AND ACRONYMNS USED IN THIS DISSERTATION

AACMA	Australian Acupuncture and Chinese Medicine Association
AAP	Australian Associated Press
ACNM	Australian College of Natural Medicine
ACNT	Aboriginal Communities of the Northern Territory
AMA	American Medical Association
AMA	Australian Medical Association
Anon. of LCP	A Member of the London College of Physicians
ANTA	Australian Natural Therapists' Association
APA	American Psychological Association
ATMS	Australian Traditional Medicine Society
BCE	Before the common era
BMA	British Medical Association
CAM	Complementary and alternative medicine
CE	Common era
CJD	Creutzfeldt-Jakob disease
CMEC	Complementary Medicines Evaluation Committee
FDA	Food and Drug Administration
JAMA	Journal of the American Medical Association
MAFF	Ministry of Agriculture, Food and Fisheries
MD	Doctor of medicine
NHAA	National Herbalists' Association of Australia
NHMRC	National Health and Medical Research Council
NHS	National Health Service
TAFE	Technical and Further Education
TCM	Traditional Chinese Medicine

TLC	Tender loving care
TMEC	Traditional Medicines Evaluation Committee
UK	United Kingdom
US	United States of America
WHO	World Health Organisation

ACKNOWLEDGEMENTS

This dissertation was undertaken in extraordinary circumstances, and could not have been completed without the support of special individuals. As the taxpayers of Australia funded this research in several ways, I am grateful to them for that.

My appreciation is expressed to staff at the Australian College of Natural Medicine for their continual encouragement, support and suggestions with sources and text. This includes their Head of Naturopathy, David Stelfox, and staff in their well-stocked libraries, including Kirsty Ricketts and Lynn Bartlett, and Jason Copeland and Jeffrey Seth.

Thanks also to other friends, such as Mervyn Littmann who provided invaluable assistance with suggestions on text, and Andrew Nuske who assisted with layout.

Appreciation is also expressed to all those creative individuals listed in the References, whose works provide a quality resource base encouraging others to follow. During the past three years I have been so moved by some works that I often experienced the desire to contact particular individuals to personally express my appreciation for their efforts.

The administration, library staff and supervisors at Victoria University were crucial to completion. My supervisor allocation was fortunate as Dr Barry Nester, Dr Kerry Watson and Dr Rob Hess proved to be a *troika* of inspiration, encouragement, ideas, intellectual debate and emotional support. Thanks to you all.

My partner Gail Rutherford kept the home fires burning as the research continued. Without her love, concern, support and liaison, this work could not have been completed.

CHAPTER 1

INTRODUCTION

1.1 Background and Rationale of the Study

Although the former US Surgeon General, C. Everett Koop (1996, p. xi), states that 80 per cent of the world's population uses natural medicine services and remedies, Alan Fels (2003, p. 18), the former chairman of the Australian Competition and Consumer Commission says that Western governments continue to encourage, legislate for, and finance the monopolistic use of biomedical services and remedies. Fels also claims that, in Australia and some other countries, certain biomedical monopolistic practices are conducted contrary to national anti-monopoly laws (p. 18). Consequently, biomedical professional incomes are maximised through monopolistic controls on the quality and quantity of new entrants to the professions and their specialties (p. 18). However, although the biomedical professions also use their corporatised power to discourage the public use of natural medicine — and deny users of natural medicine the government subsidy applicable for biomedical services — usage of natural medicine is increasing (Begbie, Kerestes & Bell, 1996, pp. 545–548). This thesis shows, amongst other things, how these monopolistic practices affect contemporary society, and how they originally arose in the European Middle Ages through Church and government corporatisation of the antecedents of biomedicine, and the proscription of natural medicine practices.

Fels (2003) also claims that consumers would benefit from the unrestricted practice of medicine, as then "the main thrust of the practitioners would be to emphasise the quality of care that they offer rather than the price" (p. 18). Fels thus appears to suggest that monopolistic biomedicine de-emphasises "the quality of care" (p. 18). As the concept of care is apparently related to concepts of safety and efficacy, the biomedical paradigmatic monopoly appears to be accompanied by questionable safety and efficacy standards. For example, each year, adverse events in the practice of biomedicine in Australia cost about

$4 billion dollars, affect more than 500,000 Australians, require about 80,000 hospital admissions and cause about 11,000 accidental deaths (Barraclough, 2002). These adverse events include iatrogenic illnesses, which are caused by the administration of prescription drugs or other actions of biomedical practitioners, and nosocomial illnesses, which occur as a direct result of hospital processes and procedures. Rice (1988) details how biomedical practices in the United States (US) and the United Kingdom (UK) produce similar medical failures, almost astonishing in their number. For example, the American Iatrogenic Association (2002) reports that American biomedical adverse events annually cost about US$29 billion and cause from 44,000 to 98,000 accidental deaths. It can be no exaggeration to assert that monopolistic biomedicine is in crisis.

Contemporaneously with these adverse events, there are two important changes in Western society in relation to natural medicine: there are increases in both usage, and referrals from biomedical practitioners. In Britain, the British House of Lords Select Committee on Science and Technology (2000) found that the use of natural medicine "is widespread and increasing across the developed world" (p. 1). Further, the attitudes of Australian biomedical practitioners towards natural medicine are changing. A recent study reveals that more than 80 per cent of these practitioners have referred patients to practitioners of various natural medicine modalities (Pirotta, Cohen, Kotsirilos, & Farish, 2000, p. 105).

In this thesis, it is argued that the crises in biomedicine — in addition to those which may result from its corporatised monopoly — at least in part, arise from two key factors: questionable medical paradigms and an overly rigid approach to procedures. It is shown that medical paradigms appear to have retained questionable features left over from practices with deep historical roots stretching back through the cultural evolution of biomedicine. This has resulted in class-based professional attitudes with low regard for human rights and human life. Also, biomedicine's reductionist clinical approach appears to be overly inflexible, and pays insufficient attention to holistic approaches. Laura and Heaney (1990) say that "biomedicine has had the tendency to depersonalise the

fundamentally social aspects of health care by the progressive substitution of technological innovation for the phenomenon of human exchange" (p. 65). Although biomedicine has promised much, it "has not delivered the level of health ... that it promised. In many cases, it has even led to a reduction in community health through iatrogenic disease" (Nester, 1999, p. 30).

The study also concerns itself with aspects of medical dominance: the relative power — and the possibilities of empowerment — of actors in the medical process, and cultural and class attitudes relating to respect for human rights and human life. Fulder (1998) suggests that the relative power of the individual in the health care process is significant as the locus of decision-making lies in the individual rather than in experts such as medical practitioners. This means not merely that "patients" have a "right to know" and to informed consent, but that all human beings have a duty to themselves to take pre-emptive responsibility for their entire health, life, and spirit, understood holistically. Szasz (1973) is concerned that human beings do not necessarily become passive "patients" and lose their civil and human rights when they become ill, as the right to health and healing is very broad and includes the right to a fully spiritually aware death process as part of the individual's life journey.

There are two sets of social attitudes to medical practice that may be usefully brought together. One relates to the findings about natural medicine by Pirotta et al. (2000, p. 105) and Begbie et al. (1996, pp. 545–548), who point out the public acceptance of its usage. The second is biomedicine's multi-faceted problems as evidenced, among other things, by its iatrogenic and nosocomial illness rates. Therefore, the public interest could be well served by the exploitation of the potential of natural medicine — to reduce the rate of adverse medical events — through the evolution of a new integrated medical model incorporating both practices. The ramifications of such integration are examined in the thesis.

A review of the literature has revealed that the state of knowledge of the natural medicine paradigm and its evolution is unsatisfactory, in that it is only evident through

the examination of numerous resources. Although natural medicine has been practiced continuously for millennia, some of its paradigms, philosophies, theories, terminology, practices, and public appeal are not universally comprehended or accepted in academia, general society or even within the natural medicine sector itself. With the exception of a body of literature relating to the history of biomedicine and its antecedents, there do not appear to be any significant studies relating to the major topics of this thesis. One probable reason for this is that natural medicine has only relatively recently become part of the university academy, and that most of its graduates enter private practice and do not become involved in post-graduate studies. This means that the number of completed *natural medicine* theses is minimal. The foregoing appears to accord with the prediction by Lincoln and Guba (2000) that studies of postmodern representational practices "that are produced for scholarly audiences will, however, continue to be untidy, experimental, and driven by the need to communicate social worlds that have remained private and 'non-scientific' until now" (p. 185). In recent years, reputable medical journals appear to have increased their rate of publication of research related to purported natural medicine topics. However, such research involves researchers who do not appear to comprehend natural medicine theory or practice and who apply biomedical scientific paradigms to an individual natural medicine remedy or process — with sometimes questionable outcomes.

All of the aforementioned problems are to be expected in a medical model that has, until recently, evolved outside of academia. This study addresses these problems and also provides a record of pertinent aspects of the cultural evolution of medicine, particularly from the perspective of natural medicine, thus contributing to the facilitation of informed medical choice. Implications for the integration of biomedicine and natural medicine, from a paradigm shift in societal comprehension of health, disease and the healing process, are also discussed.

The literature also suggests that, in order to understand the contemporary societal division between biomedicine and natural medicine, there is merit in re-evaluating the paradigmatic underpinnings of biomedicine. Consequently, there are grounds for

exploring the societal role and present position of power and dominance of biomedicine. This thesis shows that contemporary practice paradigms have their roots in (a) the evolutionary development of biology; (b) European cultural development from antiquity (ancient Mesopotamia, Egypt, Greece, Rome); (c) the Middle Ages in Europe, which were characterised by the Black Death, the Inquisition and the overt suppression of natural medicine; and (d) the development of chemical and "scientific" medicine.

The aforementioned rates of "accidental" biomedical adverse events suggest an inexplicable degree of carelessness in its practice. Analysis of the literature suggests that an understanding of the origins of the concept of care may allow a fresh interpretation of this carelessness. This thesis shows that the concept of care arose in prehistoric times — probably first in animals and then in the human evolutionary line. The widespread evidence of care, particularly medical care, exercised even by animals to others in their family or group may suggest that it is a natural process, and therefore that carelessness, or more specifically, biomedical carelessness is an unnatural process. The implications of this for a new integrated medical model incorporating both biomedicine and natural medicine are examined.

It is important to the community and the advancement of natural medicine to clarify the evolution of both biomedicine and natural medicine, and to show how the advancement of natural medicine was hindered, how biomedicine has come to attain a social role of great power while being vexed with serious adverse events, and how the public acceptance of natural medicine provides the potential for its integration with biomedicine. This study investigates topics that are significant for health care professionals, politicians, health care planners, academics, students of natural medicine and biomedicine, and the public in countries in which biomedicine currently holds a leading or dominant market position, or is being promoted as the preferred primary health care model. It responds to the call expressed by Bodeker (1998):

> It is remarkable that such a widespread social phenomenon as the move towards complementary healthcare in industrial countries and the resurgence of traditional medicine in non-industrialised countries has received so little attention from policy scientists. University departments

> of public health and health policy around the world would do a service to consumers and future health providers if this field were to be included in their research and educational agendas. (p. 128)

From this perspective, all of the matters referred to above are significant. The establishment of the Office of Alternative Medicine in the United States National Institute of Health, as a consequence of the increased public usage of natural medicine, indicates a change in public attitudes in North America. Similar change in Australia is represented by the Federal Government's creation of the Traditional Medicines Evaluation Committee and its evolution to the Complementary Medicines Evaluation Committee. Public attitudes have similarly changed in Europe. Such changes can precipitate major paradigm shifts by governments. This has probably already commenced in Australia through the registration of chiropractors and osteopaths and, in Victoria, Chinese medicine practitioners, and government funding of natural medicine education and research in universities and the Technical and Further Education (TAFE) sector. This study therefore provides a basis for public discussion of the paradigm shift that will be required if the safety and efficacy of health services are to be maximised in the public interest.

1.2 Aims and Objectives of the Study

The purpose of this study is to investigate whether the natural medicine and biomedicine professions could cooperate within an integrated medical model for the benefit of patients. The understanding of the schism between these medical paradigms requires an examination of the evolution of medicine — particularly through a substantive narrative and historical overview of the historical, cultural and political origins of the paradigms — in order to develop an integrated medical model which encourages the development of genuine relationships between biomedicine and natural medicine practitioners, based on mutual respect, recognition and cooperation.

This study therefore:

a) examines the paradigms, philosophical underpinnings, practice and societal roles of natural medicine and biomedicine, with particular emphasis on those that have evolved through European culture and that may have a bearing on the relationship between the two systems of medicine; this examination takes the form of a substantive narrative history that draws primarily on a critical evaluation of a diverse range of secondary source material.

b) examines the differences between the natural medicine and biomedicine systems, which are represented, among other things, by differing paradigms, theories, practices, education, socio-political power, attitudes and public support, in order to produce an integrated medical model based on mutual recognition and respect; these differences are placed in their historical, philosophical, theoretical and political perspectives.

1.3 Methodology of the Study

This research focuses on a critical evaluation of the literature, using philosophical–historiographical inquiry — particularly through a substantive narrative and historical overview of the historical, cultural and political origins of the natural medicine and biomedicine paradigms. The foundations of medicine are examined through a comparison of different philosophical bases, different theories and a critical evaluation of operational definitions of concepts (Burns & Grove, 2001, p. 75). Issues are explored in terms of the schema described by Burns and Grove (2001) "by extensively exploring the literature, examining conceptual meanings, raising questions, proposing answers, and suggesting the implications of those answers. The research is guided by philosophical questions that have been posed" (p. 31).

The inquiry is both foundational and ethical (Burns & Grove 2001, pp. 75–76) in terms of formulating a critique of dominant attitudes and their argued practical consequences for clients, and for the role of medicine in society as a whole. The key ideas are

extrapolated from historical events and supporting evidence. This study then examines the implications of paradigm shifts in both biomedicine and natural medicine.

This study includes a philosophical–historiographical inquiry into the crises of biomedicine, investigating the line of descent of attitudes that influenced concepts of science, professional prerogatives, relationships with the client and society, and ethics. The philosophical territory explored consists of the organisational and corporate culture of biomedicine. That narrative is bracketed with firstly, a contextualising review of the history of natural medicine, and secondly with a synthesising review of the philosophy and ideology of modern natural medicine which by contrast highlights and illuminates the ideological and practice problems of biomedicine.

The following types of questions inform the study: What are the paradigms, philosophical underpinnings, practices and societal roles of natural medicine and biomedicine and how did they evolve? How have the crises of biomedicine evolved? Do these crises provide opportunities for the expansion of natural medicine services? Can natural medicine and biomedicine be effectively integrated into a new medical model?

The historiographical method, amongst other things, involves three areas of interpretative evaluation as described by Hodder (2000, p. 711). First, as different sets of data are compared it is essential to ensure that different examples are comparable and whether apparent similarities are real. The identification of context is always relevant and as the boundaries of the context are never "given", they have to be interpreted. Second, context of data is developed through recognition of similarities and differences. Providing the boundaries of the context have been correctly identified it is assumed that, within the context, similar events or things have similar meaning. This means that the interpretations of context and of meaningful similarities and differences are mutually dependant. Third, the relevance of general or specific historical theories to the data at hand requires interpretative evaluation.

Further, theoretical confirmation relies on the twin struts of coherence and correspondence (Hodder, 2000): "Coherence is produced if the parts of the argument do not contradict each other and if the conclusions follow from the premises" (p. 712). Whereas data can confront theory, this research will not assume that correspondence between theory and data implies absolute objectivity and independence, "but rather imbeds the fit of data and theory within coherence" (p. 713). However, whereas data requires linkage within theoretical arguments to cohere, "similarly the coherence of the arguments is supported by the fit to data" (p. 713).

One of the difficulties of an historical analysis and of describing "accepted" models has been highlighted by ideas developed under the philosophical school of thought known as *postmodernism* or *post-structuralism.* As Lincoln and Guba (2000) explain, there can be no single "conventional" paradigm accepted by all social scientists as "in the post-modern movement, and in the wake of post-structuralism, the assumption [is] that there is no single 'truth' — that all truths are but partial truths" (p. 185). However, it should be understood that postmodernism does not invalidate a study such as this; rather, it merely adds a valid note of caution to all observation and analysis.

This thesis accords with the recommendation by Grbich (1999) that research such as this — which employs secondary analysis — utilise both philosophical analysis and historical method, whereby relevant documentation is located and the authenticity of the documents, including books, journals and other documents is established (p. 148). Wherever possible, the research investigates the work of numerous researchers so as to "avoid narrow interpretations towards any single researcher's pet theory" (p. 149). The historical sources are interpreted by analytic induction "to produce a low level explanation of generalization that can then be applied to other documents" in order to generate categories or propositions "that inform the interpretation of other documentation" (pp. 149–150).

Secondary analysis may be defined as "any further analysis of an existing data set which presents interpretations, conclusions or knowledge additional to, or different from, those

presented in the first report" (Hakim, 1982, p. 1). Hinde (1991, p. 249) states that secondary analysis involves analysis of any data that has not been collected by the researcher and, further, that secondary data might be used, where the main thrust of the work involves theoretical development. In this study, as theoretical development is built on previous work, it fits naturally within the process by which new knowledge is created (Dale, Arber & Procter, 1988, p. 44). Data is re-analysed "from different perspectives and within different theoretical frameworks" (Dale et al., 1988, p. 54), revealing unexpected relationships between variables. The process assists "in elevating and enlarging theory because the secondary analyst is compelled to rummage through data collected by other people, at other times" and it is possible that the researcher "may broaden his theorising and choice of problems in the light of the exotic stimulus" (Hyman, 1972, pp. 23–24).

The framework of the study accords with the observations of Burns and Grove (2001) who state that a *framework* is the abstract, logical structure of meaning that guides the development of the study and enables the researcher to link the findings to a body of knowledge. Further, their description of a "conceptual model" as a set of highly abstract, related constructs that broadly explains phenomena of interest, expresses assumptions, and reflects a philosophical stance (p. 131), is applicable to this study, for example, where the beliefs and attitudes of biomedical and natural medicine practitioners are found to be crucial to the design of integrated medical models.

1.4 Literature Review

The achievement of the aims of this study requires comprehension of: (a) the nature and evolution of medicine; (b) the history, rationale and other implications of the divide between natural medicine and biomedicine; (c) the crises of biomedicine; and (d) the paradigms, philosophical underpinnings, practice and societal role of natural medicine. The references provided below are an adequate base on which to draw, in order to achieve the research aims and thereby meet the objectives of the study.

1.4.1 Prehistoric Evolution of Medicine

Chapter 2 deals with the prehistoric evolution of medicine. Although there is a significant interest in the natural medicine community about the origin and prehistoric evolution of medicine, little of it appears to be based on quality research. Consequently, there are numerous un-researched speculations in the natural medicine literature that appear to be based more on intuition and spirituality than science. This chapter therefore examines the scientific record and emphasises archaeological and anthropological evidence relating to evolutionary theory and philosophy.

Further, as mentioned previously, the state of knowledge of the natural medicine paradigm and its evolution is unsatisfactory, in that it is only evident through the examination of numerous resources. Consequently, the literature relating to the prehistoric evolution of human medical and general care and theories of sickness and healing include works by Allday (1969), Bronowski (1973), Capra (1982), Cochrane (1996), Ergil, Ergil, Furst, Gordon, Janzen, Sobo & Sparrowe (1997), Fabrega (1997), Gage (1893), Gould (1996), Griggs (1997), Rudgley (2000), Williams (1966), and Wilson (1975). Also, Knight (1991) shows how the provision of medical care significantly contributes to the core of cultural development in a community. Diamond (1997) and Porter (1997) explain that as humans evolved from hunter-gatherers to farmers, their general health and life expectancy deteriorated as they became susceptible to new diseases.

As the concepts of care and cooperation are fundamental to the provision of relatively safe and effective medical services — suggesting that their absence may contribute to adverse medical events — their origins are investigated. Wright (1996) states that care probably evolved as a method of preserving self interest rather than "for the good of the species" (pp. 12-13). Shreeve (1995, p. 262) explains that whereas human family members had probably learned the value of cooperation more than one million years ago, inter-group cooperation probably arose during the last Ice Age as group members cooperated to hunt larger and more dangerous animals. Also, cooperation within groups produced a competitive advantage over competing groups, maximising their chances of

survival. In order to satisfy the need to make life easier, inter-group cooperation followed, and the cooperation/competition nexus was moved in favour of cooperation (p. 297). This influenced the provision of medical advice, services and remedies.

The origins of human healing are often discussed in the natural medicine literature. Griggs (1997), Kohler (1925) and Lyons and Petrucelli (1987) claim that as much of early medicine was probably herbal-based, it is reasonable to suggest that humans could have learned from observing the behaviour of animals.

1.4.2 Natural Medicine from Antiquity

Chapter 3 deals with the evolution of medicine from the time that history is purported to have commenced in ancient Mesopotamia, and then in Egypt, Greece and Rome. This chapter relies mainly on Ergil et al., Lyons and Petrucelli (1987) and Porter (1997) as their medical histories adequately describe most of the relevant material. However Nunn (1996) is also broadly used in relation to the evolution of medicine in Egypt. Further, Allday (1969), Inglis (1979), and Loudon (1977) complement the Greek and Roman content.

The literature shows that Mesopotamian and Egyptian medical paradigms were apparently corporatised, and were a mix of religious, magical, spiritual and medical theories and beliefs. However, the non-corporatised Greek and Roman medical traditions — particularly those influenced by Hippocrates and Galen — whilst also promoting the healing power of nature, separated medicine from religion. These sources also reveal a number of "early" medical paradigms that still appear to influence modern natural medicine practice and are crucial to this study. Significantly, a number of these historical records also suggest that until the fall of Rome to the Goths in 476 and the resultant increase in power of the Church of Rome, medicine was pluralistic and was conducted without proscription in a free-entry market. A preliminary review of some of these sources also suggests that the suppressions of this era and those of the later Middle Ages show how the Church exercised its power — particularly as it proscribed the study of medicine, monopolised formal medical practice through its monasteries for the next

500 years, and corporatised Galenic medicine which remained virtually unchallenged throughout Europe for about 1400 years. Such sources are therefore of significant historical importance to natural medicine.

1.4.3 The Middle Ages

Chapter 4 examines the evolution of medicine in the European Middle Ages. Cochrane, (1996) states that although biomedicine and natural medicine share common roots, the discipline that was to become biomedicine arguably took its essential separation point from the foundation of the European medical schools and universities in the 10th to 12th centuries (p. 51). University-trained physick (medical practitioners) were becoming established in the cities when, in the 14th century, the great plague devastated Europe (Tuchman, 1978, p. 94). That cataclysm led to a wave of religious and secular revolts, and other massive social changes which threatened the power of "Church and State" (Herlihy, 1997; Woodman & Dickson, 1996). Although nature had previously been regarded as a source of life and healing, because of the mass-psychological consequence of the plague and Church rule, it became regarded as an object of fear and a source of death and disaster (Woodman & Dickson 1996, p. 34).

Sources describing the influence of the Judaeo–Christian culture on attitudes to medicine, nature, women, sex, and life are numerous (Armstrong, 1986; Behringer, 1996; Ehrenreich & English, 1973; Gage, 1893; Hughes, 1952; Lyons & Petrucelli, 1987; Shorto, 1997; Szasz, 1973; Warner, 1976). In that tradition, sickness was regarded as a punishment for sin (Cartwright et al., 1994; Lyons & Petrucelli, 1987; Porter, 1997; Shorto, 1997). Pagels (1995) and Shorto (1997) explain that because healing was therefore deemed to involve the forgiving of sins — which the Catholic Church claimed as its monopoly — a delicate political, religious and medical interface was created between physick practitioners and the Church. Szasz (1973) claims that physick practice became compromised as practitioners could work only under the direct supervision of priests. Also, amongst other things, the agreement to demark the fields of body and soul evolved the conceptual divide between body and mind, which was later to become problematic for biomedicine.

Sources showing how groups and individuals, including natural medicine practitioners, were subject to Inquisitional religious and secular regulation and proscription over the three centuries of the late Middle Ages, Renaissance and early modern periods are extensive (Briggs, 1996; Cochrane, 1996; Ehrenreich & English, 1973; Harris, 1975; Ruether, 1975; Szasz, 1973). Ehrenreich and English (1973) explain how physick practitioners participated in the Inquisitions as expert witnesses against the interests of natural medicine practitioners. Sources for the apparent divide between the various medical practices include mainstream medical histories, as well as works by Illich (1990), Laing, Esterson and Cooper (1968), Porter, Brook, Yacopetti, and Stokes (1998), Szasz (1973), and Willis (1989). The literature also reveals that although informal natural medicine practice was driven underground, its paradigm continued to be preserved, predominantly by female healers.

1.4.4 From Physick to Biomedicine

Chapter 5 examines the evolution of European medicine and explains how the divide between corporatised medicine and natural medicine widened. As the physick paradigm gradually evolved to become biomedicine, it moved away from Galenist influences, religious and spiritual theories, and natural folk concepts, and incorporated evolving scientific thought including the Cartesian-Newtonian paradigm of materialist science. However, the chapter commences with an examination of the power of the Church over medieval physick — particularly as it suppressed scientific thought — using content from Cassirer (1951), Gribbin (2002), Icke (1994), Lea (1954), Pinker (2002), Porter (1997), Saul (1992), and Starhawk (1982). Also, Griggs (1997), Porter (1997) and others explain the importance of two natural medicine practitioners — the Swiss-German, Paracelsus and the English herbalist, Nicholas Culpepper — to the evolution of 16th and 17th century medicine.

Cassirer (1951), Cahn (1990), Capra (1982), Gay (1973), Gribbin (2002), Heller (1978), and Porter (1997) describe various scientific advances which influenced the evolution of medicine; the disproving of Galenic blood theory by Harvey, developments in

evidenciary science by Bacon, Descartes' theories relating humans to machines, and the further evolution of science to reason through the work of Hume, Newton and Berkenhout. However, Saul (1992) warns that as reason developed into rationalism, it distorted society by separating itself from "the spirit, appetite, faith and emotion, but also intuition, will and, most important, experience" (p. 15).

1.4.5 Medical Science or Medical Myth

Chapter 6 commences with the topic, Totalitarian Medicine, which reviews the appropriateness of Western scientific theory and practice, particularly in relation to the biomedicine paradigm. This section relies on content from Bohm (1980), Cassidy (1996), Habermas (1971), Held (1980), Lock (1997), Porter (1997), Saul (1997), Shylock (1963), and Willis (1989).

The next section, Science and Myth, examines the extent to which biomedical theory and practice are based on sound scientific underpinnings, the role of science and myth in modern society, and whether deductive certainty is achievable. This section is supported by content from Carter (1992), Cassirer (1951), Kohn (1986), Little (1995), Lock (1991), Pinker (2002), Smith (1989), and Stock (2001).

The section on Capitalist and Corporatist influences contains content from Carter (1992), Cohen (2001), Saul (1997), Williamson (1985), Willis (1989), and Wood (1999) who review the influence of capitalism and corporatism on biomedical theory and practice, emphasising conflict of interest issues, and the apparent overuse of technology and testing. In the section on Rule of Law and Professionalism, Saul (1997) and Walker (1988) assess the evolution of medical professionalism in terms of problems that may arise from barriers between practitioners and patients, created by professional distance and language, and their influence on the incidence of adverse medical events.

The section relating to Technology assesses concerns about increasing usage of technology, particularly from the aspect of cost, the effects on the "doctor/patient"

relationship, and adverse medical events. Content is provided from Inlander, Levin and Weiner (1988), Rice (1988) and Walton (1998).

The final section, Adverse Medical Events, details the extent of that problem and suggests major deficiencies in biomedical theory and practice. There are considerable sources, including work by McCall (1996), Moynihan (1998), Robbins (1996), Walton (1998), and Youngson and Schott (1996), which show that iatrogenesis and nosocomial illness are problematic for biomedicine. Much is written by biomedical practitioners themselves, to suggest that biomedicine is afflicted by questionable paradigms, practices and professional culture. A representative sample of this literature will be used to illustrate the main themes of the critique, and to investigate whether the ideological strands identified in the study can be seen to be manifested in the current structure and problems of the biomedical profession and the delivery of health care services. As this study is concerned with the question of the cultural evolution of a new, integrated medical model comprising both natural medicine and biomedicine, it will be useful to detail some relevant particulars of certain adverse events and their social impact in order to provide a comparison with the safety, efficacy and social impact record of natural medicine.

Youngson and Schott (1996) show that adverse events are not new phenomena, and detail the recorded history of adverse events over more than two millennia. De Ville (1990) describes medical malpractice in the 19th century and the wave of litigation against American physicians which followed. Fulder (1994), Inlander, Levin and Weiner (1988), McCall (1996), Moynihan (1998), Rice (1988), Robbins (1996), Walton (1998), Weitz (1980) and Youngson and Schott (1996), among others, describe: (a) problems of misdiagnosis and resultant mistreatment; (b) the use of ineffective drugs and procedures, many of which have not been appropriately and scientifically validated; (c) how healing may be delayed by activities of biomedical practitioners and nurses; (d) the risks of anaesthetics, surgery and infection inherent in the very occupation of a hospital bed; and (e) the use of humans as "guinea pigs". Little (1995) argues that the rift between

biomedicine and the public cannot be healed with more science, but requires a change in educational philosophies and methods.

1.4.6 The Evolution of Modern Natural Medicine

Chapter 7 explores the evolution of the modern natural medicine paradigm in six distinct sections. These sections are entitled European Influences, American Influences, Science Empowers the Regulars, Resurgence of Natural Medicine, From European Nature Cure to American Naturopathy, and The Australian Experience.

Griggs (1997), Lyons and Petrucelli (1987) and Porter (1997) have been drawn upon to describe the temperate theme of post-Roman British natural medicine under the topic, European Influences. Such temperance appears to remain a crucial part of the contemporary natural medicine paradigm. Griggs (1997) also explains how herbal medicine gained prominence within the natural medicine paradigm, particularly as it competed with physick, and how King Henry VIII's Royal Charter protected its practice — apparently to the present. Lyons and Petrucelli (1987) and Porter (1997) explain how the evolution of European hydrotherapy and homeopathic theory and practice further expanded the natural medicine paradigm, and particularly influenced American practices.

Under the topic American Influences, Griggs (1997), Lyons and Petrucelli (1987) and Porter (1997) are drawn upon to describe the influence of American Indian medicine on the European settlers and the evolution of new medical practices such as osteopathy, chiropractic and spiritual healing. Colby (1846) and Griggs (1997) claim that the iatrogenesis which resulted from heroic North American physick resulted from, amongst other things, excessive bloodletting and heavy metal remedies such as the mercury based calomel. Colby (1846), Griggs (1997), Haller (1994), Lloyd (1909) and Lyons and Petrucelli (1987) are then drawn upon to describe the 19th century theories of Samuel Thomson, and Wooster Beach — both of whom were alarmed by physick iatrogenesis. Their theories and practices appear to have met the increasing public demand for safer, more gentle natural treatments. Thomson appears to have unashamedly adopted a

simple, but effective, homespun medical model based on ancient Greek natural medicine theories such as the four humours, the need for bodily balance of the four elements of earth, air, fire and water, and the living of a balanced temperate life. However, Thomson's regimes of elimination of toxins through vomiting and the warming of the body through steaming appear to have been more popular with the working class than the upper classes. Beech believed that Thomson's anti-intellectual attitudes, which encouraged the study of patients, instead of books had set back the cause of medical reform. He was determined to use the best of the natural medicine and physick practices — thus promoting his eclectic medical model which apparently utilised some physick toxic substances. The conflict between the Thomsonians and the Eclectics appears to resemble the contemporary debate within the natural medicine industry, between those who see natural medicine as a stand-alone profession and those who see it as being merely complementary to biomedicine.

Under the topic Science Empowers the Regulars, it is argued, by drawing on Griggs (1997), Lyons and Petrucelli (1987) and Porter (1997), that scientific discoveries influenced changes in physick practice — particularly the abandonment of heroic methods — and that drug-oriented medicine gained a monopoly. Also, they describe how the Industrial Revolution facilitated the establishment of hospitals and public health activities which increased the social and political power of corporatised medicine. As the working class became more prosperous following the Industrial Revolution, the herbalists' dark brown mixtures appeared to be old-fashioned when compared with new glamorously packaged and marketed patent medicines. As the power of the medical establishment grew, it appears to have continually harassed the natural medicine professions, unsuccessfully seeking their suppression. Griggs (1997) describes how drug-oriented medicine gained a monopoly in North America following the 1910 inquiry into medical education by Abraham Flexner. As Flexner appears to have concentrated on disease rather than health, he recommended that all medical education be underpinned by sciences which would prepare clients for the emerging pharmaceutical corporations. This resulted in the closure of all Irregular medical colleges.

In the section relating to the Resurgence of Natural Medicine, it is argued, by drawing on Griggs (1997), that the resurgence of popularity of natural medicine in Europe and North America occurred in the twentieth century. The reactions of the supporters of corporatised medicine are also described. This includes suppression by government and other agencies, and the use, and possible abuse, of science to disprove the safety and efficacy of natural medicine. The attempted suppressions of natural medicine practice, particularly since the 1960s are abuses of power by powerful interests, particularly as they seek to remove freedom of medical choice from consumers. Although biomedicine has gained a corporate monopoly in the West, and much natural medicine practice has been proscribed, regulated or suppressed, usage of natural medicine has increased to 80 per cent of the world population.

In the section, From European Nature Cure to American Naturopathy, it is argued by drawing on Endacott (1996), and Murray and Pizzorno (1990) that the evolution of the American naturopathic paradigm was influenced by the European nature cure paradigm. Bernard Lust, who created the term *naturopathy*, based his medical model on the Hippocratic theory of the healing power of nature, the temperate lifestyle recommended in post-Roman Europe, and aspects of European nature cure including fasting, hydrotherapy, physical exercises and food therapy. This successful evolution of the natural medicine paradigm over several millennia appears to have been dependant upon the uncompromising retention of its essential underpinnings.

The section, The Australian Experience, deals with Aboriginal healing, the influence of European settlers and physicians, various natural medicine practices, and the influence of the 1960s social revolution. Drawing on Chevallier (1996), Cochrane (1996), Cribb and Cribb (1990), Martyr (2002), Reynolds (1994) and others the thesis describes various aboriginal natural medicine practices: including the use of goanna, emu and eucalypt oils for massage and other processes; plant, clay and other food medicines; sniffing of aromatic plants and mixtures; setting of broken bones; spiritual and magical healing; healing ceremonies; bleeding and scarification; and steaming and fumigation.

The role of European physicians and settlers in post-settlement Australia, is described by Clacey (1852), Martyr (2002) and Oxley (1996). Also, Berigny (1855), Bradford (1897), Martyr (2002) and Templeton (1969) describe the introduction of European homeopathy and the creation of homeopathic hospitals. Further, Martyr (2002), O'Neill (1995) and Powell (2003) describe the evolution of various natural medicine practices such as medical herbalism and food as medicine, the development of professional associations and natural medicine colleges, and the government recognition and registration of certain modalities. Analysis of this literature suggests that following European settlement, the influences on the evolution of the natural medicine paradigms in Australia and North America are similar, in that, the indigenous natural medicine paradigm was influenced by, and influenced, the European natural medicine paradigm which arrived with the settlers. Further the American and Australian natural medicine paradigms then influenced global natural medicine theory and practice through the export of their native remedies.

1.4.7 Integrated Medicine

Chapter 8 examines the schism between biomedicine and natural medicine in order to develop an integrative medical model which allows their practitioners to work cooperatively for the benefit of clients in an atmosphere based on mutual recognition and respect. Le Fanu (1999) states that opportunities for the growth of natural medicine have been provided by the biomedicine system itself: through the professional dissatisfaction of its physicians; through public neurosis about health; and through increasing medical costs. He also claims that these, along with a dearth of new drugs, the failure of the Social Theory and The New Genetics, and the inappropriate application and overuse of technology, have marked the end of the Age of Biomedical Optimism.

The increasing usage of natural medicine throughout the world has prompted the WHO (2002, pp. 1–5) to promote the integration of natural medicine into national health care systems. The WHO suggests that biomedicine and what the relevant institutions and journals call Complementary and Alternative Medicine (CAM) ought to work genuinely together for the good of all. That approach expresses an orientation to using natural

therapies to supplement the services that biomedical practitioners currently control and deliver. However, Coates & Jobst (1998) claim that integration requires a much more challenging and at least equal two-sided approach, with the potential for much greater systemic rewards.

The literature suggests that for natural medicine to retain its paradigmatic integrity within an integrated medical model, it needs to retain its essential theoretical concepts and beliefs, including homeostasis, holism, the mind-body connection (Woodham and Peters, 2000, pp. 10-11), influences of the spiritual realm (Phalen, 1998, pp. 167-173), vitalism (Micozzi, 1996, pp. 10-11) and immunity, detoxification and digestion (Bratman, 1997, pp. 62-65). The importance of the retention of natural medicine paradigmatic integrity is further provided by Antonovsky (1991), Capra (1982), and Kaplan (1994) who, for example, claim that the theory of holism is fundamental to natural medicine as it holds that the human being is not a machine, but a living being in whom psychospiritual, emotional, moral and social factors impact both immediately and in the long term on health and illness. The theory holds that medical understanding and practice must take all those factors into account and treat the whole person, rather than an organ, system or disease condition in isolation (Engel, 1977; Fulder, 1998; Hoffmann, 1990). Further, Fulder (1998) claims that natural medicine often prescribes different treatments for different people with the same apparent disease (in terms of biomedical diagnosis), rather than the same treatment for all types of people with the same disease. It is hypothesised that it is the whole person who requires treatment, not the disease. Therefore, the best medical practice may involve education of clients and the public in their own preventive health care. According to the World Health Organization constitution, health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Fulder, 1998, p. 151).

Regardless of the need for the retention of natural medicine paradigmatic integrity, some forces are moving parts of natural medicine in other directions. For example, Bratman (1997, pp. 68) warns that the scientific transformation of American naturopathy has

eliminated its "nature cure" influences and it "is increasingly becoming yet another branch of the Western scientific tradition" (p. 69).

Two models of integrated medicine are examined in the thesis. The House of Lords (2000) reports on an existing UK model and Elliott Dacher (1996) describes his theoretical US model. However, both models appear to provide for the dominance of biomedicine practitioners over natural medicine practitioners, and therefore fail to meet the aim of this thesis for the integrated model to be based on mutual respect, recognition and cooperation.

The thesis concludes with an examination of the four models of integrated medicine already in operation in Australia; the Voluntary Integrated Model, the Client Controlled Model, the Third Party Model, and the Complementary Biomedicine Model. Each of these models are examined, in order to assess whether they meet the aims of the thesis.

1.4.8 Summary and Conclusions

Chapter 9 provides a summary of the research which is discussed in the thesis, and states that natural medicine provides numerous research opportunities. Some of these opportunities are described.

1.5 Conclusions

The literature suggests that, because of the rate of its adverse medical events, monopolistic corporatised biomedicine may be in crisis wherever it is practiced. Claims by the natural medicine industry as to the safety and efficacy of their practices continue to be disputed by some sections of the biomedicine industry, while other sections adopt parts of the natural medicine paradigm — seemingly oblivious to the need, as expressed by the natural medicine industry, for it to retain its paradigmatic integrity. It appears that an integrated medical model, incorporating both biomedicine and natural medicine has the potential to increase consumer choice and reduce the rate of adverse medical events.

The following chapter will commence the examination of the evolution of medicine. This will begin with an examination of general human evolution and an analysis of evidence of the evolution of human medical and general care up to the time of settled agriculture.

CHAPTER 2

PREHISTORIC EVOLUTION OF MEDICINE

2.1 Introduction

It is generally accepted among practitioners of natural medicine that the ancestry of their practice goes back many millennia. As archaeology and anthropology are often more interpretative arts than forensic sciences, questions about what humans were doing before written history began are sometimes difficult to answer. Consequently, theories of the social evolution of medicine are often in conflict with those of physical anthropologists (Fabrega, 1997, p. xii).

However, as many natural medicine practitioners describe themselves as being more "practical" or "spiritual" than "scientific", their explanations of the origins of human medicine appear to be so influenced. Theories and beliefs about the origins of human medicine abound, and include claims that humans possess special abilities — such as a dowsing instinct (Griggs, 1997, p. 1), a general instinct similar to that of animals (Griggs, 1997, p. 1; Lyons & Petrucelli, 1987, p. 22), and unconscious, intuitive selection and discovery processes (Low, 1990, p. 34). Other theories include learning through trial and error (Cochrane, 1996, p. 87), and by learned information being handed down and enlarged from generation to generation (Cochrane, 1996, p. 10). Some ancient and modern societies have attributed some, and in other cases, all, such discoveries to divine intervention through the medium of a god or gods, angels, saints, spirits, demons, the devil, or by priest-healers, other mediums or individuals either in dreams, or in the process of meditation, trances, prayer or other religious or spiritual activities. Some cultures have accepted the "doctrine of signatures", in which it is believed that nature has coded into the design of some plants, graphic information which points to their possible medicinal use (Griggs, 1997, p. 5), and which links humans and nature, microcosm and macrocosm, and is interwoven with astrology (Porter, 1997, p. 41).

Others believe that harmful plants such as stingers grow next to plants which can cure their effects (Low, 1990, p. 36).

Cochrane (1996) summarises one of her theories:

> Experiment and trial and error must have helped prehistoric people to discover that willow bark would make a pain killer, that marigolds stopped wounds festering and that witch hazel eased bruises. No doubt a few died in the investigations, but that too added to the knowledge handed down through the generations. (p. 87)

Diamond (1997, pp. 143–145) provides a different perspective, when he claims that because of their limited contact with other groups, hunter/gatherers would have had a stable disease profile, and that their medical knowledge would have been accumulated by intuitive and observational methods, along with the conscious exploration, development and verbal transmission of "plant lore".

Barbara Griggs (1997, pp. 1–2), a British herbalist, claims that the oldest form of human medicine was herbal based, and that tribal healers used their highly developed dowsing instinct to learn how to use herbs effectively. Griggs further claims that wild animals possess a similar instinct, as evidenced by their location near and consumption of plants required to improve their health, and their avoidance of plants with potential toxic side effects. Griggs also rhetorically asks, how else, aside from this instinct, could communities, widely spread throughout the world, come to similar conclusions and practices in relation to common herbs? An example of this common herbal practice is the use of a hot water extract of *Hibiscus rosa-sinensis* to aid menstruation, and for fertility regulation among primitive peoples of Fiji, Papua New Guinea, Samoa, India, Indonesia, Kuwait, New Britain, New Caledonia, Trinidad and Vietnam (Farnsworth, 1980, pp. 7–8; Griggs, 1997, pp. 1–2).

However, Kohler (1925, p. 385) suggests that the evolution of human medicine was influenced by the observation of, and learning from, animal behaviour, and Fabrega (1997, pp. 52–53) claims that the medical care practices of chimpanzees are related to those of early hominids. Williams (1998, p. 24) suggests that if animals can attain

medical knowledge and develop medical practices then humans must have also had these abilities "from the beginning". He claims that natural medicine was invented before the rise of *Homo sapiens*, as apes and monkeys can select and consume specific berries and herbs for a variety of medical purposes, including birth control, and that, when required, chimpanzees select leaves containing parasite-killing toxins. In order to experience an emetic effect, they ingest a precise dose-related quantity without chewing, so that the toxins are released in the mid-gut only.

This chapter will therefore examine the prehistoric evolution of human medical and general care from the perspective of its theoretical underpinnings and from general evolutionary theory. This will include discussion of the influence of medicine on the evolution of religion, and how the development of social cooperation was crucial to medical practice. Discussion of developments in religion, art and society will reveal the knowledge and skill levels of prehistoric peoples up to the time when humans evolved farming practices and entered history.

2.2 Human Evolution — From Lemurs to Farmers

Bronowski (1973, pp. 36–40) claims that the hominid line began 50 million years ago with the small tree-dwelling lemur, whose remains have been found outside Paris. Evolution through the main ape-and-human line produced the relatives of humans from about 5 million years ago. Fossil skulls found in Africa suggest that these ancestors were capable of walking on two legs and, when fully erect, were about 1.1 metres high, and that their brains were the size of a modern big ape. By 2 million years ago the brain was larger, thus allowing for two major inventions. The first invention was a rudimentary stone tool which required a simple blow to put a sharp edge on a flint or other stone material. This design did not change for the next million years, possibly because these ancestors had short thumbs, which restricted general manipulation; however, it did allow for a power grip on the stone tool, with the thick end pressed against the palm. The tool had numerous uses, but was a functional meat eater's tool, as it could be used to both strike and cut. The second invention was socialisation. Skeletal remains show that most of these ancestors died before the age of twenty, leaving many orphans who, like all

primates, were fully dependent on others for their survival through their long childhood. Their cultural change would have been enhanced through community general care and education, which also helped ensure the survival of the species.

During the last million years, human beings have made many new tools. This has required a higher degree of manual dexterity in their production and use, which suggests biological refinement in the hand and its related brain centres. The elaboration of new behaviour, such as skills refinement and the use of fire are examples of the biological and cultural content of evolution. Because behaviour and behavioural changes leave no fossils, researchers must rely on surviving bones, teeth, and tools to reveal changes in behaviour and skill (Bronowski, 1973, p. 41).

There is no evidence of change of the modal form of human bodies and brains in the past 100,000 years, so during the last 10,000 years "the entire panoply of human civilisation for better or for worse has been built upon the capacities of an unaltered brain" (Gould, 1996, p. 220).

The 50 million year evolution of people has involved significant dietary changes. The lemurs were nimble-eyed and delicate-fingered insect and fruit eaters, and the early apes and hominids were probably vegetarian. Consumption of animals, along with plant foods, occurred by the time of *Homo erectus*, the Neanderthals, and *Homo sapiens.* Meat consumption was based on small animals at first, and then larger ones. As meat is a more concentrated source of protein than plants, its consumption reduced food bulk and eating time by two-thirds, thus providing more free time — with far-reaching evolutionary consequences (Bronowski, 1973, p. 42). This additional time allowed for planning the hunting of larger and potentially more-dangerous animals, which could not be tackled by mere brute force. Natural selection helped to promote the tendency of all primates to interpose an internal delay in the brain between stimulus and response, until it developed into the full human ability to postpone the gratification of desire (Bronowski, 1973, p. 45).

Group hunting activities required conscious planning and organisation, and fostered social action and communication through the development of language and special weapons. Humans could successfully stalk, pursue and corner larger, faster and possibly more dangerous animals only through cooperation. Also, Savannah hunting groups could be successful only if their population density did not exceed two people "to the square mile". As populations grew, the seasons changed and animals migrated; the stark reality for hunters was that if they did not move, they would starve. Their movement was prodigious, as they had migrated from central to North Africa by a million years ago, had reached Java by 700,000 years ago, and China and Europe by 400,000 years ago. Even though these migrations were extensive, geographically, the total world population probably was, by then, about one million (Bronowski, 1973, p. 45).

The northern climate had been temperate for several hundred million years, yet as humans arrived a sequence of three separate Ice Ages began. Shelter was taken in caves, and fire was used for the first time (Bronowski, 1973, pp. 45–46). As the ice boundary advanced from the poles, consuming great quantities of the Earth's water, the sea level fell 130 metres. The Neanderthals, with their larger brains, appeared after the second Ice Age more than 200,000 years ago, and became increasingly important, in evolutionary terms, during the third and last Ice Age. This was a period of invention and technological advancement, and it produced elaborate tools for more sophisticated hunting practices, including spear throwing and the use of the fully barbed harpoon. Tool making was generally enhanced by the development of flint mastering tools, which facilitated the shaping of flint into razor-sharp edges (Bronowski, 1973, p. 46).

The Neanderthals and the *Homo sapiens* were mobile hunter-gatherers who lived mainly in small tribal or family groups. The Neanderthal period ranged from about 200,000 to about 40,000 years ago, and the *Homo sapiens* period commenced about 100,000 years ago (Rudgley, 2000. pp. 153–154). The Neanderthals lived in Europe and Western Asia, and differed physically from *Homo sapiens* in several ways. They tended to be shorter, their jaws were drawn more forward, they had a shorter nose, no chin, and their pelvis was not designed for long-distance walking. However, they had a larger brain cavity —

the size of modern humans — and were capable of speech. Whether the Neanderthals became extinct through disease, or extreme changes in the weather, or competition following contact with *Homo sapiens* who moved north from Africa as they moved south to the Mediterranean, or whether they inter-bred with the *Homo sapiens*, are matters of conjecture. Their importance to this research is that they, like the *Homo sapiens*, were caring to their fellows and had developed some sophistication in medical knowledge and technique. Their care of others is observed in their efforts to bury their dead from at least 60,000 years ago (Griggs, 1997, p. 1; Rudgley, 2000, pp. 155–157).

Humans survived the fierce test of the Ice Ages because they had the flexibility of mind to recognise inventions and to turn them into community property. Also, dietary changes occurred through their greater reliance on animal food sources, and hunters on the edge of the ice found it more productive to follow migrating herds of animals than to stalk single animals (Bronowski, 1973, p. 46).

Porter (1997, p. 17) claims that farming developed in response to mankind's inherent progressiveness rather than from population pressure and the depletion of game supplies, which arose from the melting of the ice caps at the end of the last Ice Age, around 13,000 BCE. That Ice Age had commenced around 50,000 BCE and facilitated the already established hunter-gatherer migration out of Africa into all continents.

It is likely that prehistoric hunter-gatherers were similar to their contemporary equivalents in that they worked about 4 hours daily to acquire their food. The term "original affluent society" was applied to hunter-gatherers by American anthropologist Marshall Sahlins (1972; cited in Rudgley, 2000, p. 96), because their material needs were modest and easily satisfied.

As the hunter-gatherers migrated across the continents, they often lived in dangerous, harsh and unpredictable environments, which frequently led to relatively short life spans (Porter, 1997, pp. 15–17). Some suffered painful arthritis, or were lame from broken limbs which did not mend correctly. As they migrated they were themselves colonised

by potentially harmful creatures such as parasites and pathogens, including worms, fleas, ticks, arthropods, and micro-organisms such as bacteria, viruses and protozoans. Porter claims that one compensation for survivors was immunity from reinfection. Also, skin wounds were susceptible to penetration by soil-borne anaerobic bacteria which could produce gangrene and botulism, and animals such as wolves could spread anthrax and rabies. Further, the consumption of raw animal flesh could produce general infection, and transmit microbes of relapsing fever, brucellosis and haemorrhagic fevers. Other bacteria could produce syphilis and a similar skin infection, yaws.

Regardless of the above, skeletal remains reveal that the Neolithic hunter-gatherers were, on the whole, in good condition. However, similar studies from five continents show that following settled agriculture, general health and life expectancy deteriorated. Just as is the case on existing family farms, the work can be exhausting and seemingly never-ending. Also, settled agriculture introduced new diseases to humans, as living close to domesticated animals brought about transmission of several animal diseases including rickets, diphtheria, beriberi and leprosy. Hunter-gatherers consume meat from the relatively lean wild game. Settled agriculture brought about consumption of domesticated cattle and other meat sources with their associated much higher fat content. The later consumption of milk, cheese and other dairy products caused cholesterol levels to rise, and the introduction to humans of at least 30 different diseases that were transmitted through milk (Diamond, 1997, pp. 88, 195–214; Rudgley, 2000, p. 96).

As hunter-gatherers became shepherds and farmers, the seeds of disease were sown (Porter, 1997, pp. 18–19). Prolific pathogens, once exclusive to animals, were transferred to humans — who now share 65 micro-organic diseases with dogs, and slightly fewer with cattle, sheep, goats, pigs, horses and poultry. The proximity to animals created many of the worst human diseases including tuberculosis and viral poxes such as smallpox from cattle; influenzas from pigs and ducks; rhinoviruses and the common cold from horses; measles from dogs or cattle; and salmonella from cats, dogs, ducks, hens, rats, mice and reptiles. Animal faeces in drinking water can spread polio, cholera, typhoid, viral hepatitis, whooping cough and diphtheria. Permanent

settlement provided great opportunities for "insects, vermin and parasites, while food stored in granaries became infested with insects, bacteria, fungoid toxins and rodent excrement" (p. 19).

Regardless of all of these problems, the world human population grew — from around 5 million in 10,000 BCE prior to settled agriculture, to around 100 million by 500 BCE, and may have doubled to 200 million by the 2nd century CE (Porter, 1997, p. 22). In 1990, it was 5292 million and is estimated to be 12,000 million by 2100. Also, population density increased as survivors of epidemics and other health challenges acquired some protection from the ceaseless assault by micro-organisms, through the mechanisms of evolutionary biological adaptation, resulting in the development of sophisticated immune systems. Further, infants received some defence against germ invasion through placental transfer and breast milk. The importance of immunity to the natural medicine paradigm will be discussed later.

2.3 Human Medical and General Care

The development of human medical practice is consistent with an evolutionary trend that may have begun in animals, and became specialised in the hominid line; that is, that many behaviours involved in "care giving" that were associated with earlier adaptations were elaborated (Fabrega, 1997, p. 60). In times of illness, nearly all individuals are disposed to self-heal or self-medicate, and the disposition to heal oneself, or another, appear to constitute a product of natural selection, and to be complemented by cultural evolution.

Modern *Homo sapiens* emerged about 40,000 years ago, and are held to conform with contemporary humans in relation to their anatomy, behaviour, genes, language and associated forms of cognition. Knight (1991; cited in Fabrega, 1997) says that their provision of medical care "could have operated as a root structure that generated such basic human experiences as those involving vulnerability, suffering, need, hope, faith, solicitude and caring, mortality, privation and loss, bereavement, and perpetuity" (p. 54). Such a range of experiences could lead to the development of rituals and mythical

narratives and provide a basis for "political agreements, rules and contracts that are foundational to the maintenance of social structure continuity across generations" (p. 54). This suggests that the provision of medical care significantly contributes to the core of cultural development in a community.

Wright explains that the concept of care is related to altruism, compassion, empathy, love, conscience and a sense of justice, which are the qualities that reputedly hold a society together. All of these qualities have a firm genetic base, did not "evolve for the 'good of the species' and aren't reliably employed to that end", as they may be switched on or off with brutal flexibility to preserve self-interest (Wright, 1996, pp. 12–13).

As medicine evolved, individuals developed an awareness of concepts such as fraudulent illness and fraudulent healing. Fraudulent illness involves cheating, deception, the reaping of selfish rewards, and wasted group resources and time. However, the evolution of this concept may have implications for the unconscious creation of illness, and the unconscious but real psychosomatic bases of some illnesses and their associated healing (Fabrega, 1997, pp. 61–63).

As some individuals choose to create fraudulent illness, some others may choose to participate in fraudulent healing. The natural authentic boundary to healing exists where individuals offer a service "that could potentially help and was not wasteful" (Fabrega, 1997, p. 64). Clearly, those involved in providing medical services have opportunities to deceive, manipulate and cheat, and those who do, are either "motivated by self-interest and engage in fabricated fictive acts ... to incur advantages from others", or exploit "its potential for resources, power, or special privileges". It is implied that the "origins and evolution of healing exploitation have roots in evolutionary biology", and can be construed as being part of cultural evolution. To be effective, medicine needs to be able to recognise authentic illness, and be safe, efficacious and efficient (p. 64).

Fabrega (1997) believes that the early providers of medical care would have required a substantial cognitive capacity to diagnose authentic disease conditions, and that their

practice enhanced interpersonal bonding. As individuals requiring medical care could exhibit suffering, pain and distress, in response, the health care provider could experience empathy, compassion and altruism. It is possible that either or both parties could also experience worry, concern, sadness, loss, grief and more "positive emotions such as optimism, trust, confidence, faith, reassurance, caring and hope". These emotional responses "are mental states that were selected by important environmental contingencies" (p. 67).

Fabrega (1997) also claims that the evolution of medicine has been influenced by both biological/psychological and social/cultural factors. Healing is a natural response of local individuals, as in times of trauma or illness, all group members would assist. Although family members would usually assume greater responsibility, over time, more-experienced or knowledgeable individuals from outside the immediate family would play a leading role, thus enlarging the family knowledge and skills base. This would lead to the classification of disease into groups such as "minor/serious, acute/chronic, traumatic/non-traumatic, safe/dangerous" (p. 71). These early cultural aspects of medical care are elaborations of the basic psychological adaptation that is at the base of medicine as a social institution. Later developments would see clarification of the role of the true healer, more personalised and specialised service to clients, and the competition between healers would determine market rates. With the development of competition, consumers would become more demanding and have increasing expectations, which would shape the behaviours of the participants (p. 72).

Also, Fabrega (1997, p. 71) claims that although positive emotions may assist the healing process, the emotions that are generated by faith and hope may serve as a precondition for the patient, the healer, and others to use emerging ritualistic activities, to seek help from the spiritual realm, possibly from ancestors' spirits. These activities relate to religion, the supernatural, the individual's fear of danger, and concerns about death and all that it precedes. As much illness terminates in death, those who believed in an after-life could continue their care after death. They would care for the body and ensure its correct disposal. They may also care for the spirit through appropriate rituals.

Providing for a departed relative, for example, could merely be seen as further healing. In this way, medical care "can be viewed as itself instrumental in the evolution of concepts pertaining to the spiritual domain and afterlife and religion" (p. 73).

Conceptual refinements in medicine were facilitated by the Neanderthals and *Homo sapiens*, who on meeting other similar groups would presumably exchange general information and knowledge, including medical knowledge and skill, and medicines (Cochrane, 1996, pp. 10, 48). In primitive hunter-gatherer societies there was a broad division of labour; usually, men hunted the animals and women gathered the plants and less mobile animal edibles. Therefore, it would probably have been women who developed the basic techniques and knowledge base of natural medicine for everyday nutritional use. Women would have been essential as midwives, and as teachers of younger women about general tribal matters, and more personal matters, such as the workings of their urogenital systems, particularly relating to menstruation cycles, pregnancy and birth. As Gage (1893, p. 240) points out, women in primitive societies and in post-Roman Europe were usually the herbalists, and it is still generally the case in families across the globe that women are the primary family healers (Capra, 1982, p. 121).

Following death, whether the body is buried or not, the soft parts gradually disappear, but the bones can remain for thousands of years. From these, archaeologists and palaeopathologists have discovered evidence of prehistoric surgery and repair to broken bones, which suggest that limbs have been splinted, and considerable nursing care provided (Allday, 1969, p. 7). There is evidence that medical care was exercised as early as 95,000 years ago. A middle Palaeolithic *Homo sapiens* skull of an 11-year-old boy, from a cave in Israel, shows a traumatic head injury that caused a hole in the skull. The bone had healed and the boy survived, due to the quality care he must have received over a considerable period (Rudgley, 2000, p. 155).

Two Neanderthal burial sites provide further evidence of "early" medical activity and care. First, in Northern Iraq, a 46,000-year-old skeleton of a 40-year-old man revealed

that the right side of his body was withered and underdeveloped, probably from birth, and his right arm had been amputated just above the elbow. He also suffered from arthritis and a number of traumatic injuries to the head, and may have been blind in his left eye. This man probably required considerable care and assistance for all of his life. In his group of mobile hunters this would have posed many difficulties. Also, the fact that his amputation was successful indicates a sophisticated level of medical knowledge and surgical skill (Rudgley, 2000, pp. 154–155). Second, a 60,000-year-old Neanderthal burial site in Iraq contained six medicinal herbs that are still used as folk remedies in Iraq and the West — including *achillea*, *senecio*, *althea*, *muscari* and *ephedra*. There could be many explanations for the presence of the herbs in the grave, but with the recent discovery of early Neanderthal medical knowledge and surgical skill, it is probable that they also used the herbs medicinally (Griggs, 1997, p. 1; Rudgley, 2000, pp. 155–157).

Stone Age people have left little evidence of all that they knew. Their obvious skills in carving are significant, and their techniques of tool making are so difficult to emulate, that only a few archaeologists are capable of it (Shreeve, 1995, p. 53). Their general intelligence and skill are indicated by their ability to perform the delicate operation of trepanation, whereby a small hole is drilled in the skull, probably to reduce pressure on the brain and cure headaches. Their surgical technique required a delicate touch to remove a part of the bone without damaging the brain. Evidence of Stone Age trepanation comes from Babylon, Egypt, Peru, Mexico, China, and Europe (Allday, 1969, pp. 5–7; Cochrane, 1996, pp. 10, 48; Rudgley, 2000, p. 62). Stone Age people were producing surgery quality obsidian scalpels which have been duplicated and used in a trial in modern surgery — the surgeon claiming that it was better than a metal one (Shreeve, 1995, p. 134).

Palaeopathologists can identify whether a hole in a prehistoric skull was made by trepanation, and whether the bone healed to seal the hole during the patient's life. Of 400 trepanned skulls examined by one researcher, 250 had belonged to patients who recovered from the operation, and the outcomes of the other trepanations are

inconclusive (Allday, 1969, p. 7). This is, in itself, remarkable, as prior to the "antiseptic era", 18th and 19th century European surgeons were reluctant to perform trepanation, because the great majority of patients died. This superior Stone Age success rate suggests that some knowledge or skill available to their surgeons was later lost. The earliest healed neurosurgical operation known is a trepanation performed 7300 years ago on a woman whose trepanned skull was found in a Neolithic burial site in Alsace (France). This and the other discoveries testify to the high level of skill, and anatomical and medical knowledge of these prehistoric surgeons (Rudgley, 2000, pp. 60–61).

As surgery on soft tissue does not usually leave any signs on the skeleton it is not possible to assess Stone Age surgeons' skill and knowledge in this area. However, their skill in dentistry is revealed in a drilled tooth located in the jaw of a 5000-year-old Neolithic skull from a grave in Denmark. The drilled circular hole passes completely through the tooth, is more than 2 mm in diameter; the grooves created by the drill are evidenced on the wall of the hole (Rudgley, 2000, p. 62). It is not inconceivable that surgeons who can amputate limbs, trepan skulls and drill teeth could also be involved in soft tissue surgery.

The question of Stone Age use of herbal medicine poses a problem similar to that for soft tissue surgery detailed above. The botanical remains from various prehistoric sites across the world provide widespread evidence of the presence of medicinal plants, so they were at least known to and harvested by Neolithic people, and used in some way. The range of plants that could have been used for their anaesthetic and other medical properties include *opium* (from which morphine is derived), *cannabis, henbane* and other nightshades with narcotic properties, and *coca* (the source of cocaine) (Rudgley, 2000, p. 62). It is probable that these plants and their derivatives were also used for recreational, religious and other spiritual purposes.

Fabrega (1997) provides a biochemical theory for the increasing importance of herbal medicine during the evolution of the hominid line. He theorises that the consumption of plants containing secondary chemicals, termed allelochemicals, was essential for the

detoxification of certain plant foods in order to enhance the growth, health and behaviour of organisms. As hominid culture evolved, consumption of animal flesh and other products increased, and consumption of plants containing the useful allelochemicals decreased. This brought about a more elaborate use of herbs for specific medicinal purposes, including the detoxification of the effects of plant and animal substances such as bacterial contamination of food, and the role of bacteria in the flora of the small intestine. The increasing usage and importance of herbal medicine thus evolved through the "chemical ecology of adaptation and health" (p. 22).

Biological and cultural factors are related to the evolution and definition of medicine. Although "the use of plants is the biological prototype for human medicine and the ingestion of clay to absorb plant toxins has a biological basis", in the absence of a cultural component these behaviours cannot be deemed to be medicine (Johns, 1990, p. 258). The cultural component emerged as "humans began to rely on learned knowledge and to communicate it from generation to generation". In this way the therapeutic use of plants "evolved from a biologic, genetically determined behaviour to a cultural practice" that may be recognised as medicine. From this, herbal medicine may be seen to be one of the original forms of human medicine, and that its development arose from the ability of humans to learn (p. 258).

2.4 Religion, Art, Society

Theoretical assumptions about biological and cultural evolution are useful in providing a theoretical basis for the evolution of animals and humans, and to such matters as medicine and concepts of care. However, the archaeological record allows for more accurate and detailed description of the prehistoric life, including medicine, religion, art and society.

Stone Age people have much in common with sections of modern society, as they were intelligent, resourceful, artistic, creative, practical and skilful (Rudgley, 2000, p. xi). They loved and they were loved, and they cared for their fellows and assisted them in their times of need. They also had a spiritual side. Stone Age people in Europe and Asia

drank wine, beer and mead, and from even earlier times used opium and cannabis (p. xi). Prehistoric people developed spiritual and religious beliefs that were so compelling they constructed magnificent stone temples of breathtaking complexity above and below the ground. The 23 prehistoric stone temples of Malta are the oldest surviving examples of these temples. Construction commenced around 5500 years ago — a thousand years before the building of the Great Pyramid on the Egyptian Giza Plateau. The walls of the Malta temples rise up to 6 metres above ground and some of the stone blocks which had to be cut and moved on to the site weigh up to 50 tons. Evidence found on-site suggests that the religion involved animal sacrifice and goddess worship (pp. 12-23). Evidence of earlier goddess worship was discovered in the Czech Republic, through a 26,000-year-old fired clay sculpture of an Ice Age Goddess (p. 101). It is probable that the long history of goddess worship related to the worship of "mother earth" or "mother nature". If so, the worship would probably have revered the cycles of nature, and the adherents would have sought to live their lives in harmony with nature.

During the last Ice Age, caves were often used as natural temples on mainland Europe. Some of the caves in France contain engravings that were made up to 15,000 years ago and paintings at Chauvet from 31,000 years ago. Radiocarbon dating in the cave at Cougnac shows a differential of 10,000 years between the earliest and latest prehistoric paintings, which are numerous depictions of animals (Shreeve, 1995, p. 307). None of them show scenes of fighting or warfare, which is in contrast with the ancient Egyptian art, where scenes of war and conquest are commonplace. One evolving theory is that the animals were painted as a form of hunting magic, or as a symbolic way of bringing good fortune to the hunters. When the 20th century artist Pablo Picasso visited the Lascaux cave, with its exquisite paintings of horses and bulls, completed 17,000 years previously, he said that modern artists had not invented anything new. Previously, art historians had developed an evolutionary theory of art, which claimed that perspective was an innovation of the Renaissance; clearly it was merely a re-emergence of the lost knowledge of the Ice Age. In 1994, when the 31,000-year-old Chauvet cave paintings were re-discovered, the artistic concept of perspective was taken back to even earlier times (Rudgley, 2000, pp. 124–141). The important theoretical concept here is that much

of what is learned by one or more generations may be lost to later generations, unless it is rediscovered. The history of medicine frequently shows that skills and knowledge "have been lost because the new has been preferred to the old" (Allday, 1969, p. 7).

The French cave paintings have a religious and philosophical perspective. Rudgley (2000, p. 143) points out that folk beliefs across many societies have seen the cave as a symbolic womb, and its usually narrower entrance as a symbolic vagina. The animals are therefore painted on the "womb of mother earth", or the Goddess. Bronowski (1973, p. 54) wonders why Stone Age people expressed themselves in this way, on the walls of caves in which they did not live and which were dark, secret, remote, hidden and relatively inaccessible. He suggests that the caves could have been used to orientate hunters to the dangers of the hunt, and assist them to overcome their fears. It seems reasonable to suggest, then, that the caves probably had a multiplicity of uses, including spiritual or religious observance, as an art gallery and as a form of educational centre in which hunters could mentally rehearse, and in other ways be prepared for the hunt of the animals depicted on the walls. Sitting on the floor of the darkened cave focussing on the pictures on the wall as light is directed on to them, possibly as an older hunter describes various scenarios, or possibly in silent mental rehearsal, is not so dissimilar from sitting in a modern darkened lecture theatre observing an overhead projection presentation.

Further archaeological evidence of artistic development includes a 32,000-year-old ivory carving of an exquisite miniature horse, found in Germany (Shreeve, 1995, p. 267), and a 30,000-year-old mammoth tusk carved into a detailed 30-cm statue of a lion-man (p. 306). The general archaeological evidence suggests that the people who lived in the Upper Palaeolithic period around 30,000 years ago probably introduced symbol, art, metaphor, and story during a widespread creative explosion which also saw many new inventions.

Shreeve (1995, p. 314) also theorises that the Neanderthal spirituality was similar to that of the nature spirits of modern hunter-gatherers, except that whereas some Moderns may identify with the different spirits within the earth — the animal, the food or the blade of

grass — and deal with them as separate entities, the Neanderthals' spirit was a single vital force which was a part of all things, and therefore a part of all events, including healing and illness. This concept of vitalism, and its significance to the natural medicine paradigm, will be further discussed later in this study.

2.5 Cooperation

The provision of medical services usually requires a degree of cooperation by the participants. Whereas human family members probably learned the value of cooperation more than one million years ago, inter-group cooperation has proved to be more elusive. During the last Ice Age, the Neanderthals learned to cooperate with other group members, as they were forced to hunt larger, more dangerous animals, possibly because of their greater metabolic need for fat for warmth. The planning of the hunt required increased social interaction and cooperation, as the hunters had not developed any new hunting tools (Shreeve 1995, p. 262). This increased social interaction facilitated the development of language and alliance. Negotiations between individuals or groups require quality language, but successful negotiations also require a social climate conducive to cooperative relationships. Some groups may have formed limited alliances for specific projects, such as a hunt, and these would have had the potential to develop into stronger general alliances, or degenerate into conflict (p. 311).

In this climate of cooperation, thoughts would be expressed, and move within the group to those capable of understanding them, potentially increasing the knowledge base of all members of the group. Those who increased their knowledge base in this way would have had a competitive advantage over those who did not. Cooperation within the group would maximise the potential for knowledge growth by individuals within the group, so cooperative groups would have a competitive advantage over neighbouring groups who were less cooperative, and maximise their chances of survival (Shreeve, 1995, p. 262).

As cooperation makes life easier for humans, there are numerous examples of inter-group cooperation. Not only are humans unique in their capacity for inter-group cooperation, they are dependent upon it for their survival. About 30,000 years ago

xenophobic inter-group alienation was common, as groups attempted to outwit one another; but one compelling explanation for the explodingly creative culture of the period is that the cooperation/competition nexus was moved in favour of cooperation — the species invested in "getting along with itself. The payoff was equally impressive. After four million years of stasis, humankind inherited the earth" (Shreeve, 1995, p. 297).

2.6 Conclusions

The biological and cultural evolution of humans in prehistory allowed them to create magnificent arts and crafts, and impressive monumental architecture, such as stone temples in which they practiced their religion. The development of religion was probably influenced by advances in medicine, as the body and soul were cared for, before and after death. The last Ice Age provided opportunities for humans to learn the value of cooperation, as they organised to hunt larger animals prior to the move to settled agriculture. The Agricultural Revolution yielded many cultural changes such as settlement, new diets, and new work practices, but agricultural work was harder and more time consuming than that required of the hunter-gatherer. Dietary changes, including the consumption of domesticated animals, coupled with working and living close to domesticated animals, transferred numerous new diseases from animals to humans, and life expectancy was reduced. Humans therefore entered history, which appears to be marked by the development of writing and recording in Mesopotamia and Egypt, in a depleted physical state.

CHAPTER 3

NATURAL MEDICINE FROM ANTIQUITY

3.1 Introduction

The previous chapter traced the prehistoric evolution of medicine up to the time of settled agriculture — the new settlements creating an environment that seems to have produced many health challenges. This chapter will follow the further evolution of medicine, from the time at which history is purported to have commenced. This account will begin with the apparently corporatised ancient Mesopotamian and Egyptian medical paradigms, which were a mix of religious, magical, spiritual, and medical theories and beliefs. The influence of the Christian Church in suppressing Egyptian language and medicine following the Greek and Roman invasions will be discussed. Next, the non-corporatised Greek and Roman Medical paradigms will be examined from several perspectives, including their influence on contemporary and later cultures. The dominance of Greek and Roman medical paradigms will be assessed, particularly from the perspective of Hippocratic and Galenic medical theories and practices, which, as well as promoting the healing power of nature, separated medicine from religion, and influenced European medicine for more than a millennia. Following the fall of Rome, the power of the Christian Church increased throughout Europe, as it banned the study of medicine, and for five centuries monopolised formal medical practice through its monasteries. This chapter will also refer to ancient natural medicine philosophies, theories and practices which form part of the modern natural medicine paradigm.

3.2 Mesopotamia

3.2.1 Mesopotamian Cultural Evolution

Mesopotamia means "the land between the rivers", and was located between the Tigris and Euphrates rivers in part of modern day Iraq. This warm and fertile region was a

"land of plenty", and by 3000 BCE contained some of the world's first great civilisations. In the Neolithic age (4000–2000 BCE), towns, trade and writing developed. This region advanced the concept of agrarian and urban living, cities, monumental architecture, agriculture, division of labour, art, government, trade, writing, religion, and medicine. Other innovations included metallurgy, the wheel, the arch, the 60-minute hour, clock dials, uniform weights and measures, and astronomy and astrology which were used in medicine. All of the various Mesopotamian Kingdoms have left considerable archaeological and written remains, which has allowed for reconstructions depicting their dynasties and deities, their associated agrarian and bureaucratic infrastructures, and much of their medicine (Ergil et al., 1997, pp. 12–14; Lyons & Petrucelli, 1987, p. 59; Porter, 1997, p. 44).

Ergil et al. (1997, p. 13) state that the first known writing was developed around 3500 BCE, and that records were created by pressing symbols into damp clay tablets, which were then dried and hardened through baking. Whereas these clay tablets may appear to be relatively heavy, bulky and brittle, they have proven to be a far superior method of recording and saving data than numerous paper and electronic recording and storage systems developed in the last century, which are now unusable for a variety of reasons, including from being eaten by insects, to loss of technological skill and knowledge. Of the 30,000 tablets discovered, about 1000 relate to medicine, and mainly date from the 7th century BCE, but the healing traditions they record are much older (Porter, 1997, p. 45).

3.2.2 Mesopotamian Medical Theory

The Mesopotamian medical paradigm was intertwined with medical, religious, and spiritual theories (Porter, 1997, p. 46). One theory held that health was a positive gift, and illness was punishment for sin. The sin could involve an insult to a particular god, resulting in loss of protection of a guardian spirit, thus allowing possession by a demon, and illness from its particular disease (Lyons & Petrucelli, 1987, pp. 63, 71). The Mesopotamians also theorised that although supernatural powers were the cause of most illness, other causes of disease included the excesses of nature such as cold and dry

climates, and the presence of dust, putrescence and malnutrition. From the 2nd millennium BCE they were also aware of the dangers posed by contagion, as they moved whole villages to avoid the risk (Ergil et al., 1997, p. 25). Theory also held that healing would be enhanced by astrology, the casting of horoscopes, and sooth saying (Porter, 1997, p. 46).

3.2.3 Mesopotamian Medical Practice

Ergil et al. (1997, pp. 15–16), Lyons and Petrucelli (1987, p. 63) and Porter (1997, p. 45) explain how formal medical practice involved a combination of religious rites and empirical treatments. Divination was provided by a seer, prayer, purification rituals, incantations and exorcisms by a priest, and medicines, bandaging and surgery by a physician. Diagnosis was assisted by intuition supported by various techniques that included the observation of a flickering flame and divination, the latter involving examination of sacrificed animal livers.

Porter (1997) states that the most important medical text discovered is entitled *The Treatise of Medical Diagnosis and Prognosis,* which contains 3000 entries on 40 tablets, with details of various symptoms. For example, one entry which may relate to tuberculosis reads: "The patient coughs continually. What he coughs up is thick and frequently bloody. His breathing sounds like a flute. His hand is cold, his feet are warm. He sweats easily and his heart activity is disturbed" (cited in Porter, 1997, p. 45).

The tablets contain several laws that appear to regulate various aspects of medicine, including treatment fees, and penalties for iatrogenesis and general treatment failure, on class-based sliding scales. For example, iatrogenesis causing the loss of an eye, or death, of a gentleman could result in amputation of a physician's hands, but for a slave would require the repayment of half the fee, or the replacement of the slave. It is significant that iatrogenesis was considered to be such a problem that the law provided for the physical and financial punishment of physicians for their mistakes. The level of medical fees (Pollak, 1968, pp. 13–14; Porter, 1997, p. 46) suggests that the lower classes, who could not have afforded them, would have been treated elsewhere.

Whereas the above implies the existence of government-regulated medicine, Lyons and Petrucelli (1987, pp. 67, 68) claim that barbers also practiced medicine and surgery. Further evidence for the existence of non-regulated medicine is provided by the "Father of History", the Greek, Herodotus (484–425 BCE), who wrote, "they bring their sick to the marketplace, for they have no doctors. And there someone steps up to the sick man and gives him good counsel" (Pollak, 1968, p. 12). Pollak holds that Herodotus was wrong to claim that "they have no doctors" (p. 12), as there were physicians, then. However, it is possible that Herodotus would have been aware of that, and was merely commenting on the availability of physicians to the particular class of persons in the marketplace at that time. The level of medical fees would have kept physicians out of this part of medical practice, and the vacuum thus created could have been filled by others. The marketplace scenario described above is not dissimilar from prehistoric medical scenarios, where community members would freely share knowledge and skill with others in need. The physicians, who were also priests, were ranked among the privileged classes of educated society, because they were educated in medical schools attached to temples in larger population centres (Lyons & Petrucelli, 1987, p. 67). However, the informal healers would probably have had no formal recognition.

The *materia medica* of the Babylonians was extensive and referred to 150 mineral substances and more than 250 vegetable substances (Ergil et al., 1997, p. 23), as well as various fats, oils, honey, wax, milk, and active ingredients including mustard, oleander, and hellebore. Laxative medical agents included colocynth, senna and castor oil, and through distillation, they made essence of cedar and other volatile oils.

Ergil et al., (1997, p. 24) describes a tablet from about 2000 BCE which contains the oldest medical record in existence, and details how doctors treated wounds. The "three healing gestures" to be utilised were washing of the wound, which was not mentioned in Egyptian medicine, making plasters, and bandaging. Fifteen separate prescriptions for various medicines, ointments and plasters are recorded on the tablet, which included raw material ingredients such as milk, thyme, date palm, snake skin, beer, myrrh, fig,

mustard, willow and salt. Surgery involved lancing boils, bloodletting, scraping the skull to remove an abscess or cyst under the scalp, and possibly cataract removal. There are also references to cutting into the chest (p. 28). Post-operative care required the following:

> Wash a fine linen in water, soak it in oil, and put it on the wound. Crush powder of acacia and ammonia salt, and put it on the wound; let the dressing stand for three days. When you remove it, wash a fine linen in water, soak it in oil, put it on the wound, and knot a bandage over it. Leave the dressing three more days. Thus continue the dressing until healing ensues. (p. 28)

Some medicines were liquids which were dissolved in beer before drinking. One example reads: "Crush to powder the seeds of the carpenteris herb, the gummy resin of the markazi plant, and thyme; dissolve in beer and give to the man to drink" (Ergil et al., 1997, p. 24). This 4000-year-old medical record is notable in that unlike later records there is no mention of magic, sorcery or demons (p. 25).

The range of disease conditions recorded in the clay tablets, mainly from the 7th century BCE, was extensive and included migraines, earache, pneumonia, anxiety, jaundice, insomnia, tuberculosis, anorexia, hearing loss, impotence, toothache, bronchitis, stroke, haemorrhoids, mental illness, and gynaecological problems. Birth control was also mentioned (Ergil et al., 1997, p. 25).

Midwives and female relatives assisted with childbirth, and physicians could be contacted if complications arose (Ergil et al., 1997, p. 27). Women could receive general gynaecological assistance, through the use of prescribed medicines, for assistance with conception and the easing of pain of labour and childbirth. Spontaneous abortion could apparently be achieved by a special mixture of eight ingredients mixed in wine, and ingested on an empty stomach. Coincidentally, an Assyrian law provided the death penalty for a woman who wilfully self-aborted, as this denied a man the right to father a child within a marriage.

Lyons and Petrucelli (1987, pp. 63, 68, 71) claim that Biblical Hebrew culture was probably influenced by several Mesopotamian theories and practices. These include the concept of illness arising from sin, which also became a basic concept of medieval European Christianity, and still exists; the need to isolate the sick and ensure that they are not touched; and the allocation of the Sabbath as a day of rest for physicians, as well as for everyone else.

3.3 Egypt

3.3.1 Egyptian Cultural Evolution

Egypt emerged in the third millennium BCE, and under the Pharaohs developed a powerful regime, which encouraged technological innovation and virtuosity, as evidenced by the construction of the great pyramids from around 2000 BCE (Porter, 1997, p. 47). Like Mesopotamia, ancient Egypt made significant advances in art, architecture and the general sciences, including medicine, and this was possible only because of the river Nile, for without it, Egypt would be a desert (Ergil et al., 1997, pp. 29–31). The Nile created regular annual cycles of three seasons — flooding, seed and harvest — which ensured prolific crops, including a wide range of herbs and vegetables. Cattle, sheep and poultry were raised for food and sacrifices, and the Nile produced waterfowl, fish, and papyrus, which was made into writing material. The ancient Egyptians were also involved in mining of gold, copper, malachite, tin, lead, galena, alum, and natron, for metal-working, mummification, beauty products and medicines. The abundance of natural resources allowed for a division of labour which enabled "people to become priests, scribes, artisans, midwives, magicians, musicians, weavers, brewers, and doctors" (Ergil et al., 1997, p. 31).

Parallels to Mesopotamian medicine are found in Egypt, which developed its medical traditions about the same time. The oldest surviving Egyptian medical records are contained in papyri of the second millennium BCE, and like Mesopotamian records they encode far older traditions. The most informative medical records were discovered in the 19th century CE and are referred to as a *Book of Wounds.* They contain 48 case reports

ranging from circumcision to the prognosis and treatment of various injuries, wounds, fractures and abscesses (Porter, 1997, p. 47).

Egyptian writing was virtually indecipherable until the discovery of the Rosetta stone in 1799 during Napoleon's conquest (Lyons & Petrucelli, 1987, p. 77). The Rosetta stone is a basalt stela bore, with a tribute to Ptolemy (196 BCE) carved in hieroglyphics, and repeated in Greek and other characters — thus assisting the deciphering of the language, and leading to a wider understanding of ancient Egypt. Also, prior to the discovery of the seven known medical papyruses during the last century, knowledge of ancient Egyptian medicine came from Greek and Roman sources.

3.3.2 Egyptian Medical Theory

As in Mesopotamia, the Egyptian medical paradigm comprised religious, spiritual and medical theories. One theory held that people were a product of two different spiritual elements: their *ba* and *ka.* Whereas *ba* refers to the soul, which is immortal, gives life, and departs the body on death, *ka* "is the element that fixes the person as an individual instance of their *ba* — a living, breathing animal" (Ergil et al., 1997, pp. 31–32). A healthy and rewarding life requires the double spirits — the animal *ka* and the spiritual *ba* — to live in harmony, as disharmony leads to disease. In order to nurture and heal both aspects of the whole person, disease treatment required a holistic regimen, integrating physical and non-physical techniques of prayer, medicine, and magic, which were of equal importance. Prayer involved the worship of many gods and goddesses, who could be called upon to prevent or cure diseases. Also, incantations could be directed to disease-causing malign demons or deities, instructing them to leave the body.

Nunn (1996, p.112) claims that magic and religion were inseparable in ancient Egyptian medicine, that magicians and priests of various gods worked as healers alongside the physicians, that amulets were used to invoke protective gods, and that magic rituals would have enhanced the curative value of suggestion and expectation of cure.

Physical, emotional and spiritual health could be threatened by both earthly and supernatural forces, and there was a general fear that evil spirits would penetrate the body through the orifices, and consume the person's vitality (Porter, 1997, p. 49). Whereas health involved living a balanced life and being in harmony with the gods, spirits and the dead, disharmony, or imbalance, yielded illness, which could be defeated by supplication, spells, rituals and medicines.

The idea that humans were born healthy, but disease could be caused by demons and intestinal putrefaction, led to a philosophical macrocosm/microcosm theory placing human existence in its natural environment. As the "life-blood" of Egypt was the river Nile, the health of Egypt depended on the Nile and its canals being free of blockages and resultant putrefaction. Emetics and enemas were therefore used to evacuate the body on three days each month, so rotting food and faeces could be moved out quickly to avoid blockage, infection and pus formation (Porter, 1997, p. 50).

The Ebers papyrus (*c.* 1550 BCE) from Thebes is the oldest surviving Egyptian medical book, and is named after its discoverer. It refers to scores of theories of diseases and their remedies, including spells and incantations. Several sources show the prominence of magic and the use of amulets, chants and supplications to a variety of deities. This papyrus refers to 15 abdominal diseases, 29 diseases of the eyes and 18 of the skin. It also lists 21 cough treatments. Reference is made to 700 drugs and 800 formulae. These include the use of herbs, but also refer to mineral and animal remedies (Porter, 1997, p. 48).

The following passage from the Ebers papyrus appears to be a theory of pulse diagnosis:

> There are vessels in him to all his limbs. As to these: If any doctor (swnw), any wab priest of Sekhmet or any magician (sau) places his two hands or his fingers on the head, on the back of the head, on the hands, on the place of the heart, on the two arms or on each or the two legs, he measures [or examines] the heart because of its vessels to all his limbs. It speaks from the vessels of all the limbs. (Nunn, 1996, p. 113)

The words "It speaks from the vessels of all the limbs" suggest a communication from the pulse — that the pulses may be interpreted to provide some medical data. From a traditional Chinese medical perspective, the relative strength, depth, regularity and timing of the pulse are easily identified by digital pressure on various arteries, and can provide an impression of the vitality of the patient. However, whether these and other pulse qualities were recognised by the Egyptians is currently unknown.

The specialisation of Egyptian medicine was recognised in the 5th century BCE when Herodotus wrote in a book entitled *History of the Greek and Persian War* that medicine was "practised among them on a plan of separation: each physician treats a single disorder, and no more" (Allday, 1969, p. 8). About a hundred years later the Greek philosopher Aristotle commented on the pragmatism and flexibility of Egyptian medicine: "Even in Egypt a doctor is allowed to depart from his textbook instructions if the patient is not well after four days" (p. 8).

Some medical theories are not clearly described. For example, the medical papyri frequently refer to "placing the hand", and one of the papyri includes a virtual job description by a person called Heryshefnakht, whose two references to the use of the hand suggest a specially developed skill in examination and diagnosis, although the theory underpinning the practice is unknown:

> I am Chief of the Priests, Chief of the Magicians, Chief Physician to the King; who every day reads books, who treats the sick, who lays his hand on the diseased whereby he knows them; gifted in the examination with the hand. (cited in Allday, 1969, p. 10)

Nunn (1996, pp. 137–138) theorises that the personal and emotional nature of the treatments provided by the priests, magicians and physicians would have produced a placebo effect. This could particularly apply to another therapeutic method which involved patients sleeping overnight in special healing shrines in the inner precincts of a temple, where in their dream state they could come in contact with a god, or an agent such as a snake (Porter, 1997, p. 49).

Nunn (1996, p.136) further theorises that "tender loving care" (TLC) would have been dispensed by Egyptian healers, and that it would have a measurable curative value for many conditions, including chronic pain and psychosomatic disorders. In relating TLC to biomedicine, he said that the "effect is so powerful that formal investigation into the efficacy of a new therapeutic modality must be tested against a control group which is matched for equality of TLC". Another concept of TLC indirectly arose in the New Kingdom in a love poem, which questions the efficacy of physicians and magicians, and theorises as to the healing power of love (Ergil et al., 1997, p. 47):

> When the physicians come to me,
> My heart rejects their remedies:
> The magicians are quite helpless,
> My sickness is not discerned ...
> My sister is better than all prescriptions,
> She does more for me than all medicines;
> Her coming to me is my amulet,
> The sight of her makes me well!

Nunn (1996) also claims the existence of theories of the modern concept of "food as medicine", as medical treatment would have included dietary advice, which was considered to be a therapeutic tool "rather than correction of a deficient diet" (p. 136). Remedy selection was sometimes influenced by magical considerations, as occurred in other parts of the ancient world. This is exemplified by the theory of "similia similibus" — also a theory of modern homeopathy — whereby the state of the patient suggests that it would be desirable to utilise plant or animal substances with similar characteristics. "In this connection Westendorf (1992) cited the prescription containing ostrich egg for a fractured skull in which the skull was equated to the shell of the egg (Edwin Smith, Case 9). This is clearly closer to magic than to rational medicine" (Nunn, 1996, p. 138). Some other theories are intertwined with practice, and will be described from that perspective.

3.3.3 Egyptian Medical Practice

Part, at least, of Egyptian medicine was hierarchically organised and under government control. As in Mesopotamia, the three formal divisions of healers were physicians, priests and seers, but women were also permitted to practice. Court physicians were at the apex of the medical hierarchy, and as the various gods governed different body parts, physicians also specialised in particular diseases, body organs, systems or parts. For example, the senior specialist in enemas was known as "Keeper of the Royal Rectum" (Porter, 1997, p. 49). Nunn (1996, pp. 132–133) claims that medical health workers also included pharmacists, nurses, midwives, bandagers, massage therapists, and other physical therapists who were involved in applying pressure to the body. Aromatherapy was also practiced (Griggs, 1997, pp. 288–289).

Egyptian healers would decide whether treatment would proceed, or not, or whether the condition was one with which they would contend. Their patient classification was similar to that currently applied to disaster victims (Nunn, 1996, p. 28). Also, they had a three-phase approach to patient management. Firstly, they listened to their patients' symptoms, and then conducted a physical examination, using observation and palpation. Secondly, they made their diagnosis and determined their treatment strategy. Finally, they moved to treatment. If the patient's condition later changed, then the three phases would be repeated. These three phases were adopted by the Greeks through the Hippocratic School, and then by Galen through to biomedical practice. These three phases were also utilised by other separately developed medical traditions, such as ancient Indian and Chinese medicine (pp. 113–114).

Nunn (1996, pp. 129, 136) claims that the ancient Egyptian pharmacopoeia mentions hundreds of animal, mineral and vegetable substances — including about 160 plant or plant products — many of which, along with their associated diseases, cannot yet be translated. Plant and other materials that were used therapeutically included a wide variety of fruit and vegetables: bean, cabbage, celery, garlic, leek, lettuce, onion, pea, date, fig, grape, jujube, melon, pomegranate, raisin, sycamore fig, and watermelon. Marsh plants such as sedge and white lotus were also used, as were numerous other

plants, including acacia, aniseed, barley, castor oil, cinnamon, coriander, dill, emmer, hemp, opium poppy, pyrethrum, wheat grains, and willow (pp. 14–159). The animal components were harvested from domesticated and wild animals, including lions, and other components included virgin's urine, crocodile excrement, bile of tortoise "and the excrement of flies which is on the wall" (Ebers, 782; cited in Nunn, 1996, p. 138). Egypt provided most of the mineral products mentioned in the pharmacopoeia; but some, such as *lapis lazuli*, which was used for certain eye conditions, were imported from Afghanistan, and therefore would have been expensive. The medicinal use of plants was highly developed, and it seems that many of these plants, particularly of food origin, would have been grown in gardens, but some of the herbs would probably have been harvested in the wild (Nunn, 1996, pp. 138–139).

The main vehicles for ingesting medicines were water, honey, milk, oil, wine and beer. There were seven sacred oils, some of which came from the moringa tree, the fruit of *Balinites aegyptiaca*, sefet from the fir tree, castor oil, and linseed oil from flax (Nunn, 1996, p. 140). Medicines were administered by five main routes — oral, rectal, vaginal, external application and fumigation. Whereas oral administration was the most common, medicines were also prepared as suppositories or liquids for other use. In gynaecology, remedies and contraceptives were placed in the vagina, and sometimes patients were required to disrobe and sit on the medication. Medicaments were applied directly to the skin for a wide range of conditions including wounds, snakebites and ulcers. It was common practice to apply raw meat, oil and honey to wounds, and bandages could be used to hold the medication in place (Ebers, 200; cited in Nunn, 1996, p. 143). Gynaecological services included methods for detecting pregnancy and providing contraception; the latter involved the use of pessaries composed of crocodile dung, herbs and honey. The role of the pessary was to block the passage of semen, and its success may be measured by the ability of the Egyptians to regulate family size without resorting to infanticide (Porter, 1997, p. 47).

Recommended treatments for a wide range of disorders were numerous and diverse. Stomach disorders could be treated by a mixture of cumin, goose fat and milk. Tonics to

cure baldness included a range of ingredients that would not appear out of place in Chinese medicine — black ass testicles, a mixture of animal vulva and penis extracts and a black lizard. Hair growth could allegedly be enhanced by using a compound of hippopotamus, lion, crocodile, goose, snake and ibex fat (Porter, 1997, p. 48). Wound dressings not only protected the wound but also promoted healing by adding a variety of healing substances, including honey with grease or resin (p. 50). Fractures were set in ox-bone splints, supported by resin-soaked bandages; dressings included adhesive plasters, braces, plugs, cleansers and cauteries (p. 47). Prior to the Graeco–Roman period, surgery was generally restricted to incision of abscesses, the removal of small superficial tumours, suturing of wounds, setting of fractures and reducing dislocated joints (Nunn, 1996, p. 136). This observation is exclusive of the evidence of prehistoric trepanation.

A person struck blind could invoke the god Ptah with the prayer: "Ptah, the lord of Truth, has turned his justice against me; he has rightly chastised me. Have pity on me, deign to regard me with merciful countenance" (Porter, 1997, p. 50). A magician treating a burns victim would swab the wound with breast milk from the mother of a baby boy, while appealing to the goddess Isis by using the words she had purportedly used to rescue her son from being burned: "There is water in my mouth and a Nile between my legs; I come to quench the fire" (p. 50). The magician's words appear to be more of a positive affirmation or creative visualisation.

Clearly, the Egyptians were greatly involved with health and healing. Longevity was greatly coveted but rarely attained; few would have lived past 40 years (Ergil et al., 1997, p. 47).

Evidence that medicine was corporatised is provided by Greek historian, Diodorus Siculus who visited Egypt in 59 BCE, and wrote:

> On their military campaigns and their journeys in the country they all receive treatment without the payment of any private fee; for the physicians draw their support from public funds and administer their

> treatments in accordance with a written law which was composed in ancient times by many famous physicians. (Ergil et al., 1997, p. 45)

Numerous ancient Mesopotamian and Egyptian medical practices which appear to involve prayer, positive affirmations, creative visualisation, magic, dreams, spells, incantations, TLC, love, herbal therapies, food therapies, massage, relaxation, and a range of diagnostic techniques, including divination and intuition, are generally represented in modern natural medicine practice.

3.3.4 Egypt's Conquerors Arrive

Through Alexander the Great, the Greeks conquered Egypt in 332 BCE, and Greek medicine arrived with Greek settlers, including physicians from the Hippocratic School at Cos. The Greek physicians would have treated the Greek ruling class, and the separate line of Egyptian medicine would have treated the indigenous population. Alexander established the new town of Alexandria in 331 BCE, and it became the major centre of culture and science in the Hellenistic world. The medical school was outstanding, and attracted and developed leading medical figures such as Galen, who studied there in the 2nd century CE (Nutton, 1993; cited in Nunn, 1996, p. 207).

Greek and Egyptian taboos on dissection and vivisection were broken by Herophilis, who moved to Alexandria in the 3rd century BCE to practice and research, and who made major contributions to anatomy before the practice was deemed improper. His vivisections were performed on live criminals supplied by the kings and this, along with the question of slavery, represented philosophical divisions from natural medicine, which could never countenance such fundamental breaches of human rights. The seeds of philosophical separation of natural medicine from corporatised medicine had already commenced. Over time, Greek and Egyptian medicine learned from, and influenced, each other (Nunn, 1996, p. 208).

The Romans controlled Egypt from 31 BCE, and as at that time Roman medicine was dominated by Greek theory, they would have had little influence on local medical practice (Nunn, 1996, p. 208). Christianity arrived in Egypt early in the current era, and

Coptic became the main language until the Arab conquest of 640 CE. Coptic is a language that evolved from Egyptian and Greek and its medicine is similarly influenced. It was later influenced by Arabic medicine. A major legacy of the Christian domination of Egypt was caused by its desire for total control, and extreme orthodoxy, which resulted in the closing of the Egyptian temples, and the resultant loss of understanding of the ancient Egyptian language during the 5th century. The second great fire of the Alexandrian library in 389 made Egyptian medicine difficult to study, so it was virtually ignored until newly discovered papyri were interpreted during the 19th century (Nunn, 1996, p. 209).

3.4 Greece

3.4.1 Greek Cultural Evolution

Little is known of Greek medicine before written records of the 5th century BCE. It is accepted, however, that cross-fertilisation of ideas from numerous other ancient peoples, including the Egyptians, influenced early Greek medicine, which incorporated practice by folk and priest healers, employing divination, herbs and drugs (Lyons & Petrucelli, 1987, p. 153; Porter, 1997, pp. 50–52).

Allday (1969, pp. 13–14), Inglis (1979, p. 16) and Porter (1997, p. 52) describe the development of the communities which would later unite to become Greece, as they emerged on the mainland, and on islands in the Aegean Sea. Archaeological remains at Knossos, in Crete, evidence occupation by a well-developed culture from before 3000 BCE. This proximity to the sea encouraged the development of seafaring and trading traditions, which allowed for accumulation of knowledge and wealth, and later, colonies around the Mediterranean from Spain to the Black Sea. Although mean life expectancy was about 40 years, the development of the Olympic Games from around 776 BCE revealed a love of athletics and a concept of ideal manliness, which required a cultivated mind and the maintenance of the body in peak physical condition to ensure its well-being and health. This provided for the emergence of male sports instructors who coached men in various sports included gymnastics, dance, martial arts, and general physical exercise. It also produced male therapists who provided services in massage,

hydro-therapy and nutrition. Porter (1997, p. 51) claims that women were generally excluded from public life and from medical practice — at least from the practice described immediately above. Cochrane (1996, p.16), however, claims that women trained as physicians in ancient Greece, and evidences an illustration from 500 BCE, apparently depicting a female preparing to bleed a standing male patient. However, Lyons and Petrucelli (1987, p. 196) explain that prior to 300 BCE, "anyone except a woman could take the title of physician".

3.4.2 Early Greek Medical Theory

As in Mesopotamia and Egypt, the early Greek medical paradigm was intertwined with religious, spiritual and medical theories and beliefs. One theory provided for sacred healing, and the involvement of gods who were identified with various aspects of health and disease. These gods, it was believed, could harm people by inflicting them with plagues, other diseases or injuries, or by shooting certain arrows at them. Inglis (1979, p. 16) claims that contemporary theory held that punishment through disease was not considered to be revenge for sinning per se, but for offending one of the gods, or for falling into the clutches of a sorceress. However, disease was also theorised to arise from natural causes, and that rational healing methods were important. Lyons and Petrucelli (1987, p. 159) describe the theory of the life force, or *thymos,* which was believed to be present in all parts of the living organism, and which was nourished by external factors such as food, fluids and air, and maintained by the actions of the internal environment, such as the movement of body fluids, including blood. *Thymos* could escape the body through wounds and exhalation, and departed on death — not unlike the ancient Chinese concept of life force, or qi. Further, the *psyche* was theorised to be the individual personality, soul, or spirit which, following death, went to the underworld. Also, by the time of Aristotle in the 4th century BCE, Greece and Egypt shared a common belief that consciousness resided in the heart (Lyons & Petrucelli, 1987, p. 159).

3.4.3 The Asclepiads

The god Apollo was believed to be able to spread plague and be an avenger, and his son, Asclepius, who was born of a mortal mother, studied herbal medicine, became a

competent practitioner, and brought a dead man back to life. The ruler of the underworld, Hades, fearing that the afterworld would be depopulated, protested about this "death cheating" activity to the supreme god, Zeus, who responded by killing Asclepius with a thunderbolt. Asclepius was later deemed to be a god. Another account by Homer (*c.* 9th century BCE), holds that Asclepius was a tribal chief, skilled in healing wounds, that his wife, Epione, soothed pain, and that his children became physicians. They, like others who followed them, were known as *Asclepiads.* Asclepius was often depicted with his daughters — Hygeia, who became recognised as the deity for disease prevention and hygiene, and Panacea, who represented treatment (Allday, 1969, pp. 13–14; Inglis, 1979, p. 16; Lyons & Petrucelli, 1987, pp. 165–170; Porter, 1997, p. 52).

Asclepius became patron of physicians and a cult figure, whose fame spread during the 4th century BCE when temples were constructed in his honour. The temples were a combination of religious shrine and health spa, and their opulence and relaxing music provided an ideal setting for the healing ceremonies which began after sunset. The atmosphere so created would place the visitor into a relaxed mental and emotional state, receptive to healing. Prior to arrival at the temple, the visitor would either fast, or refrain from consuming certain foods. After a ritual bathing, the visitor would be clothed in a clean white robe and then make a gift, or sacrifice food or an animal, to the god, Asclepius. During the night, a priest dressed as Asclepius, and his attendants, would provide healing. This included the laying on of hands, the application of medicine, dream interpretation, surgery, the licking of the affected part by a dog or snake, and the provision of advice or other ritual — such as, in the case of female sterility, the placing of a snake on the woman's abdomen. Other animals, such as a sacred goose which would bite a boil, participated in the healing process. The religious and spiritual atmosphere, thus created, would have been inspirational, particularly as some of the processes were magical and fantastic. Other religious and spiritual healing involved exorcists, diviners, shamans and priests. Distance healing also occurred. Faith and belief probably played a significant part in these healings, as it probably does in all religious healing, and possibly other healing as well (Lyons & Petrucelli, 1987, pp. 165–183;

Porter, 1997, pp. 52–53). Within the temple, religious and secular medical practice was therefore offered in a cooperative, integrated manner for the maximum therapeutic benefit of the patient

3.4.4 The Hippocratics

Hippocratic medicine, which rejected the concept of disease being caused or cured by the gods, became the foundation of Greek written medicine. This separation of medicine from religion arose in a climate of cultural pluralism, where intellectual activity and political diversity were encouraged. Unlike the Egyptians, the Greeks had no government medical bureaucracy or codification of medical practice, and the medical market was completely free and open to competition; even some slaves practiced. There were no government-recognised academic examinations or professional qualifications, and physicians had to compete with folk healers, bone-setters, exorcists, root-cutters, incantatory priests, gymnasts and showmen (Porter, 1997, pp. 53–55).

The competition for business was intense, so the medical market may be seen to be complementary and even integrated, as all of its independent parts were free to operate as a whole medical market, in a climate of free choice. However, because the competitive element separated the various modalities, and individuals within modalities, the medical market could not be considered to be cooperatively integrated for the maximum therapeutic benefit of the patient, even though such a free market would offer cost advantages to consumers. Thus, because Greek medicine was open to theoretical and philosophical speculations, and new entrants, its flexibility and vitality were ensured.

Hippocrates (*c.* 460–377 BCE) is still often referred to as the "Father of Medicine" even though all that is known of him is legend. He allegedly descended from a family line of physicians whose roots could be traced back to Asclepius. He became a famous practitioner, teacher and writer, and headed a medical school on the island of Cos. Hippocrates has been credited with writing an extensive collection of works known as the *Hippocratic Corpus*. In those times, students and disciples often wrote under the

name of their teacher, so this could account for the entire work (Ergil et al., 1997, pp. 74–75; Porter, 1997, pp. 55–56).

The *Corpus* contains a wide variety of works, including the methodology for trepanation for cases of skull fracture and associated injuries (Singer, 1928, pp. 18–19). Some of the works are philosophical, some are educational, and some resemble case notes. Hippocratic medicine is distinctive because it appeals to reason rather than rules or supernatural forces, and is patient-centred rather than disease-oriented. It is therefore concerned more with observation and experience than with abstractions. The Hippocratic physicians, or Hippocratics, studied the patient, rather than the disease. They theorised that as people were composed of the same substances as their environment they ought to be regarded as a product of that environment, and governed by the same physical laws of nature — the laws that govern the universe. Therefore, as medical practice required empirical and rational understanding of the workings of the body in its natural environment, climatic and environmental factors had to be considered. Diseases were theorised to exist for set periods of time, and possess their own individual natures — which meant that individuals suffering from the same disease could experience different signs, symptoms and reactions, and require different treatments. Also, the theory that diseases were totally independent of supernatural interference facilitated the later development of scientific medicine, and provided its enduring debt to philosophy (Adams, 1849, pp. 161–162; Lyons & Petrucelli, 1987, p. 217; Porter, 1997, pp. 56–57).

A primary theory in the *Corpus* was that health depended upon equilibrium or balance, whereas sickness resulted from imbalance. It was accepted that as the body was in a constant state of change, health was dependant upon the maintenance of balance within limits. Imbalance would occur whenever there was an excess concentration of bodily fluids, or humours, in a particular body zone. For example, an excess flow of humours to the feet would result in gout. Also, catarrh was seen as an excess flow of the humour, phlegm, from the head to the lungs, which would cause coughing. It was the role of the

healer to plan to maintain balance or, in times of sickness, seek its restoration (Adams, 1849, pp. 161–162; Porter, 1997, pp. 56–57).

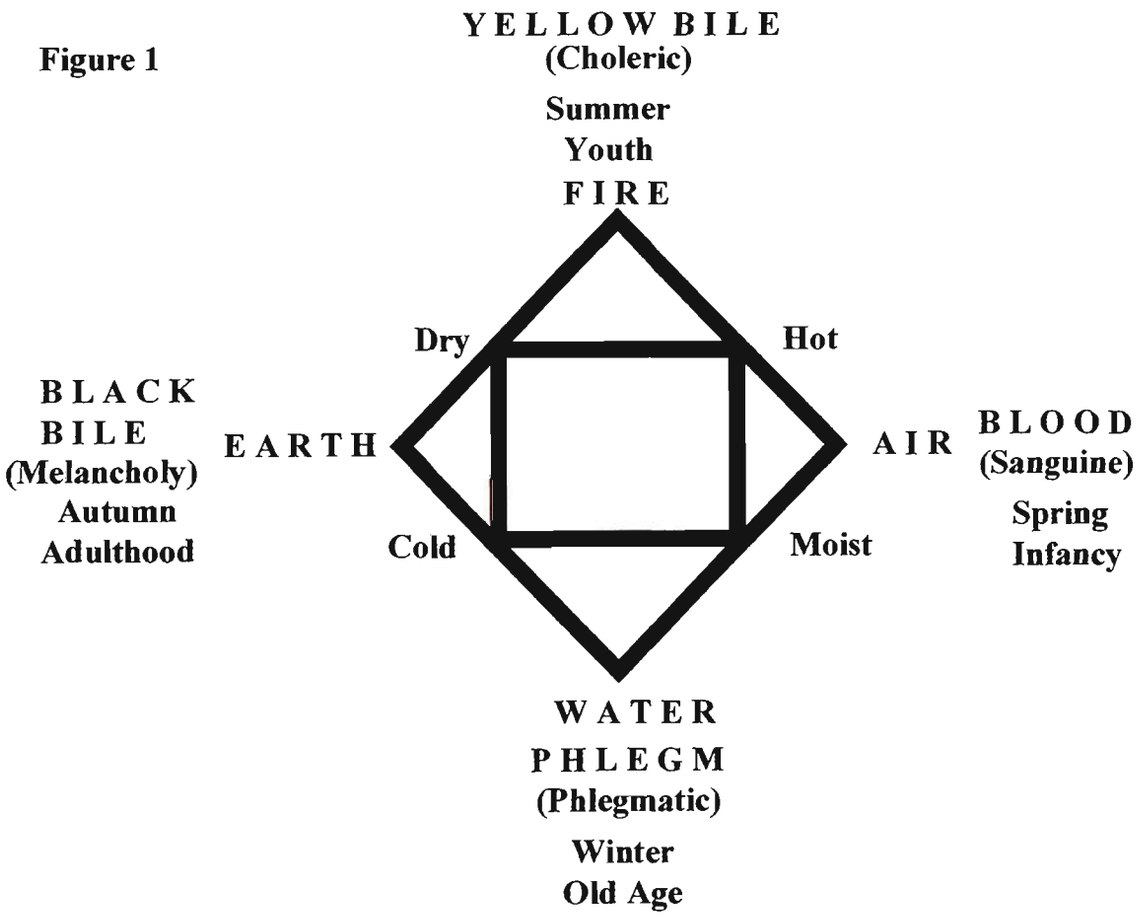
With the exception of their skill with surface anatomy, the Greeks' knowledge of anatomy and physiology was limited in the 5th century BCE, because of social taboos on human dissection. This facilitated the development of philosophical explanations for the maintenance of health and development of disease, such as the "theory of the four humours". Lyons and Petrucelli (1987, p. 195) explain that prior to the time of Hippocrates, the Greeks had developed a hypothetical system to explain the mechanisms of disease, which incorporated the four basic humours. Essentially, all body fluids comprise varying proportions of blood (warm and moist), phlegm (cold and moist), yellow bile (warm and dry) and black bile (cold and dry). Health required all these fluids, or humours, to be in balance, whereas imbalance — excess or deficiency of any of the humours — caused disease. The three stages of disease commenced with an imbalance of humours which was caused by internal or external factors. The second stage involved bodily reaction, through generation of symptoms of fever or "boiling". The third stage involved the disease crisis, whereby the disease concluded with the discharge of excess humour — or by death. Excess humour was often observed departing the body during disease, through blood, phlegm from the nose, vomit, faecal matter, urine or sweat — and healing had often occurred following the discharge of a humour.

It appears that the very existence of the *Corpus* theories encouraged analysis of their relationships. It was easy to perceive the possibility of relatedness between the four humours (blood, yellow bile, black bile, phlegm), the four primary qualities (hot, dry, cold, moist), the four seasons (spring, summer, autumn, winter), the four ages of man (infancy, youth, adulthood, old age), the four elements (air, fire, earth, water), and the four temperaments (sanguine, choleric, melancholy, phlegmatic) (Loudon, 1997, p. 32). The perceived relatedness was theorised to form a coherent, symmetrical grid in binary oppositions, as set out in figure 1, which is compiled from Allday (1969), Inglis (1979), Porter (1997), and Singer (1928), who provided a slightly different configuration. The

diagram provided a vehicle whereby observations and rationales for disease explanation and treatment could be placed in a causal framework (Porter, 1997, pp. 57–60).

The theory became dominant because its symmetry and comprehensive nature supported desires to develop empirical tools. Figure 1 was later extended, initially by Galen, to include the four tastes, the four main body organs, and the four ages of man — and from later in the Middle Ages from Christianity, even the four evangelists. It was theorised that in each of the seasons, one humour had the potential to predominate and move into excess. For example, as it was theorised that blood predominated in spring, and that it could detrimentally affect infants, precautions were essential to ensure that it stayed in balance, thus avoiding an excess condition. These precautions included the avoidance of blood-rich foods such as red meat. If excess of blood did occur, nutritional therapy, or blood-letting, known as phlebotomy or venesection, could be used to reduce the excess.

Figure 1



The Hippocratics were trained to win the trust of their patients by waiting, watching for illness patterns, and talking with them, in order to assist the "healing power of nature" (*vis medicatrix naturae*), as provided in the *Corpus* text, *On Ancient Medicine* (Porter, 1997, p. 59). To assist their diagnosis, the practitioners created a profile of the patient's lifestyle, habitation, work and dietary habits. They focussed on the *dis-ease*, or lack of ease, of the patient rather than seeking to identify the precise disease entity (Lyons & Petrucelli, 1987, p. 216). They believed that "our natures are the physicians of our diseases" so in order to "do no harm" (*primum non nocere*) they did not promise miracle cures, and refused to participate in heroic interventions, leaving risk-laden procedures, such as those of the inferior trade of surgery, to those with experience with war wounds (Porter, 1997, p. 59). The *Corpus* theorised that treatments ought to firstly involve conservative management, including observation, and dietary regulation. Food, which included many herbs, was used as medicine and "food as medicine" was recognised as the cornerstone of the healing art. This was occasionally followed by herbal or drug therapy, particularly using laxatives and emetic herbs, and occasionally narcotics, as in Egypt (Lyons & Petrucelli, 1987, pp. 210–213). Cupping, involving the use of pressurised glass suction cups, and scarifications and bleeding were also part of the therapeutic regimen, but were of lesser importance. Lastly, only when it could not be avoided, surgery was utilised. It is notable that Hippocrates and Galen believed that the use of surgery for cancer was questionable. Patients could also be prescribed a comprehensive lifestyle regimen recommending, according to their individual needs, hydrotherapy or baths, massage, gymnastic and other exercises, and even changes of climate. Healthy individuals were expected to exercise life-long discipline in their nutritional choices and lead well-regulated lives which included adequate exercise, bathing, sleep and sex. The *Corpus* theorised that in winter, sexual intercourse should be more frequent, particularly for older men (Porter, 1997, pp. 59–62), which is counter to Chinese medicine theory (Maciocia, 1989, pp. 137-138).

Although diagnostic skills were cultivated by the Hippocratics, it was their skill in prognosis which set them apart from others, for as they accurately related a patient's medical history and prospects, they created a positive impression (Porter, 1997, p. 61). Porter (pp. 62–63) also explains that Hippocratic innovations included the provision of devoted personal attention to the patient, the increase in social acceptance of the Hippocratics, and its theory that an understanding of illness required an understanding of nature. They worked in accordance with the provisions of the Hippocratic Oath, which was used by many university medical schools until recently. The Hippocratics presented themselves as genuine friends of the sick, and their philanthropic disposition was revealed as they placed their love of medicine, and concern for their patients, above fame and fortune, thus reassuring their anxious patients and their relatives. However, the *Corpus* encourages practitioners to ensure their financial viability (Lyons & Petrucelli, 1987, p. 217).

3.4.5 Plato and Aristotle

Porter (1997, pp. 63–64) claims that ancient Greece was advanced in philosophy, and as good health was considered a blessing, medicine was theoretically assessed from various perspectives. Plato (427–347 BCE), in his *Republic*, proposed that human nature was composed of reason, spirit and appetites which were located respectively in the brain, the heart and the liver, and which were all potentially in conflict. From this perspective, sordid desires (or appetites) could be overcome and controlled only by reason, aided by spirit. These distinctions between reason and appetite, suggesting a connection between mind and body, were of the utmost philosophical and psychological significance, and would be crucial to the natural medicine paradigm, and be lost to the antecedents of biomedicine in the Middle Ages. Further, Porter (1997, p. 64) explains how in the *Timaeus* (*c.* 375 BCE), Plato commented upon the influence of the body on the mind. He went on to suggest that behaviour could be influenced by organic constituents, such as by excess or deficient spinal marrow, which also affected the sensations of pleasure and pain. Mental diseases could therefore arise from a physiological imbalance and respond to treatment of that imbalance. Socially desirable qualities such as virtue could therefore be influenced by physicians as they treated associated imbalances. By advocating

theoretical perspectives compatible with Hippocratic medicine, Plato was instrumental in bringing to Western thinking the common ground between philosophy, medicine and ethics — the *Timaeus* thus linked medicine and philosophy with health and politics.

Plato's pupil, Aristotle (384–322 BCE), became a tutor to Alexander the Great (356–323 BCE), and theorised about metaphysics and cosmology, ethics, politics and poetics, with major achievements in the creation of a scientific method, the pursuit of teleological ways of thinking, and biological research. Aristotle questioned Plato's transcendental philosophy — whereby he distrusted sense experience — and empirically studied zoology, botany and meteorology, and investigated dissected animal body parts for their purpose. He concluded that nature did nothing in vain, and his theory of causation has been the basis of scientific investigation for two millennia (Porter, 1997, pp. 64–65).

3.5 Rome

3.5.1 Early Roman Medical Influences

Although Greek medicine spread throughout the Mediterranean, particularly to the southern Italian cities that shared Greek culture, it was confronted in Rome by xenophobic prejudice and popular folk-healing traditions (Loudon, 1997, p. 38). A "no-nonsense" Roman tradition believed that people were better off without physicians, and the author, Cato (234–149 BCE), held that Romans had no need of professional physicians as, unlike the effete Greeks, they were hale and hearty. He warned people to "beware of doctors" as they would bring "death by medicine" (Porter, 1997, p. 69). Lyons & Petrucelli (1987, p. 231) claim that family healing was an ancient and respected tradition of the Romans. It was customarily controlled by the *paterfamilias*, or head of the household, and usually involved food as medicine, herbs and charms. Cato scorned Greek and other immigrant physicians who made up much of the formal medical profession, preferring to medicate his family with remedies such as cabbage soup (p. 231). Cicero (106–43 BCE) reflected that it was an individual's duty "to resist old age; to compensate for its defects by a watchful care; to fight against it as we would fight against disease; to adopt a regimen of health; to practise moderate exercise; and to

take just enough food and drink to restore our strength and not to overburden it" (cited in Porter, 1997, p. 69).

The Romans appear to have been concerned that their culture was becoming over-influenced by Greek culture. Pliny (23–79 CE) deplored the influx of both luxury and worthless Greek physicians and claimed that although his Roman forefathers lived without physicians, they were not "without physic" (Loudon, 1997, p. 38). He also said that Alexander the Great had claimed that "It was the crowd of physicians that killed me" (Porter, 1997, p. 69). The Romans contributed to the development of natural medicine theory, and by 77 (CE), Pliny completed his influential *Natural History*, which was a compendium of all natural learning, including herbal medicine. He wrote extensively on botany, *materia medica* from botanical sources, and animal *materia medica* (p. 69).

Asclepiades (*c.* 120–30 BCE) was the first recorded significant Roman medical practitioner and theorist. He repudiated the Hippocratic tradition and abandoned the theory of the four humours completely, as he believed that diseases were cured by physicians, not nature. He theorised that the body was "composed of an almost infinite number of atoms of different sizes always in motion, between which flowed the body liquids" (Lyons & Petrucelli, 1987, p. 232). Health required smooth activity of the atoms, whereas sickness followed disordered motion of the atoms. Asclepiades treated his patients with gentle methods including diet, exercise, massage, soothing medications, enemas, music and singing. He applied the term *phrenitis* to mental illness, and prescribed opium, wine and hygienic measures. An underlying principle of his treatment rationale was, wherever possible, to avoid drastic and weakening procedures. However, he did engage in bleeding, and for fevers, continued the custom of restricting most food and drink, which causes dehydration and debilitation (Lyons & Petrucelli, 1987, p. 232). The popularity of the Aesclepiadean theories with the Romans was possibly politically influenced, in that, as it came from the Roman culture, as opposed to the invading Greek culture, and actually rejected prevailing Greek theories, it represented a challenge to

Greek authority. Romans would have supported the practice because they believed in its benefits; but to use it was possibly an act of nationalism.

Porter (1997, pp. 69–70) explains that the Asclepiadean, or Methodist, doctor was a symptomatic practitioner who had no need of a case history, as the atomist physiology allowed diagnosis to be reduced to an observation of visible pore symptoms, particularly the common conditions — the "constricted", the "lax" and the "mixed". The treatment plan required the enlarging of constricted or narrow pores, and reduction of lax or large pores, by the use of massage, exercise and cold-water bathing. The Aesclepiadean practice preferred gentle medicines, including wine, and emphasis on convalescence. Porter (1997, p. 70) also claims that they rejected heroic bleeding.

The study of *materia medica* became systematised by Theophrastus (*c.* 370 – *c.* 285 BCE), a former pupil of Aristotle (Lyons & Petrucelli, 1987, p. 222). Theophrastus's treatises — *Investigations into Plants* and *Explanation of Plants* — discussed aetiology and classification of 550 trees, shrubs and herbs from the Atlantic to India. The Renaissance saw a revival of medical botany, and botanical gardens, following the rediscovery of his work. Dioscorides (*c.* CE 40 – *c.* 90) was a Greek surgeon in Nero's army, and his *De materia medica* deals with oils, aromatics such as saffron, salves, shrubs and trees, animals, cereals, herbs, roots, juices, seeds, wines and minerals — including salts of lead and copper. The work was presented with supporting information for each product, including illustrations, pharmaceutical properties, uses in treatment, methods of harvesting, storage requirements, and possible adulterants (Porter, 1997, pp. 79–80).

3.5.2 Galen

The undoubted medical colossus of the Roman era was the Greek, Galen (129–*c.* 216 CE), who became the most influential medical writer of all time. His prolific writing, producing more than 350 authentic titles — which described 473 drugs of vegetable, animal and mineral origin, plus numerous compound drugs — dominated medicine in many countries for 1500 years (Loudon, 1997, p. 39; Lyons & Petrucelli, 1987, pp. 251-

259). Galen was born into the Greek wealthy middle class and received a privileged education. At 14, after his father was allegedly visited in a dream by the god, Asclepius, he was guided towards medicine. He studied in Alexandria and elsewhere, and while travelling widely, learnt about local herbs and drugs, and local practices (Lyons & Petrucelli, 1987, p. 251). At the age of 28, he returned home to Pergamon (now known as Bergama in Turkey) where he worked as physician to the gladiators, and enlarged his anatomical and surgical knowledge and skills, as the wounds provided a window to the body (p. 251). He later travelled to Rome and treated increasingly important people, including a series of emperors, including Marcus Aurelius. He "mocked and ridiculed opinions and methods contrary to his own" (p. 251).

Galen was an accomplished philosopher, who advocated that the organism ought to be viewed as a teleological entity, open to investigation and logical explanation. He "was committed to the integration of philosophy and medicine and believed that to be a good doctor one had to be a philosopher; that medicine presupposed all parts of philosophy" (Loudon, 1997, p. 39). His view that the purpose of everything in nature was predetermined appears to have distorted his reasoning, as he mistakenly presumed various functions of entities, including bodily organs. These misconceptions proved to be appealing to medieval Christians, particularly as Aristotle had said that nature does nothing without a purpose, and Galen had forcefully insisted that he could perceive that purpose (Lyons & Petrucelli, 1987, p. 251). Notwithstanding his recourse to purgings and cuppings, much of his treatment was in the Hippocratic tradition — relying on gentle treatments such as diet, rest and exercise to assist the healing power of nature. He also became interested in the use of hygienic regimens to prevent disease. Further, he also adopted the Hippocratic humoural theory whereby the four fundamental humours of phlegm, blood, yellow bile and black bile were recognised as being responsible for health and illness, and elaborated the concept by introducing a new classification of the four personality types — phlegmatic, sanguine, choleric and melancholic (pp. 251-254). The Empirics were seen to be healers without a philosophical base, and he compared them with an architect without a plan (Porter, 1997, p. 74). Like Hippocrates, he opined that good practitioners placed their love of mankind before financial rewards and fame

— which he also duly accepted. Galen worked in the Hippocratic tradition — gaining the trust of the patient with an engaging bedside manner, and mastery of prognosis through application of experience, observation and logic. Galen was also a medical scientist who engaged in animal dissection to increase his anatomical knowledge (p. 74).

Porter (1997, pp. 75–76) claims that although Galen saw his work as perfecting the Hippocratic legacy he had no difficulty contradicting it. For example, whereas the Hippocratics treated fever by starvation, Galen advocated venesection to cool the body, and justified the letting of blood from a vein, on the basis of his elaborate pulse theory. His 16 books on the pulse were written in the early 170s and dealt with subjects such as pulse theory, anatomy, differential, interpretation and prognosis. He mentions pulse qualities such as *full*, *rapid* and *rhythmical.* Also the *double hammer* pulse was often regarded as an indicator of heart weakness, and in hectic fevers the pulse increased in frequency and rapidity.

Galen theorised that nature prevented disease by discharging excess blood, and claimed that by menstruation, women were spared from male diseases such as gout, epilepsy and apoplexy. Although he urged caution in relation to the amount of blood to be removed, he concluded that bleeding was suitable for all diseases, and in severe cases phlebotomy ought to be conducted twice daily — the first to cease before fainting, and the second could proceed to the unconsciousness of the patient (Porter, 1997, pp. 76–77). Unfortunately for patients, Galen's theories on venesection were used in European-based antecedents of biomedicine until the 19th century, contrary to the Hippocratic plea for practitioners "to do no harm". As a royal physician, Galen was able to impose his theoretical views, and subvert saner Hippocratic theories as, for example, in his enthusiasm for the use of drugs, "which were a mixture of traditional herbal remedies with more esoteric animal and mineral innovations: powdered rhinoceros horn; dried camel dung; precious metals, mixed or compounded according to the whim of the doctor" (Inglis, 1979, p. 18). Some prescriptions required more than 100 substances which were justified by reference to the humours. The saying, "as cool as a cucumber", derives from Galen's faith in it to remove excess heat, when that was the cause of an

imbalance (Inglis, 1979, p. 18). The literature contains numerous descriptions of other Galenic theoretical perspectives which were based on his mistaken views of healing, anatomy and physiology, and which are now discredited. Galen seemed to have an answer to every problem through his powerful, voluminous writing, particularly in connecting anatomy, logic and experience. Consequently, it is possibly understandable that his work was accepted widely during his lifetime, and following his death.

In Galenic Rome, as in Greece, the medical market was free of government control and open to any entrants. Students could choose to follow a variety of medical approaches, through the proliferation of rival schools, which were usually based around a single practitioner. Self-help was a universal concept, and medical services were diverse. Celsus wrote his *On Medicine* simply so it could be understood by anyone who wished to engage in some form of surgery or other healing art. In larger centres the availability of medicine was diverse and prolific, with strong competition between physicians, priests, astrologers, body builders, schoolteachers, wise women, herb gatherers, and hucksters. Some healers were slaves or ex-slaves, and women were also free to practice. Galen and others were complimentary of the practice of competent midwives and nurses. The army developed the concept of the hospital for the treatment of wounded soldiers, and in Rome, engineers assisted in the maintenance of health by the construction of great aqueducts for a universal sewerage system. However, in this diverse medical market the government still ascribed famines and pestilences to the gods, and the Hippocratics continued to emphasise the natural medicine concept of individual susceptibility and reactions to disease, and the importance of a proper diet (Allday, 1969, p. 20; Porter, 1997, pp. 77–79). As in Greece, this free medical market could be deemed to be complementary and integrated, but was not cooperatively integrated for the maximum therapeutic benefit of the patient. However, it did provide freedom of choice, and cost advantages.

The Hippocratic preference for diet over herbs and drugs — and for herbs and drugs over surgery — remained popular, but other changes to medicine occurred. As the range of available herbs and other drugs increased, so did the production of increasingly

complex compounds. In the 1st century CE, viper's flesh was added to the antidote compound by Nero's physician, Andromachus, and it became known as *theriac,* which came from the Greek for "wild beast". Others added new ingredients to the compound as it became used as a general tonic. Galen extended the ingredients from 41 to 71, and included ingredients such as ground-up lizard and other animal parts. By the Middle Ages, *theriac* comprised more than 100 ingredients. *Theriac* became a thick, treacle like, universal antidote — to cure all venomous bites, to prevent illness and even to ward off the Black Death. It required a production process lasting several months, and preferably was not used until it had, like vintage wine, been aged for years. Possibly the presence of opium increased its popularity. Its safety and efficacy were questioned in the 18th century by the Englishman, William Heberden, but it was still used for several more decades in England, and pharmacopoeias in France, Spain and Germany contained listings for *theriac* until the end of the 19th century (Lyons & Petrucelli, 1987, pp. 258–259).

3.5.3 The Christian Aftermath

The Middle Ages are usually marked by the period from the fall of Rome (to the Goths in 476) to the fall of Constantinople (to the Turks in 1453) (Lyons & Petrucelli, 1987, p. 279). Although the fall of Rome saw the dissolution of the Roman Empire, a transient period of relative stability followed in various parts of Europe, possibly caused by the establishment of various kingdoms (p. 279). After invading Rome, the Goths attempts to re-establish society resulted in their becoming embroiled in disputes which resulted in anarchy and the loss of established legal, social and intellectual processes as, for example, they dispensed with Roman law and medicine. The invaders soon exhibited deference to the traditions of the culturally superior Romans, and eventually this became deference to the Church of Rome, when it filled the vacuum created by the move of the capital of the Western Roman Empire to Ravenna (p. 283). Roman tolerance for diverse views was replaced by Christian orthodoxy. Prior to Christian influence, Roman medicine had been diverse, and conducted without proscription in a pluralistic, open medical market with an overlay of religious mysticism. The Romans had developed increasingly mystical and magical beliefs, and as they saw the erosion of their former

political power through the invasion, with plague and famine also rife, their feelings of loss of control and security created fertile ground for the establishment of an otherworldly religion.

From the belief that disease was caused by sin — and that cure could only follow prayer and divine intervention through the Grace of God — the Church established hospitals and other centres to care for the sick, thus relieving practitioners of their responsibilities, and eventually non-clerical physicians ceased to exist. The care that they provided rarely rose above the level of nursing, but these Christian centres were the first ever to be devoted to long-term support of the diseased, the poor, and the downtrodden. St Benedict of Nursia banned the study of medicine, but encouraged the care of the sick in monasteries, which usually included a herb garden, a library and an infirmary. Thus the healing mission of the church was institutionalised in a fashion that was to control parts of medical care in Europe for the next 500 years. Many medical procedures were lost, and cauterisation replaced many surgical techniques. Pharmacology was abandoned, to be replaced by a simpler form of folk herbalism (Lyons & Petrucelli, 1987, p. 283).

In the climate of plague, war and economic and political anarchy, much of the appeal of Christianity related to the healing miracles of Jesus. However, as the expected Day of Judgment failed to arrive, people in general felt powerless to help themselves. Belief in miracles continued to contribute most to the Church's development and growth. Particular holy individuals became identified as being involved in the healing process as intercessors for God, which evidenced the sanctity of these individuals and sometimes resulted in their eventual sainthood, and the expectation of further miracles after their death. The Christian priest was given the role of God's formal intercessor and provider of church sacraments (Lyons & Petrucelli, 1987, p. 286).

Mainly because of the extreme orthodoxy of the church, but also because of the invasions, the first five centuries of the Christian era saw the physical loss of much of the essential Greek and Roman writings that were the underpinnings of Western civilisation. Latin Europe generally had no access to these ancient writings until later in

the Middle Ages, after they were translated in the 7th century by the new evangelical religion of Islam, which by its commitment to learning, had preserved and translated these ancient documents, including those on medicine (Lyons & Petrucelli, 1987, p. 295).

3.6 Conclusions

The cultural evolution of Mesopotamia and Egypt yielded imposing political regimes in which corporatised medicine thrived, probably alongside informal medical practices. The new corporatised medical paradigms were a combination of religious, spiritual, magical and medical theories and beliefs, and their practice involved a combination of religious rites and empirical treatments, where divination could be provided by seers; prayers; purification rituals; incantations and exorcisms by a priest; and medicines, bandaging and surgery by a physician. In Mesopotamia, it appears that parts of formal medical practice were regulated by the government, and physicians could be financially and physically punished for iatrogenesis. The *materia medica* of both regions was extensive.

The Christian domination of Egypt followed invasions by the Greeks, and then the Romans, and resulted in the closure of the Egyptian temples, which were centres of religion and medicine. The fire at the Alexandria library in 389 appears to have assisted the Christian goals of suppressing Egyptian medicine and language, which were then virtually ignored until the discovery of ancient papyri in the 19th century.

As Greek and Roman medicine had consolidated over more than 700 years through its religious, spiritual, Hippocratic, Asclepiadean and other appropriate traditions, it provided a sound theoretical basis for natural medicine practice that has existed to the present, and which claims to have generally maintained the Hippocratic requirement to "do no harm". The other major influence, Galenic medicine, which purported to refine Hippocratic medicine, influenced the European antecedents of biomedicine. Although it remained virtually unchallenged for about 1500 years, it proved to be too dangerous to be used in the 19th century. The iatrogenic and nosocomial illnesses of those two

millennia have possibly contributed to a philosophical and psychological climate relating to the value of life that still pervades biomedicine. The importance of the Graeco/Roman period is that it saw the invention of rational medicine, which was free from religious elements, and recognised the naturalistic notion of disease as part of a cosmic order. Further, it developed concepts of human anatomy and physiology, including the notion that the function of the body could be better understood by investigation and the application of logic. The development of an empathetic bedside manner, which was assisted by the union of science, philosophy and practical medicine, elevated the power of the patient in the healing environment, especially when compared with previous relationships with priest-healers, who had interceded on behalf of gods or the government.

Because Galen dominated Roman medicine, and Christianity came to dominate Roman religion, that medicine and that religion became dominant throughout the Roman Empire. As the Roman influence in Europe receded during the third to the fifth centuries CE, some of the cultural changes introduced by the Romans, including Galenic medicine and Christianity, although diminished, remained in some areas. However, the Church eventually proscribed the study of medicine, encouraged the care of the sick in monasteries, and gained a monopoly on formal medical practice, albeit on a simple basis, for 500 years.

There are numerous explanations as to why Galenic medicine, which was so flawed, proved to be so durable. As will be shown later, in the aftermath of the great plague known as the Black Death, the Middle Ages was a time of great uncertainty — for the church, the government, the privileged classes and the populace — which produced a desire for certainty and authority in both Moslem and Christian lands. Galen's dogmatic, didactic and pedantic writing style produced teleological theories which appeared to answer all relevant questions, thus eventually gaining the support of the Christian Church and accruing corporatisation for its practitioners after the Black Death. Galen was not effectively challenged until the Renaissance anatomist Vesalius became prominent in the 16th century (Lyons & Petrucelli, 1987, p. 259).

CHAPTER 4

THE MIDDLE AGES

4.1 Introduction

Chapter 3 has shown that corporatised ancient Mesopotamian and Egyptian medical paradigms were influenced by religion and that the non-corporatised Hippocratic and Galenic paradigms of Greece and Rome separated medicine from religion. It is ironical, then, that following the fall of the Roman Empire, the Church of Rome proscribed the study of medicine, and monopolised formal medical practice through its monasteries for the next 500 years. Although the Galenic paradigm was deficient in many respects, it was eventually corporatised by the Church, and came to dominate European medical thought and practice for more than a millennium.

The discrimination against natural medicine in modern societies is diverse, and appears to arise from government corporatisation of biomedicine. Consequently, an understanding of earlier discriminations against natural medicine may provide insight to the problems resulting from such discrimination, and assist the development of a new integrated medical model. The first major discrimination against natural medicine in Europe appears to have coincided with the rise of Christian political power and orthodoxy during the decline of Rome, as the Church sought control over medical and other activities. This left any remnants of natural medical theory predominantly in the hands of women. The second wave of suppression appears to have accompanied the quest by the Church for control of the populace through the Inquisitions of the Middle Ages, particularly after the plague known as the Black Death.

This chapter will therefore discuss the activities of women in medieval medicine, and their role in the preservation and evolution of the natural medicine paradigm. The implications for medicine from formal medical education, and the later evolution of

universities, will be assessed, as will the attitudes of the Church to medical practice and illness. The effects of the Black Death, and the responses of the Church — particularly those directed against female healers whom they deemed to be witches — will be discussed from several perspectives, including that of suppression of natural medicine. Also, as Church suppression occurred with the compliance of medieval physick — an antecedent of biomedicine — the study will assess whether there are theoretical implications for modern biomedicine from this compliance.

4.2 Wise Women and Natural Medicine

The European natural medicine paradigm was preserved for millennia — from prehistory to the 19th century — predominantly by wise women who, without formal training, accumulated considerable practical medical knowledge, particularly relating to herbs and childbirth (Cochrane, 1996, pp. 88–89).

Wise women came from diverse backgrounds. Sergeant (1996, p. 280) says that in the Middle Ages, wives were expected to initially treat all family illnesses, so medical remedies, knowledge and skill were shared within the family, extended family and with friends and neighbours, as occurs in existing peasant communities. Remedies were available in the family herb garden or in the forest, were usually simple to prepare, and were relatively safe and efficacious. It would not have been unusual for women with special knowledge or skills, including midwifery skills, to provide medical assistance outside the family. To be a successful wife, mother and neighbour, it was expected that a woman would also be a healer. Of course, women who never married were also capable of attaining medical knowledge, skill and remedies, and providing healing services to those in need. For some women, the services they provided may have extended beyond medicine to counselling, general advice, clairvoyance, divination, and activities in the spiritual realm. Some of these women may have charged a fee for their services. Also, some men had similar medical knowledge and skill, and access to remedies. However, for the purposes of this study, it is relevant that most women practiced medicine, and that any suppression of women's medical practice would provide a benefit to the emerging university-trained physick, in terms of increased market share.

The first universities were founded at Bologna, Paris, Oxford, and Montpellier in the 12th century (Grun, 1982, pp. 147, 154, 156), but the first European medical schools had been founded earlier — in Salermo in 900, and at the Monte Cassino monastery in 1066 (Cochrane, 1996, p. 51). In Britain, the 10th century Law of Edgar allowed women to qualify as doctors and gave them equal status with men. By the Middle Ages, women were practicing as doctors in many countries, and the Salermo medical school had female professors (Cochrane, 1996, pp. 85, 96).

In the 13th century, extra-familial European medical practice was divided along class lines: wise women treated the ordinary people, mainly with herbs, and the ruling class developed their own university-trained physicians, or physick, as medicine became established as a secular science, and as a profession, underpinned by the Galenic paradigm (Ehrenreich & English, 1973, p. 31).

Cochrane (1996, p. 89) states that during the Middle Ages in England, the Society of Apothecaries acknowledged the wise women's knowledge and skill with herbal remedies, and accepted them into the profession. Some of these wise women were nuns or lay sisters in convents, and some were deaconesses, who treated the sick in their homes. As many of these women were educated, and could read and write, they probably handed on their records to their successors. These informally trained, but knowledgeable, women were eventually professionally disliked by most of their male contemporaries. For example, a Belgian doctor, Johann Wier, wrote in 1563 that wise women were "ignorant, wicked and boast of medical knowledge that they do not have. They tell lies to the common people who come to them for advice about all sorts of medical problems" (p. 89).

The medical guilds forced British and mainland European women out of formal medical practice in the 15th century, and they did not return for about 400 years. Formal medical practice became restricted to men who studied at a university. Although women were expected to continue caring for patients at home, they were considered incapable of

comprehending scientific medicine, and their herbal skills and knowledge were deemed to be unscientific and unimportant (Cochrane, 1996, pp. 85–96; Ehrenreich & English, 1973, p. 31).

Whereas the Renaissance physick is accused of seeking to maximise market share by the elimination of female competition, a precedent for such action occurred in the Renaissance in relation to the brewing of beer, a process formerly conducted by women in the home. Men turned it into an industry by professionalising and commercialising it, and women were then legally excluded (Hester, 1992, pp. 138–143).

4.3 The Religious Overlay

Because illness was seen by the medieval Catholic Church, other Christian sects, and Islam as punishment for sin visited by God on the wicked, healing was considered blasphemous — an interference with the will of God (Cartwright et al., 1994, p. 33; Lyons & Petrucelli, 1987, pp. 315–316). The 13th-century Catholic Church prohibited medical treatment by physicians, without ecclesiastical advice, and "if at the end of three days the patient had not made confession to a priest, the medical man should cease his treatment, under pain of being deprived of his right to practice, and of expulsion from the faculty if he were a professor" (White, 1896, p. 322).

To the Church of the Middle Ages, formal medical practice, like all economic or other work activity, was not carried out for any purpose intrinsic to the presumed instrumental purposes of the activity itself, but rather "for the use value of the group and the well-being of the soul" (Capra, 1982, p. 201). In other words, the well-being of the patient's soul, as well as those of the priest and the physician, may have demanded (in the assessment of the supervising priest) unmitigated, prolonged or intensified suffering, or even death, depending on the degree of penitence or impenitence the suffering sinner showed.

The belief that illness was basically caused by sin had also been prevalent among the Jews for millennia (Lyons & Petrucelli, 1987, p. 265; Porter, 1997, pp. 84–85). The

Bible frequently mentions threats of pestilence or disease as punishment for sin, with reports of many thousands of deaths. Catholics of the Middle Ages had good reason, within the bounds of their belief system, to accept the theory that disease was a punishment visited by God upon sinners (McVaugh, 1997, p. 63) — a theory which survives to the present (Digby, 1997, p. 296). The New Testament presents the idea that healing involves forgiving sins, which amounted to usurping the divine prerogative: "It is blasphemy! Who can forgive sins but God alone? ... Mark hears the appalled Pharisees cry after Jesus cures a man and announces that his sins are forgiven" (Shorto, 1997, p. 54).

Some believe that prayer is the only medicine permitted to Christians:

> Is any sick among you? Let him call for the elders of the church; and let them pray over him, anointing him with oil in the name of the Lord: And the prayer of faith shall save the sick, and the Lord shall raise him up; and if he has committed sins, they shall be forgiven him. (The Epistle of James, 5: 14–15)

It is ironical that the Church eventually punished natural healers, by torture and by burning at the stake, even though they were following the example of Christ in healing the sick — a crime for which He, too, received criticism and crucifixion. Even worse, in the view of the Papacy, was the offence of midwives, in interfering with the sentence allegedly handed down by God to women that "in sorrow thou shalt bring forth children" (Genesis 3: 16). Gage (1893, p. 241) says that female healers used herbs to induce a deep sleep in the suffering mother to relieve the pains and perils of birth, contrary to the expressed wish and open hostility of the Church, which theorised that as women were the cause of sin, they must undergo continual penance and suffering.

At the beginning of the 13th century, the Church held that witchcraft was an illusion, and belief in it was heresy. This was successfully refuted by the influential theologian, Thomas Aquinas, and other theologians and demonologists, who endorsed beliefs that "witches copulated with demons, flew through the air, shape shifted, raised storms ... and performed other maleficia" which implied a pact with the Devil (Guiley, 1989, p. 370).

According to Ehrenreich and English (1973), most witches "were lay healers serving the peasant population" (p. 28). An unnamed English witch-hunter said:

> ... by Witches we understand not only those which kill and torment, but all ... commonly called wise men and wise women ... and in the same number we reckon all good Witches, which do no hurt but good, which do not spoil and destroy, but save and deliver ... It were a thousand times better for the land if all Witches, but especially the blessing Witch, might suffer death. (p. 28)

Szasz (1973) states that "Some writers emphasize the magical, and others the scientific aspects of the healing power of witches. Actually, the sorceress was an embodiment of both folk wisdom and folk nonsense" (p. 113). Further, because of her methods and popularity, the white, or blessing, witch was a challenge to the Church, which saw the empiricism of her sorcery and witchcraft as a revolt against their authority, and an affront to the supremacy of the cleric. The healing of bodies and souls was declared by the Church to be the sole province of God and his Church-appointed agents, the priests (p. 114). Those who ignored religious principles of healing in favour of scientific discovery were deemed to be applying the great Satanic principle that everything should be done in the reverse way to that employed by religion (p. 113). As disease was seen to be merited punishment for sin by an offended God, then, ipso facto, medicine was a revolt against both the disease and God. It was therefore sinful to delay the soul on its heavenly journey, and re-plunge it in the life of this world (p. 114). By empowering the weak through the healing process, the healer was seen to undermine the established hierarchy of dominance of priest over penitent, and interfere with the income flow from distribution of sacraments. The effective natural medicine practitioners, whether they were referred to as witches, white witches, blessing witches, good witches, wise women, wise men, cunning folk, cunning men, or midwives, were therefore in competition with the Church in the medical market, until the Inquisition systematically suppressed these non-professional competitors.

4.4 Witches

Whereas wise women and wise men were considered to be witches, there is a great deal of conjecture as to whether witchcraft, often understood as the potentially harmful branch of sorcery, actually exists or ever existed. Starhawk (1982, pp. xxvi) describes witches as the wise women and cunning men of the country villages, who were generally able to assist their neighbours in times of need, but especially as herbalists, healers and counsellors. By living in a country village and participating in seasonal celebrations that bound the community with the land and its resources, a bond was established between the witch and the rest of the community. That bond provided a deep connection with the perceived source of life that connected humans, plants, and animals. With all these units living in harmony with nature, the power of all the participants was enhanced, and from this:

> came the ability to heal, to divine the future, to build, to create, to make songs, to birth children, to build culture. The bond was erotic, sensual, carnal, because the activities of the flesh were not separate from the spirit immanent in life. (Starhawk, 1982, p. xxvi)

For the Church to gain control of such villagers, the aforementioned bond would have to be broken, and a wedge driven "between spirit and flesh, culture and nature, man and woman" (Starhawk, 1982, p. xxvi). Starhawk sees the history of patriarchal civilisation as a cumulative effort to break that bond, and that one of its major battles in that long war of conquest was fought "when the persecutors of the witches shattered the peasants' connection with the land, drove women out of the work of healing, and imposed the mechanist view of the world as a dead machine" (p. xxvii). That rupture allowed for the development of "entwined oppressions of race, sex, class, and ecological destruction" (p. xxvii).

For Harris (1975, pp. 208–221), expertise with herbal remedies for healing, and as tools for shamanic trances, visions and psychospiritual experiences, was central to the question of witchcraft. Some alleged witches, he says, used a hallucinogenic ointment containing mind-altering alkaloids such as atropine from extracts of soporifics such as hemlock, nightshade, henbane and mandrake to induce sleep, heavily laden with dreams

in which bacchanalian and sexual fantasies, and elements of the sabbat, commonly featured (see also Guiley, 1989, pp. 230, 253–255). Guiley (1989) cites Reginald Scot (1584) as believing the purpose of the ointments, for which he published recipes, was to create a mental effect rather than, for example, facilitating real flight. Thus the later confessions to witchcraft — sabbats, flying, suckling animal-shaped familiar spirits, fornicating with the freezing penis of a devil, and the like — while being unreliable because they were extracted under torture, nonetheless may have had a common basis in internal imaginary, or dream experiences featuring common archetypes from the collective unconscious of the age, even if, as Harris opines, most of the burnt victims were innocent of such practices.

Witches' reputations and power probably came from varieties of knowledge and skill, which for some could have included the ability to induce fear, sometimes resulting in the nocebo effect, whereby psychosomatically self-generated spontaneous death or injury follow (Machen; cited in Sergeant, 1996, pp. 5–12). This appears to be similar to the power of the Australian aboriginal kadaicha man who, in order to avenge a grievance or death of a tribal member, can apparently "sing" a person to death, or bring about death by "pointing the bone". Some other witches were accused that they could "by curses and charms ... influence ... in some small degree the forces of nature" (Sergeant 1996, p. 27).

There is disagreement in the literature as to whether any conscious element of Goddess, Druidic, Wiccan, Roman–pagan, Teutonic–pagan, Mithraic or other pre-Christian religions survived as a factor in medieval witch beliefs (Sergeant, 1996, pp. 27, 86). It appears probable that some witches would have retained some of the earlier religious beliefs, practices, or superstitions, and rejected some or all of the Catholic Christian perspective, and may have been openly or privately critical of the Church and its representatives. For a witch to be a successful natural medicine practitioner, particularly in relation to the use of herbs and other forest products, she would need to spend a great deal of time in the forest, and live her life close to nature and work in harmony with it. She would have little fear of the forest, as she would probably understand it better than

anyone else in the area, and see it as a much more positive place. It would be more natural for her to hold spiritual beliefs relating to love of nature, rather than Catholic beliefs that included fear of the forest as a place of evil. This could explain the Church's thrust to total ideological control through suppression of such powerful free thinking individuals, as powerful and popular local critics would be seen as a threat to the cohesion of the parish (Sergeant, 1996, p. 84).

There is no generally agreed definition of what witchcraft actually is, for "the term has different meanings in different cultures and ... at different times in history" (Guiley, 1989, p. 368). Anthropologists define witchcraft as an innate condition involving the use of "malevolent power by psychic means without need for ritual or charm" (p. 369). In Western societies it has been perceived that the witch works magic through spells, and uses supernormal powers such as "invisibility, shape shifting ... flying, the ability to kill at a distance, clairvoyancy and astral projection" (p. 369). During the Renaissance, witchcraft was deemed to include evil magic, heresy, Devil-worship, making pacts with the Devil (p. 369), and "secret, orgiastic sabbats; infanticide and cannibalism; renunciation of Christianity; and desecration of the cross and Eucharist" (p. 370).

Szasz (1973) agrees that natural healers were significantly represented among those murdered as alleged witches, and acknowledges their special position:

> Because of the nature of the human bond between suffering peasant and trusted sorceress, the good witch becomes endowed with great powers of healing: she is the forerunner, the mother, of the mesmeric healer, the hypnotist, and the (private) psychiatrist. In addition, because she is actually a combination of magician and empiricist, the sorceress acquires, by experimentation with drugs extracted from plants, a genuine knowledge of some powerful pharmaceutical agents. So advanced is her knowledge that, in 1527, Paracelsus, considered one of the greatest physicians of his time, burns his official pharmacopoeia declaring that he had "learned from the sorceresses all he knew". (p. 112)

For Starhawk (1982, p. 199), the medieval Catholic Church was engaged in a concerted campaign to impose monopoly control on the knowledge market. For centuries it had claimed that it was the only approved body to dispense grace, and it viewed the natural

medicine work of witches, particularly when spectacular healings occurred, as the unauthorised dispensing of a grace that lacked the official seal of approval, and also of transmitting knowledge without approval. The perceived healing and harming powers of witches were therefore seen to be evil, because they came from an unapproved source. The Church adopted a dualistic world view in which all good came from God, and everything else, including unauthorised healing, came from the evil Satan.

The witch was deemed to be heretical for finding her information outside the Church's authorised channels of knowledge. For Ehrenreich and English (1973), the witch-healers' methods were relatively scientific in that she relied on cause and effect, trial and error, and on her senses, rather than on faith and doctrine (p. 14). In this way, she was a threat to the Church and its teachings, as her attitude was not religiously passive, but actively inquiring. Her magic was the science of her time, as she utilised a variety of techniques from medications to charms, to seek solutions to problems of disease, pregnancy and childbirth (p. 14). The Church, by contrast, was deeply anti-empirical because of its belief that the world is created anew by God in every instant, so looking for natural laws that govern physical phenomena was pointless (p. 14). The Church also saw the senses as the Devil's playground, through which he would lure people "away from faith and into the conceits of the intellect or the delusions of carnality" (Ehrenreich and English, 1973, p. 15). The witch persecutions allowed the anti-empiricist, the misogynist, and the anti-sexual obsessions of the Church to coincide in a battle against the senses, which were seen to be a betrayal of faith. The witch:

> was a triple threat to the church: she was a woman, and not ashamed of it. She appeared to be part of an organized underground of peasant women. And she was a healer whose practice was based in empirical study. In the face of the repressive fatalism of Christianity, she held out the hope of change in this world. (p. 15)

The quest by the Church for totalitarian control produced much death and misery. It commenced its Inquisition in 1184, well before the plague, by order of Pope Lucius III. In 1209, as part of a quest for dominance, Pope Innocent III ordered a crusade against the Albigenses in France, and over one and a half centuries, an estimated one million people were killed (Szasz, 1973, p. 324). In 1233, Pope Gregory IX entrusted the

Inquisition to the Dominican Order, answerable only to the Pope, and it began using torture in 1252 (Grun, 1982, pp. 170, 172; Guiley, 1989, p. 370), although torture had been commonplace in various types of criminal proceedings, mostly secular, in Europe well before then. In 1320 a papal instruction empowered the Inquisition "to act against practitioners of ritual magic as heretics" (Cohn, 1975, cited in Hester, 1992, p. 133). By about 1375 the Cathari and the Waldenses had all been killed, and the Inquisition began to concentrate on witchcraft (Szasz, 1973, p. 324). In 1444 the Church approved the first shipment of black African slaves, which arrived in Portugal to assist with the problem of the critical shortage of labour following the Black Death. In 1468 the Church declared witchcraft an exceptional crime, allowing the suspension of legal rules and safeguards, and encouraging the use of torture to force confessions. In 1484, Pope Innocent VIII's bull formally declared witchcraft a heresy (Szasz, 1973, p. 325).

There is much disagreement in the literature about the number of people quasi-judicially murdered by the Church in the course of the witchcraft and heresy trials of the following three centuries. Some 19th and 20th century feminists use the figure of 9 million (Gage 1893, pp. 228-231), and Ehrenreich and English (1973, p. 23) report that the number would be in the millions. A contemporary source, Johan Weyer (Schneck, 1960, p. 41) calculated the number of witches in the middle of the 16th century to be 7,409,127. However, Harris (1975, pp. 207, 221) uses an estimate of 500,000 witches killed. Starhawk (1982, p. 187) points out that the higher estimates include many who were not officially executed, but died in prison, in the process of torture, or suicided to avoid further torture. Similarly, the commonly used ducking or swimming test drowned many women who were, post mortem, deemed innocent of witchcraft because the water had not rejected them (Szasz, 1973, pp. 61–62).

However, Briggs (1996) claims that "the most reasonable modern estimates suggest perhaps 100,000 trials between 1450 and 1750, with something between 40,000 and 50,000 executions, of which 20 to 25 per cent were men" (p. 8). However, Briggs appears to rely heavily on the surviving written records of witch trials, and assumes that there was only one accused in each trial, and that there was an acquittal rate of 50%.

There is other evidence relating to acquittal rates. For example, the repentant former witch hunter, von Spec (1631) said:

> The result is the same whether she (the accused) confesses or not. If she confesses, her guilt is clear: she is executed. If she does not confess, the torture is repeated — twice, thrice, four times ... She can never clear herself. The investigating body would feel disgraced if it acquitted a woman; once arrested and in chains, she has to be guilty, by fair means or foul. (Robbins, 1959, pp. 482–483; Szasz, 1973, p. 58)

Briggs (1996, p. 8) also asserts that a significant proportion of the victims were men, although this is countered by Hester (1992, p. 108, citing MacFarlane 1970, p. 160). Karlsen (1987; cited in Hester, 1992, pp. 119–120) argues that the witch-hunts were aimed mainly against women who stepped beyond their expected social role, such as by playing a too prominent role in religion, competing with men for economic resources, or by being sexually independent, such as being unmarried, widowed, or having an illegitimate child. Women were thought to be generally inferior to men, so it was presumed that if they successfully stepped out of their expected subservient role, they must have used witchcraft. This is supported by Guiley (1989) who found that most accused women were spinsters and widows who were independent of direct male control, and who were subject to male hostility because they were "women free from invasion from the 'member', women who might even find the 'male organ' laughable, unaesthetic, and, perhaps more importantly, uninteresting" (Guiley, 1989, p. 374, citing Daly, 1978). Also, there is agreement in the literature that folk practitioners of natural medicine were prominent among the victims of the witch holocaust (Sergeant, 1996, p. 280).

The Inquisition was an instrument of political terror, which achieved results similar to those achieved by the Nazis from 1939 to 1945. The common denominator between the Inquisitors and many of the Nazis was their purported Christianity. However, the actual number of victims is irrelevant to the question of political articulation of the effects of the witch-hunts in driving the practice of natural medicine underground, and intimidating the populace out of other forms of heresy and dissent. Women, who comprised most of the victims, were the victims of a class repression. Because women

were the informal healers of rural Europe, their mass-murder equates to the mass-murder of natural healers. The persecution achieved the objective of intimidating the mostly lay competition, and promoting the trend toward a professional monopoly of exclusively male, university-trained physick. "Few women dared to be wise, after thousands of their sex had gone to death by drowning or burning because of their knowledge" (Gage, 1893, pp. 243–244).

The witch trials provided an opportunity for a coalition of convenience between the Church, the government, and the university-trained doctors. For the trials to appear to be fair, just and reasonable, the Inquisition needed reliable, independent, expert witnesses to bring an aura of science to the proceedings. The *Malleus Maleficarum* says: "And if it is asked how it is possible to distinguish whether an illness is caused by witchcraft or some natural physical defect, we answer that the first [way] is by the judgment of doctors" (cited in Ehrenreich & English, 1973, p. 19).

Women healers were not the only medical victims of the burnings. In the aftermath of the pestilence, a great many Jews were burned, individually or in mass pogroms. Hitherto, Jews had been leading and high-prestige practitioners of physick, having learned their trade by study or apprenticeship in the Arab-ruled lands of North Africa and Moorish Spain, where they were numerous inhabitants of a generally tolerant society, and not subject to prohibitions on study or professional practice (Park, 1997, p. 74). As professional physicians trained in Christian European universities rose in importance, legal prohibitions or restrictions on Jewish medical practice took on an aspect of commercial competition, rather than purely religious persecution (Szasz, 1973, p. 130).

While conscious intent is probably not provable, the fact remains that as a result of the persecutions and mass murders of women and Jews in the burning centuries, the profession of physick in Europe benefited by having a great many practitioners of two rival medical groups killed or driven underground, or otherwise taken out of the market. The physicians may or may not have played a part in initiating the murders, but they

profited from them. The need for the use of unscrupulous methods to gain market advantage, by removing the competition, is apparent from the precarious market position of physicians in the 14th century. The European medical market was diverse, as it included folk healers who were the natural medicine practitioners, Arab-trained Jewish practitioners, the university trained physick, and the quacks. Like any truly free medical market, it favoured the buyer of medical services (McVaugh, 1997, p. 65). The Black Death showed up the failure of all kinds of medicine to prevent mass deaths, and made medical consumers more enquiring in their medical choices. The physick may have feared that they would never gain market dominance in a free market, so corruptly entered into corporatist arrangements that demanded a high price — which they were prepared to pay.

4.5 Shock to the State and Collective Psyche — The Black Death

The origins of the current political dominance of biomedicine in Western societies evolved from changes that followed the great European plague of the mid-14th century, and the epidemics that followed. The cheek-by-jowl existence of many humans with domestic and farm animals in early and medieval Europe must have caused many periods of widespread endemic and epidemic diseases (Diamond, 1997, pp. 88, 195–214). However, none were so devastating as Europe's greatest known ecological disaster, which became known as the Black Death (Tuchman, 1978, p. 101). Between 1347 and 1353 it killed, according to varying estimates, a quarter to half the population of Europe (Park, 1997, p. 66), more than 20 million people (Porter, 1997, pp. 122–123), and in some districts 70 to 80 per cent. The size of the population restored slowly, and Herlihy (1997, p. 17) states that by 1420 it was about a third of what it had been a century before.

Plague is primarily a disease of small mammals and can survive indefinitely in wild rodents, including grey rats that live close to humans. The rat flea, the principal vector, will leave the infected rat only after its death when it is cold, and if a new warm rat is not available, it will attach to a human host (Herlihy 1997, pp. 21–22).

Tuchman (1978, pp. 94–123) outlines the Black Death's mass-psychological effect. A chronicler of Sienna wrote that people said and believed that the plague would bring about the end of the world. In enclosed places such as monasteries, as people watched others die, they naturally wondered if the strange peril which seemingly filled the air had been sent to exterminate the entire human race. The sense of a vanishing future created a kind of dementia of despair, as the consequential shortage of labour resulted in (for example) the non-cultivation of farming land and the failure to maintain dykes. Spring seed remained unsown, and farming land became overgrown, or soured by salt water. As the work of centuries was quickly destroyed by nature, some wondered if their world would ever regain its former prosperity. Ignorance of the cause of the disease augmented a general sense of horror.

Conrad (1992) theorises that one of the "worst terrors" for those at risk of epidemic disease is "the way it challenges the ideological structures that sustain all societies" (p.77). The apparent absence of an earthly cause gave the plague a supernatural and sinister quality, which resulted in the development of the belief that it was caused by the wrath of God, and therefore it had to have some special spiritual meaning. However, survivors of the plague, on finding themselves neither destroyed nor improved, could discover no divine purpose in the pain they had suffered, beyond the simple explanation that they had experienced one of God's mysteries. The effects of the plague were too devastating to be accepted without serious questioning as, for many, simple explanations were unacceptable. "If a disaster of such magnitude, the most lethal ever known, was a mere wanton act of God or perhaps not God's work at all, then the absolutes of a fixed order were loosened from their moorings" (Tuchman, 1978, p.123). The effect was catastrophic and, in modern terms, equated to that of a nuclear holocaust on the psyche of much of the human race and its subsequent development (Porter, 1997, pp. 122–123; Woodman & Dickson, 1996, p. 29). The greatest epidemic to have swept Europe also resulted in a political, legal and medical coalition of religion and medicine, and it wrought a sea change in each.

As satisfactory explanations were not forthcoming from Church or government, their positions of power and privilege would have been scrutinised. The plague, therefore, eroded public acceptance of prior certainties such as the Church, other authorities, and tradition in general, leading to the emergence of alternative and dissident religious movements over which the power holders had little or no control (Herlihy, 1997, p. 66; Lyons & Petrucelli, 1987, p. 351). The Church's relative monopoly on religion was widely threatened, and it responded with increasing campaigns of Inquisitional persecution against alleged heretics, healers, witches, Jews and others. Thousands of Jews, who were falsely accused of spreading the disease by poisoning the wells, were burnt alive in groups throughout Germany (Porter, 1997, p. 125).

The established order was also under academic scrutiny as the late medieval schools engaged in debate which criticised the philosophical systems developed in the immediate pre-plague period. The influential theologian, Thomas Aquinas, had then claimed, firstly, that the universe possessed an underlying order, and secondly, that the human intellect could achieve at least a partial understanding of its structure. The nominalists dismissed both of these claims on the grounds that the human intellect was limited and therefore did not have the power to penetrate the metaphysical structures of the universe. Humans could merely observe events as they occurred. It was also claimed that there could be no fixed natural order because the omnipotent power of God allowed Him to change what He wanted, when He wanted — thus rendering the universe to control by arbitrary notions. In the post-plague period it became difficult to reconcile Aquinas's sense of order with the destructive experience of the plague, particularly its unknown source, unpredictability of appearance, and course (Herlihy, 1997, p. 66).

Lyons and Petrucelli (1987, p. 351) explain how the Catholic Church offered hope of healing for plague victims through the medium of special saints, who were deemed to be plague specialists. From early in the 13th century, the papacy claimed a monopoly on saint canonisation, which followed a tribunal enquiry into the deceased person's holiness, and the attainment of conclusive proof of healing miracles performed either during, or after, his or her life on earth. For example in Italy, Rose of Viterbo died

around 1252 with no contemporary recording of her life, and was rediscovered during a frantic search for heavenly patrons "when the great epidemic struck Viterbo in 1450, and she responded by effecting many cures" (Herlihy, 1997, p. 28). Her later canonisation tribunal records contain depositions as to her healing miracles. One deposition related to a 6-year-old boy, Peter Dominus, who in 1450 was exhibiting alleged plague symptoms, including fever and the sign of the plague, but after drinking water that had washed the hands of Rose's exhumed body, Peter was healed — and Rose was canonised as a saint (Herlihy, 1997, p. 28).

Martin Luther later criticised the Catholic Church practice of veneration of relics, particularly of the alleged remains of various saints, which could be used for miracle healing. Coates (2002) suggests fraudulent activity by the Church, by its claim that certain specific parts of the alleged remains of saints were located at different places at the same time, and said that "Christ has twelve apostles, and fifteen of them are buried in Germany" (p. 9). Also, the head of John the Baptist was allegedly located simultaneously in Munich and Istanbul (p. 9). As well as protesting about duplicity, Coates was concerned that the Church was duping the gullible and desperate with the promise that their time in purgatory would be reduced by years if they paid considerable sums of money to see and touch these dubious relics (p. 9). Whereas some observers, such as Luther, would probably assess these practices as being based on myth, they played a role in healing. Modern science may suggest that these healings could be due to the placebo effect.

As medical explanations for the Black Death are still inconclusive, attention has been given to social and political factors, particularly from the perspectives of Malthusianism and Marxism. Thomas Malthus (1798: *Essay on the Principle of Population* — cited in Herlihy, 1997, p. 31) theorised that human populations would grow beyond the capacities of their food supplies, and "positive checks" such as famines, epidemics, and wars would reduce the population to supportable levels. The application of this theory to the Black Death is supported by evidence that Europe was previously overcrowded, that food prices had risen steeply, and that famines had occurred. A severe famine would,

theoretically, generally reduce bodily resistance to disease, as Simon de Couvin of France states, "the one who was poorly nourished by unsubstantial food fell victim to the merest breath of the disease" (Herlihy, 1997, p. 32). With the world population currently experiencing rapid growth, there may be opportunities to assess the significance of the Malthusian theory that populations grow relentlessly into crisis.

Herlihy, (1997, pp. 35–37) claims that Marxism is in conflict with Malthusianism, as it holds that exploitation, not overpopulation, of workers is the major source of their misery, so the remedy lies primarily in insurrection. In 1976, Guy de Bois developed an elaborate Marxian model of social and political change for the late Middle Ages, and concluded that a "crisis of feudal rent" was the major problem of the time. From a Marxist perspective there was a contradiction in the feudal system, as the peasants controlled the actual production and distribution of the harvest, taking care of the needs of their family first, and virtually paying a rent that they could afford. Around 1315, total rental income declined, and the increased rental received from newly opened marginal land was insufficient to compensate for reductions in other rents. The lords sought new sources of income and actually stole resources from peasants and others, and even engaged in kidnap for ransom through hastily arranged wars, which were mainly opportunities for theft. To fund the wars, new taxes had to be collected from the peasants, and the tax collectors tended to acquire what the military pillagers left behind — thus devastating the population (p. 37).

The Malthusian and Marxist theories indicate how individuals might have avoided and/or survived a disease as infectious and debilitating as the Black Death. Both theories claim that, immediately prior to the Black Death, populations were stressed and weakened by, amongst other things, food shortages, which made them less resistant to disease. The fact that so many people survived suggests that those who managed to maintain high levels of resistance to disease might have increased their survival chances. It is for reasons such as these that the natural medicine paradigm is influenced by theories relating to resistance, immunity, and vitalism.

In the post-plague debates, the unexplained and irrational experiences of the plague were compared with the rational power of the human mind. Irrational "nature" came to be seen as something to be subdued and controlled by the rational mind. The plague became a catalyst for a major shift in human perception in areas such as science, medicine, attitudes towards women, the alleged divine purpose of the rigidly controlled patriarchal order, the purpose of life and death, and general philosophy and religion. The Catholic Church and its sometimes-dissident allies and rivals in the secular power centres responded to the political aftermath of the plague by seeking totalitarian ideological control of the population. Their primary aim was to repair the damage to the credibility of the established order, and to suppress the burgeoning independent religious movements. This struggle for power became the major conflict of the age (Woodman & Dickson, 1996, pp. 30–31).

This desire to control extended to general issues relating to life and death, and more specifically to women and human bodies. Sexuality was seen to be irrational, and therefore needed to be subdued and rigorously controlled. The natural universe increasingly became a target of confrontation, and its dominance became an expression of human power, as attempts were made to put distance between people and the forces of death. E. F. Schumacher says that "the old science looked upon nature as God's handiwork and man's mother; the new science tends to look upon nature as an adversary to be conquered or a resource to be quarried and exploited" (Woodman & Dickson, 1996, p. 31).

The subjection and control of women by men did not occur in a philosophical vacuum. The Jewish morning prayer for men sets the basic negative tone of the patriarchal religions towards women: "Blessed art thou, O Lord our God, King of the Universe, who hast not made me a woman" (Mishnah Peah, Ch. 1). The early Christian church adopted this anti-female perspective, describing woman variously as "the gate of Hell, the confusion of man, an insatiable beast, a continuous anxiety, an incessant warfare and a daily ruin". By "a decree of the Council of Auxerre (A.D. 578), women on account of their impurity were forbidden to receive the sacrament into their naked hands" (Gage,

1893, p. 57). Saul of Tarsus, in 1 Corinthians 7, provides an opinion that marriage is merely better than burning, and suggests that marriage is an obstacle to spiritual development. In verses 3 to 8 of chapter 11 thereof, he casts women as secondary and subservient to man, as man is subservient to God. In 14, verses 34 and 35, he binds women to silence in Christianity, saying that it is shameful for them to speak in church. In 1 Timothy 11:14, he suggests that women may be the cause of sin.

The medieval Church took misogyny to the furthest extent possible. It "elevated sexism to a point of principle: the *Malleus* (Kramer & Sprenger, 1486, p. 117) declares, 'When a woman thinks alone she thinks evil'" (Ehrenreich & English 1973, p. 26). The misogyny of the Church is evidenced by the post-plague witch craze, and also by its theory that women played no part in the biological, physical or other development of a baby. In intercourse, the male purportedly deposits in the female a homunculus, or "little person", complete with soul, which is merely housed in the womb for nine months, and which does not acquire any attributes of the mother. The homunculus reaches safety only in the hands of a male priest, in baptism, which ensures the salvation of its immortal soul. "Another depressing fantasy of some medieval religious thinkers was that upon resurrection all human beings would be reborn as men!" (p. 26).

Ehrenreich and English (1973) continue:

> The church associated women with sex, and all pleasure in sex was condemned, because it could only come from the devil. Witches were supposed to have gotten pleasure from copulation with the devil (despite the icy-cold organ he was reputed to possess) and they in turn infected men. Lust in either man or wife, then, was blamed on the female. On the other hand, witches were accused of making men impotent and of causing their penises to disappear ... of giving contraceptive aid and ... performing abortions ... In the eyes of the church, all the witches' power was ultimately derived from her sexuality. Her career began with intercourse with the devil. (p. 26)

In the aftermath of the plague, sexual woman, the sensual and reproductive part of the feminine, became identified with corruption and death, while at the same time the worship of the asexual Virgin increased to unprecedented heights (Woodman &

Dickson, 1996, p. 33). This anti-sexual orientation not only took hold of the Catholic Church, but prevailed in the protestant churches too, as Luther and other protestant reformers expostulated repeatedly on the sins of corruption of the flesh.

As the Catholic theories that illness was punishment for sin, and sex was influenced by the Devil, were widely accepted, fear of contracting a sexually transmitted disease resulted in discrimination against those perceived to be so infected. Leprosy provided such a focus, whereby the Church provided more of a religious than a medical diagnosis, by incorrectly claiming that it arose from the sin of lust, and was therefore spread by sex (Porter, 1997, p. 122). Also, the other disfiguring contagion, syphilis, provided a vehicle for the promotion of the puritanical anti-sexual tone of much religious and moral commentary in late medieval and early modern Europe (Porter, 1997, p. 175).

Taylor (1965, pp. 145–146) reinforces the impression of the Church's fundamental anti-sexuality with reference to homosexuality, which it opposed because it satisfied carnal lust and yielded bodily pleasure, not because it was abnormal or unnatural. The perceived role of sex was merely to ensure the continuation of the human race, so other sexual activity was unnecessary, and its associated pleasure was condemned. Sexual activity was even severely restricted within marriage, which was declared to be a less blessed state than virginity. Some Christians even thought that progress to spiritual ascent depended upon renunciation of all of the pleasures of life, so arranged for their own castration (Pagels, 1995, pp. 157–161).

Behringer (1996, p. 87) claims that sexual repression was central to the gender politics of the era, especially once compulsory celibacy had been imposed on the higher clergy in 1022 (Grun, 1982, p. 128). The first generation of bishops to be seriously confronted by celibacy and enforced sexual segregation were those who composed the generation of early witch hunters. The witchcraft persecutions are generally viewed as an instrument of religious conflict. However, it is probable that the associated severe radical solutions introduced by these bishops were conditioned by the fanatical severity of their upbringing. The Church theorised that the purpose of life on Earth was to provide a

preparation for the life that would follow death. As the majority of those who died would face eternal torture and damnation in hell, life in this world was a very serious affair: "a vale of blood and tears". In this pessimistic atmosphere, it was a culpable heresy to hold that more than a tiny minority were likely ever to escape hell fires, and laughter and rejoicing were considered to be inviting the "fires of Eternity. 'He who fees a joculator', it was held, 'fees the Devil'" (Hughes, 1952, p. 60).

Bodily pride provided another shortcut to hell, so Roman hygiene gave way to pious dirt. When St Bridget revealed her vision that Christians might, without offence, wash twice a month, the news was received with a sense of the miraculous. As the end of the world could come at any time, there was a need to be always ready for this eventuality. Those desperately in search of salvation willingly sought fasting, flagellation, and maceration of every kind. The former oneness with nature was replaced by the desire of the Church to impose a oneness with God, through a formula of penitence and absolution (Hughes 1952, pp. 60–61).

The early Christians turned away from nature, life, sex and the amoral excesses of the Roman Empire, and gave much — probably neurotic — attention to sexual sin, and took pride in sexual abstention, continence and celibacy (Pagels, 1995, p. 121). The Roman pagan religion had identified the divine with nature, and its gods were seen as embodying natural and supernatural forces. The Christian separation from nature was recognised by the influential early Christian writer Tatian, for example, when he identified "with the God who stands beyond nature" (Pagels, 1995, pp. 126–132), thus elaborating the foundation of the separation between soul and the world, which evolved to the separation of spirit and matter, and later to the separation of mind and body.

For millennia, nature had been accepted as a positive force, and as the mother of all life — yet in medieval Christendom, the religious power-holders insisted that their followers reject nature and all, or at least many, of the pleasures of life, and spend their lives preparing for the period following their death. The Catholic Church therefore focused positively on death and negatively on life, to the extent that the irrational and probably

hysterical fear of life that the Church and its followers experienced might have caused ill-health to many. This claim would be supported by Traditional Chinese Medicine theory, where such an extended imbalance of the emotion of fear could cause general or specific disharmony, with an extensive range of potential medical signs and symptoms.

If the Black Death was a divine punishment for sin, then the sin of the 14th century Europeans was to live their lives contrary to the laws of nature. This included dominant negative thought patterns, living cheek-by-jowl with domestic and farm animals, hygiene considerations arising from "pious dirt", inadequate sanitation, poor nutrition and a lack of, and fear of, general happiness and joy.

4.6 Crusade to Control Natural Medicine

The major mystery of the Inquisition is why so many people were executed for alleged crimes that they probably committed only in the imaginings of others. According to Harris (1975, pp. 221, 225) the answer is probably found in the desire of the Church and the government to suppress outbreaks of European Christian messianic fervour, which arose in the post-plague period, and which — although directed against the monopoly power and wealth of the ruling classes — produced the Protestant Reformation. However, the suppression may also be viewed as a struggle between masculine and feminine elements of society, as the male Catholic hierarchy and its patriarchal allies attacked the focal role of wise women and other folk healers. From this perspective there are two major contests for dominance: religious and medical. The first was between the male dominant Catholic branch of the masculine Christian religion, and the relatively feminine pagan religions; the second was between male, university-trained physick and the female-dominant natural medicine. In both of these contests the masculine elements were active whilst the feminine were passive.

Political acts of oppression, contempt for human rights, and mass murder were not invented by the Catholic Church. It was merely one of many organisations — including religions and governments — which committed such acts from, at least, the time of ancient Egypt (Icke, 1994, pp. 74–88). The tone of suppression is conveyed in the Bible,

which describes several instances of mass murder, enslavement and brutality conducted by and against the ancient Israelites, in a manner that appears to regard such atrocities as acceptable behaviour. However, the Holy Roman Catholic and Apostolic Church set new standards for the mass murder of humans, by the slaughter of numerous specifically targeted individuals over such a long period of time — about 300 years — in a widespread and ideologically coordinated campaign. Such tactics were later to feature prominently in Western European empires, in Stalinism and Nazism. Icke estimates that "the number who perished as a result of the Christian religion must easily pass 100 million" (p. 77).

The witch-hunt propaganda and processes firstly distracted and then repressed and disempowered the peasantry, as it shifted responsibility for the crises of late medieval society from the power holders to imaginary demons in human form. Preoccupied with the fantastic activities of these alleged demons "the distraught, alienated pauperised masses blamed the rampant Devil instead of the corrupt clergy and the rapacious nobility" (Pagels, 1995, p. 225). Thus, the witch-hunts form one example of a long line of measures — bread and circuses, wars and foreign adventures — used to distract the masses from focussing on the real sources of their misery. Instead of maintaining personal responsibility for their own lives, and recognising the role of the ruling classes in continually draining their resources, the peasantry and the urban poor came to accept that they were being victimised by witches and devils, who were the cause of all their problems (Pagels, 1995, p. 237).

The witches were convincingly blamed for all societal problems, including the plague, so rich and poor alike could only admire the bravery of the authorities as they battled with this evil. The nobility and the clergy came to be seen as the protectors of mankind, which was sufficient reason to justify the payment of taxes and church tithes, especially if they were perceived to be well spent. "You could actually see the authorities doing something to make life a little more secure; you could actually hear the witches scream as they went down to hell" (Pagels, 1995, p. 237).

The joint ecclesiastical and secular totalitarianism of the Middle Ages was supported by the definition of *heresy*, which involved publicly holding opinions different from, or attacking, the laws of the faith. Gratian's *Decretum,* of about 1140, explained that by preferring their own opinions, the heretics showed intellectual arrogance towards knowledgeable clerics and were guilty of high treason (Ullmann, 1966, p. 37). It is ironical that the *Decretum* included the *Canon Epscopi,* from around 900, which declared witchcraft to be nothing more than an illusion (Guiley, 1989, p. 52).

Starhawk (1982, pp. 203–204) observes that the collective consequences of the destruction of trust within the peasantry were numerous. The bonds of peasant-labourer cultures were fragmented, and the power of women to resist male domination was weakened. As healers were focal role models who provided community and individual models of knowledge, competence, and worth, healing was a vitally important part of peasant culture. The destruction of the culture's trust in its healers effectively destroyed that culture's trust in itself, shattered its cohesive bonds, and exposed it to control from outside influences. Further, the healers' supplementary role as spiritual leaders placed them at the centre of community organisation and in competition with the church, as they promoted beliefs of the presence of spirit and soul in the world, of the sanctity of nature and all life, and therefore opposition to the exploitation of natural and human resources.

Lea (1956) blames the Church for the "infinite wrongs committed on the Jews during the Middle Ages ... and for the prejudices that are even yet rife in many quarters" (pp. 35–36). This is supported by Pagels (1995, pp. 3–34) and Shorto (1997, pp. 182–187) who place this matter in its political perspective. In order to appease the Romans, the Christians showed their hostility to the Jews by blaming them for Christ's death, when that claim was inserted into the gospel of Matthew after the crushing of the Jewish Revolt and destruction of the Jerusalem temple in 70 CE. The appeasement proved beneficial when, after Constantine experienced an alleged vision of Christ in 311, he won a decisive battle for Rome under the banner of the cross, thereby guaranteeing "that the cross of the peaceful messiah would preside over the deaths of untold millions of

Christian soldiers and their enemies down to the present day" (Harris, 1975, p. 203). Later, Constantine established the Catholic Church as the religion of the Roman Empire.

In order to destabilise the populace, the Inquisition publicly inflicted much physical and mental torture and agonising death over three centuries. However, this was only one part of a wider propaganda campaign which also generated psychological terror through the imposition of religious theories — designed to control all aspects of human life through fear and guilt — and which related to sin, heaven and hell, eternal torture in hell and the "saving" sacraments. Starhawk (1982, pp. 189–196) claims that the peasantry were further disempowered by the abolition of their traditional land rights and by the tendency to professionalise work. The post-plague labour scarcity provided opportunities for expropriation of land by the abolition of traditional peasant rights of access for subsistence activities. Consequently, labour-efficient mono-cropping or grazing could be introduced — thus separating many surviving peasants from the land they knew. Further, the post-plague free market saw the development of a cash economy, whereby goods and services were traded for money values, reflecting the erosion of the fixed feudal order of mutual obligations. Also, all crafts, trades and skills — including those that had once been carried out as informal or untraded functions of community relationships — tended to become professionalised, so that services, including medical services, were offered for cash. Consequently, university-trained physicians usurped the role previously performed by wise women and cunning folk (Starhawk, 1982, pp. 199–205). As the peasantry became more individualistic than collective, the stage was set for the later development of capitalism.

The irony for the Catholic Church is that by fragmenting the collective unconsciousness of the peasantry it created the conditions for an individualism that would be even more difficult to control. The mass printing of the vernacular Bible in 1453 allowed people to read it for themselves, thus breaking the Church's monopoly on Christian information. This laid the foundations of the successful Protestant Reformation, which resulted in the fracturing of Christianity into thousands of separate churches and the gaining of

individual freedoms. The vernacular printing of the Bible was "one of the most successful blows ever struck against manipulative secrecy" (Saul, 1992, p. 43).

It is clear that particular organisations of human beings have in the last thousand years tortured and murdered great masses of other human beings. It is also clear that many other people have been sorely oppressed, and suffered humiliating disempowerment at the hands of certain power holders. The welfare of the powerless has often been disregarded by power holders, many of whom seem to place a low value on human life and human rights. So much of this oppression and exploitation of humans has occurred, that it may be regarded by some to be a normal state of affairs, and even natural for humans to act in this way. Those of this view may even believe that these actions are part of biological and/or cultural evolution, and use this as justification for cooperating, possibly for their own benefit, with the powerful — even though they do not necessarily support their excesses. However, in the midst of such oppression in the Middle Ages, some people maintained philosophical beliefs which were opposed to all breaches of human rights and attracted to themselves the wrath of the power holders. Many of these people also happened to be natural medicine healers who, as a class, were pursued relentlessly.

It is significant that practitioners of the antecedents of biomedicine, however, chose a contrary position and actively supported the power holders, at least in the formal proceedings — allegedly for their own financial and status benefits. The direct role of some physicians in that holocaust may well have been small, and coerced, given the totalitarian conditions of the time, but their tribunal role required, for 300 years, an attitude of arrogance and disrespect for the rights of the accused. This support of suppression of human rights, and the placing of a low value on human life, fatally compromised their profession's morality and ethics, yet yielded corporatisation of physick and increased market share. It is theorised that this climate flowed into the questionable physick general practice, and was represented by the many practitioners who remained arrogant, aloof and distant from their clients, who suffered humiliating disempowerment in physick practice, especially as its iatrogenic illness rates increased.

It is theorised that this climate that pervaded physick — originally the medicine of the medieval ruling classes — accompanied its cultural evolution to the heroic practices of the 19th century, and continued through to biomedicine. It is further theorised that biomedical practice is fundamentally flawed by a culture of arrogance, and indifferent attitudes to the value of human life and human rights, as evidenced by its iatrogenic and nosocomial statistics — particularly in relation to the working class — which have evolved from its Middle Ages antecedents.

4.7 The Practical Politics of Professionalising Physick

Although Church-approved medicine was monopolised by the monasteries — where primitive medical care involving prayer, first aid and simple herbalism were provided — the professionalisation of physick commenced with Church-supervised education in medieval schools and universities. The gradual separation of Church and medicine followed the Lateran Council of 1215 which, although restricting physicians to practicing under the direct supervision of a priest, also prohibited clerics from practicing surgery or studying medicine — thus establishing the boundaries of the new profession. The enthusiastic use of the profession by senior clerics in the 14th century partially overcame the theory that sickness was punishment for sin. Physick began as an urban service, while in the countryside the peasantry continued to rely on self-healing or folk medicine (McVaugh, 1997, pp. 60–63; Porter, 1997, pp. 110–120).

Even before the witch-hunts, physicians participated in State mechanisms of social control. By 1300, physicians were involved in medico/legal proceedings such as diagnosing leprosy, which resulted in loss of freedom for individuals. They were also involved in the huge French hotels which developed the hospice concept into institutions, housing the aged, orphans, widows, prostitutes, the disabled, lunatics, imbeciles, petty thieves, and other social nuisances, and which had compulsory detention powers (McVaugh, 1997, pp. 60–61). Following the Black Death, the public role of physicians expanded with the creation of local health boards having responsibility for controlling epidemics, and empowered to confine or segregate infected people and impose restrictions on public movement (Park, 1997, pp. 71–72). These

public roles enhanced the profession's credibility and increased its socio-political power; eventually, professional associations arose, "ostensibly aimed at establishing standards ... but in fact largely concerned with guaranteeing or expanding their own authority and market share" (Park, 1997, pp. 72–73).

Park (1997, pp. 68–69) claims that the invention of printing in the 15th century facilitated the printing of medical texts for professional and domestic use. One result was that domestic and estate herbalism revived and expanded as a women's pursuit, providing further competition for professional physick, and the folk healers who persisted despite the Inquisition. Until the chemical pharmacopoeia developed in the 19th and 20th centuries, herbs continued to provide the main ingredients of physick remedies, and were sold independently by the growing urban profession of the apothecary. Physick also had to compete with religious healing, which was popular among all classes, and various other disciplines which arose at various times.

During the Renaissance, classical herbal formulas were prepared by physicians and apothecaries from newly translated ancient writings, so even after the Inquisition, professional physick continued to benefit from original natural medicine sources. Also, the herbal pharmacopoeia was expanded as new medicinal plants, from other natural medicine paradigms, arrived from the newly established trading posts and colonies in the Americas and the East (Griggs, 1997, pp. 36–39, 117). Herbal remedies were prepared as either one or two herb "simples", or as multi-ingredient compound "Galenicals" (Porter, 1997, pp. 190–191).

According to Porter (1988, p. 3), jealousy of increasingly prominent, prestigious rivals played a major part in the response of professional physicians to the apothecaries and nostrum merchants of the 18th century. The latter formed a new medical movement, a "business sector of medicine" which sold its services and products on the open market, using new sales techniques and aggressive advertising. Fear of loss of market share was allegedly as vital a component of professional concerns about standards in the 18th

century as it is in the early 21st century, as corporatised biomedicine inveighs its formal and relentless campaign against natural medicine and its remedies.

Descendants of remedies originally developed by Galen were widely used by physicians and apothecaries until the end of the 18th century, and were referred to as *Galenicals*. Griggs (1997, pp. 106–119) refers to them as "horrid electuaries" because of their constituents, which often included various unsavoury and potentially toxic elements including heavy metals such as mercury, and human and animal body parts or excreta, and because of questionable hygiene preparation standards. These questionable remedies were developed by those who had diverged from natural medicine, from Galenism to physick. Eventually, the healing power of genuine herbal simples was largely lost to physick, although it continued to prosper in rural natural medicine practice, and was recorded in domestic medicine handbooks (Anon. of LCP 1794; Griggs, 1997, p. 111).

The excesses of remedies with questionable ingredients, along with violent purgative chemicals and other poisons, culminated during the 18th century in a vast profusion of apothecaries, nostrum-mongers and others peddling patent remedies of dubious efficacy (Porter, 1988, pp. 5–6). The excesses of that century's unregulated irregulars and quacks seem to have influenced Hahnemann's development of homeopathic remedies (Porter, 1997, p. 270) which contain either minuscule quantities — mere molecules — of one pure ingredient, or nothing but its "vibrational imprint".

4.8 Conclusions

From early in the Middle Ages, formal medical practice and education were controlled by the Church, initially through its monasteries, and later through Church-supervised education in medieval schools and universities. The 14th century European plague known as the Black Death caused so much misery and death that survivors questioned the plague's purpose, and as satisfactory answers were not forthcoming, the traditional roles of Church and government were challenged.

The Church's response involved increasing campaigns of Inquisitional persecution, usually involving torture and death, against alleged heretics, healers, witches, Jews and others. This wholesale slaughter of so many people, over 300 years, occurred with the full cooperation of the profession of medieval physick, who were rewarded with corporatism of their questionable and problematic Galenic medical paradigm. The resultant class repression of women, many of whom were involved in healing, drove the practice of natural medicine underground, allowing the newly corporatised physick to increase its market share. However, the informal European natural medicine paradigm continued to be preserved, predominantly by female healers.

Whereas the European peasantry had previously been united in cooperative pursuits, the divide-and-rule strategy of the power holders turned peasants against each other, and as they became distracted, repressed and then disempowered, they grew increasingly dependent upon the power holders. Also, as the post-plague free market developed a cash economy, which further eroded the feudal order of mutual obligations, the peasantry became even more individualistic than collective, and the stage was set for the later development of capitalism.

CHAPTER 5

FROM PHYSICK TO BIOMEDICINE

5.1 Introduction

As discussed in Chapter 4, the suppression of natural medicine in the Middle Ages by the Church and government, and their corporatisation of Galenic physick, led to increased usage of physick in Europe. As physick became more professional, it further separated from natural medicine as its practitioners participated in government mechanisms of social control and exercised power over the populace. This chapter will examine how the divide between natural medicine and physick widened — as the physick paradigm moved away from Galenist influences, religious and spiritual theories, and natural folk concepts, and incorporated evolving scientific thought including the Cartesian–Newtonian paradigm of materialist science — as it evolved to become biomedicine.

5.2 Physick and the Power of the Church

After the fall of the Roman Empire, Western Europeans experienced two separate and distinct historical periods, commonly referred to as the Dark Ages (about 400 to 900 CE), and the Middle Ages (about 900 to 1400). Gribbin (2002) explains that the chaos which followed the fall of Greece and Rome resulted in the loss of much documentation, including texts demonstrating the intellectual powers of the Ancients, and the building techniques that produced great Roman architecture such as the Pantheon and the Colosseum. Because of this, it would have been natural for the Europeans to accept that the Ancients were intellectually far superior to them, "and to accept the teaching of ancient philosophers such as Aristotle and Euclid as a kind of Holy Writ, which could not be questioned" (p. 3). They could have been so overawed, that the Ancients' knowledge and skill may have appeared to have been "almost of a different species — or

of gods" (p. 3). This explains why the Graeco-Roman tradition, particularly Galenism, dominated Western European medicine beyond the Dark and Middle Ages, until challenged and, eventually, dissipated.

However, these explanations do not necessarily explain the power of the Church of Rome over the Western Europeans. Icke (1994) holds that "with the fall of the Roman Empire, the Christian Church took its place and the Pope became the equivalent of the Roman Emperor" (pp. 81–82). As the power of the Church became total in Rome, it set out to destroy unapproved sources of knowledge, justifying its actions on the Old Testament claim that as "Adam had incurred God's wrath by eating from the tree of knowledge, the pursuit of all knowledge outside the Bible was sinful" (p. 82). Further:

> The Christians destroyed all the writings of the great philosophers. Plato's Academy and Aristotle's Lyceum were closed and their writings burned. The Roman educational system inspired by Quintilian was dismantled and the great library at Alexandria became a theological college. Philosophers, scientists, and school teachers were persecuted ... the library in Alexandria and all the books it contained were then destroyed. This was all done in the name of Cyril, the Archbishop of Alexandria. He was later made a saint. (p. 82)

Icke (1994) also claims that the combination of questionable biblical interpretations, and fear produced by the Inquisitions, held back human cultural evolution for at least two millennia, and that "today's scientific establishment is still not as advanced in its overall understanding of life and creation as were Socrates, Plato, and others in Ancient Greece" (p. 82). Gribbin (2002) sees the Renaissance (about 1453–1687) as the time when "Western Europeans lost their awe of the Ancients and realised that they had as much to contribute to civilisation and society as the Greeks and Romans had contributed" (p. 3), but wonders why it took so long for them to lose their inferiority complex.

Following the Black Death, the Catholic Church's relative monopoly control of religion and the knowledge market was widely threatened, and it responded with increasing campaigns of Inquisitional persecution against those who transmitted knowledge or ideas without approval (Starhawk, 1982, p. 199). As explained in the previous chapter, the collaborative fear of the Inquisition, and witches and devils, caused society to

become marked by mistrust. Individuals became emotionally and socially distanced from each other in this dangerous period of transition from ecclesiastical revelatory totalitarianism, when pioneers of new ideas were still tortured, hanged or burned alive for challenging Rome's rigid revelations (Lea, 1954, pp. 230–257).

Against this background of social disruption, hypocrisy and dissimulation were necessary survival techniques for hiding the inner world of the individual. The whole range of human activity, from daily life to politics, increasingly became characterised by the beginnings of role-behaviour, and adoption of hypocrisy as an attitude (Heller, 1978, pp. 207–208).

Saul (1992, pp. 280–287) discusses these concepts and their evolutionary development into eventual *worship* of secrecy in the use of State power, with reference to Sun Tzu, Machiavelli, Erasmus, Loyola and Richelieu. Hypocrisy during the Renaissance involved the clear and deliberate employment of ethical contradiction. This applied equally to those interested in scientific development, and to practitioners of any kind of medicine. Folk medicine practitioners had to conceal their arts for fear of being burnt as witches, and physicians had to conceal their collaboration with the murderousness of the Inquisitions, and their iatrogenesis, to masquerade as caring healers. Whereas the biomedical profession promotes itself as being caring, and acting in the public interest, the evidence of the current epidemics of iatrogenesis and nosocomial illness suggests otherwise — that this late medieval and Renaissance masquerade is still traceable as a significant element in the biomedical culture.

However, even in the repressive inquisitorial climate, some scientists were prepared to publish their work. Gribbin (2002, p. xvii) and Saul (1992, p. 300) agree that the scientific revolution commenced in 1543 with the publication by Vesalius of *On the Structure of the Human Body* and by Copernicus of *On the Revolutions of Celestial Bodies*, which challenged the concept of the flat Earth as the centre of the universe, and put the sun at the centre of the planetary system. In 1632, Galileo (1564–1642) published his clarification and proof of Copernicus' argument, *Dialogue on the Chief*

Systems, for which he was threatened with burning at the stake by the Inquisition, and forced to recant (Cassirer, 1951, p. 42).

The work of these pioneers eventually made possible the separation of astronomy from astrology. Astrology appears to involve irrational and magical thinking, and astronomy involves the physical science of extra-terrestrial mapping and analysis, which required rational thinking processes involving observations, calculations and explanations. Gribbin (2002) holds that scientific advancement has been influenced more by the development of technology than by human genius, and that "it is no surprise that the start of the scientific revolution 'coincides' with the development of the telescope and the microscope" (p. xix).

Cassirer (1951) considers Galileo's major contribution to the development of reason as scientific method, was in perceiving the need for "a general foundation of dynamics, of the theory of nature as such", and as this could not be achieved by direct observation of nature, "other cognitive means must be evoked .... (to perceive nature as) an original formative principle which moves from within" (pp. 9, 41). Nature needed to be seen as distinct and separate from the divine, and needed to be explained on its own terms, rather than excused as a product of divine whim, fiat or moment-to-moment re-creation. Galileo also realised that science is written in the language of mathematics (Gribbin, 2002, p. 107).

As the Church of Rome had invested a great deal of political and religious capital in the theory of the flat Earth as the centre of the universe — with Heaven above and Hell below — that revolution in astronomy and mathematics amounted to a political and religious revolution of major significance (Gribbin, 2002, pp. 72–103). Eventually, the Church's closed and fixed system of exclusive definition was replaced, at least in the scientific community, by an open-ended progressive process of scientific discovery, description and understanding of reality. As a result, the role of defining what is real, which had been formerly allocated by the medieval Church to God — for exclusive translation, interpretation and transmission through its officers — was able to be

performed by the human race, albeit the thinkers of Western Europe who formed its intellectual *avant garde.* However, advancements in science are not necessarily accepted by the populace (Pinker, 2002, p. 2).

Although it was the dream of Renaissance humanists to restore medicine to its Galenic and Hippocratic purity, in the 17th century this dream was supplanted by a desire to cease paying "stultifying homage to antiquity" and provide medicine with a fresh start. Encouragement for this new desire was "drawn from the Reformation: if Luther could break with Rome, how could it be impious to demand the reformation of medicine? Such revolutionary impulses first found expression in the work of the iconoclastic Paracelsus" (Porter, 1997, p. 201).

5.3 Paracelsianism — A Unique Opportunity for Medical Unity, Lost?

Philippus Theophrastus Bombastus von Hohenheim (1493–1541) was better known as Paracelsus, and is generally accepted as being significant in the evolution of European natural medicine paradigms, theories and practice (Griggs, 1997, pp. 40–42). Some in the natural medicine movement see him as holding great status, as exemplified in a 1982 address to the British Medical Association, when the Prince of Wales reminded the gathering that Paracelsus had become, and remained, the patron saint of alternative medicine and that "we could do worse than to look ... at the principles he so desperately believed in, for they have a message for our time; a time in which science has tended to become estranged from nature" (Porter, 1997, p. 204). By this address, the Prince of Wales was following a precedent of European royal support for natural medicine which commenced, at least, with Henry VIII (1491–1547) (Griggs, 1997, p. 51), and continues with the use of homeopathy and other natural medicine therapies by the current British royal family.

Critics of Paracelsus' status in natural medicine history claim that "in his localism and advocacy of heavy-metal remedies, Paracelsus was a far cry from the kind of holism praised by today's alternative medicine fans" (Porter, 1997, p. 204). Porter is partially correct. Natural medicine has continued to evolve post-Paracelsus, but it has done so by

retaining much of the validated philosophy, theory and practice of those, and even earlier times. For example, his use of heavy metal poisons such as mercury and antimony was based on a common Swiss–German folk medicine belief at the time — that *like is cured by like* — the effects of a poison may be remedied by doses of another poison. As Paracelsus said: "It depends only on the dose whether a poison is a poison or not" (Griggs, 1997, p. 47). Three centuries later, the theory that "like is cured by like" evolved to a different application, to become the "Law of Similars" of modern homeopathy.

When Paracelsus was 9 years old, his Swiss father became town physician and a teacher in a lead mining school in Karinthia. His father taught him botany, medicine and natural philosophy, and at around the age of 20, he briefly studied medicine in Italy before becoming a wandering student. He acquired a taste for the esoteric, and proudly attained medical knowledge from artisans, miners, tramps, butchers and barbers (Porter, 1997, p. 201). He said that a "physitian ought not to rest only in that bare knowledge which their schools teach, but to learn of old women, Egyptians, and suchlike persons; for they have greater experience in such things than all the Academians" (Griggs, 1997, p. 48). His interest in alchemy grew as he became interested in occupational diseases — firstly the effects of lead on the health of miners in Karinthia; and later, the effects of mercury on miners in Slovenia. He became convinced "of the workings of invisible powers as spiritual intercessors between God and man in an enchanted cosmos" (Porter, 1997, p. 201).

His irregular education provided Paracelsus with a perspective different from that of university medical curricula, thus allowing him the freedom to become the scourge of the establishment as he repudiated Galenism and developed new theoretical concepts of disease and treatment. His concern for iatrogenesis and the failings of accepted medical paradigms was clear: "When I saw that nothing resulted from (doctors') practice but killing and laming, I determined to abandon such a miserable art and seek truth elsewhere" (cited in Porter, 1997, p. 202). He was also concerned that quality medicine ought to be available to the poor: "The physician's duty is to heal the sick, not to enrich

the apothecary" (cited in Griggs, 1997, p. 40). His years of practical medical work in the field provided him with unusually wide experience in chronic and occupational disease, epidemics, field surgery and syphilis, as well as general practice. Because of this background, he became contemptuous of doctors who learned exclusively out of books (Griggs, 1997, pp. 40–42).

Whereas Paracelsus subverted the dominant medical paradigms as he broke with the past, Porter (1997) claims that his theories may not be considered to be part of the emerging new science that evolved to biomedicine, because their mystical and esoteric content, including folk remedies, closely reflected a separate path. He was also open to peasant spiritual beliefs and developed new *chemical* theories, dividing the hidden natural powers of all substances into classifications of "sulphur", "mercury" and "salt", but his:

> fundamental conviction was that nature was sovereign, and the healer's prime duty was to know and obey her. Nature was illegible to proud professors, but clear to pius adepts. His teachings on remedies thus drew on the popular doctrine of signatures to identify curative powers: the orchid looked like a testicle to show it would heal venereal maladies, the plant eyebright (*Euphrasia officinalis*) had been made to resemble a blue eye to show it was good for eye diseases ... truth was to be found not in musty folios but in the fields, and in one's heart. (p. 202)

In 1526, Paracelsus became town physician and professor of medicine in Basel, and his revolutionary fervour was evident when he lectured to the medical faculty in German, instead of the customary Latin, and wore his alchemist's leather apron in place of academic robes. He also refused to teach Galenic or Hippocratic theories, as he believed that experience and intuitive insight would disclose the secrets of disease. Also, he publicly burned Avicenna's *Canon,* the Bible of learned medicine, along with various Galenic texts (Griggs, 1997, p. 43; Porter, 1997, pp. 202–203). Paracelsus' revolutionary tone and content were popular with students, but when the faculty denied him access to the lecture hall, denied him the right to send forward candidates for the doctorate, and questioned his qualifications, the students drifted away from him, afraid of compromising their graduation (Griggs, 1997, pp. 43–44).

Paracelsus was generally concerned with iatrogenesis, particularly that which was caused by the overuse of guaiac and mercury in the treatment of syphilis, which was widespread. However, he believed that both could be therapeutic, and actually cure — but only in small, carefully calculated doses. His attempts to publish his theories were suppressed by the Dean of the Medical Faculty at Leipzig, following representations from the suppliers of guaiac and mercury, whose sales would have reduced considerably if Paracelsus' theories had gained widespread support. He was soon forced to leave town. He was particularly critical of imports of unproven exotic herbs, and "the unholy alliance of medicine with commerce at the patient's expense always made Paracelsus angry, and he repeatedly denounced it" (Griggs, 1997, p. 45). Paracelsus supported many folk medicine beliefs, including that there was no need to travel far to find the remedy for a disease as medicinal plants grew where they were needed. Paracelsus said, that "they want medicaments from overseas and better things grow in their own garden" (cited in Griggs, 1997, p. 47).

According to Conrad, Neve, Nutton, Porter, and Wear (1995, p. 313) and Porter (1997, p. 203) the significance of Paracelsus lay in his pioneering of a natural philosophy based on chemical principles, whereby salt, sulphur and mercury were regarded as superior primary substances because they were, in alchemical terminology, "male" — that is, active and spiritual — whereas the elements of the Aristotelian–Galenic system of qualities, elements and humours were relatively "female" and passive. Paracelsus did not totally discard the older system, but merely considered his new theories to be superior. He theorised that his *tri-prima* ought to be understood, not as material substances, but as principles. For example:

> solidity or consistency were represented by salt; inflammability or combustibility by sulphur; and spirituousness or volatility by mercury. Drawing on the occult, he associated diseases with the spirits of particular minerals and metals: "When you see erysipelas, say there is vitriol. When you see cancer, say there is colcothar" (peroxide of iron). But he also boldly deployed metals and minerals — mercury, antimony (stibium), iron, arsenic, lead, copper and sulphur — for therapeutic purposes, together with laudanum (tincture of opium). (Porter, 1997, p. 203)

Paracelsus theorised "that every disease has a specific external cause and is an entity in its own right" (Conrad et al., 1995, p. 315) and that this appears to mirror a modern concept, which is sometimes referred to as the *ontological* theory of disease. He also described dissection as worthless "dead anatomy", as it could not reveal how the living body functioned, and proposed that "true physiology had to discover the nourishment each body part needed" (Conrad et al., 1995, p. 315; Porter, 1997, pp. 203–204). This is in accord with ancient Chinese medical theory that each of the separate bodily organs and functions respond to a particular type of nourishment from various foods and tastes. Modern Western science is slowly discovering this reality. Paracelsus also theorised that "to fathom pathology, stellar influences had to be probed and the presence of abnormal quantities of salt, sulphur and mercury tested ... he countered Galenist constitutionalism with a new notion of specificity and a pathology of disease as invasion from outside" (Porter, 1997, pp. 203–204).

Paracelsus taught that truth was to be found in the "Book of Nature", not libraries, and warned: "the more learned, the more perverted". To him, personal experience was everything — "he who would explore nature must tread her books with his feet" (Porter, 1997, pp. 204–205). He encouraged creative and original thinking. For example, whereas Hippocratic medicine regarded gout as a classic humoral imbalance involving defluxion into the foot, Paracelsus read gout from a chemical rather than a constitutional perspective, and saw it as a disease of incrustations, and suggested that local external factors, such as the water supply, could produce the characteristic chemical deposits in the joints. He further contradicted Galen by expounding the therapeutic principle that "like cured like" (Conrad et al., 1995, p. 315).

Paracelsus disapproved of witchcraft, which was held to be an interaction between the supernatural and the natural, and did not believe that the stars determined human destiny. He believed that the macrocosm of the Universe could affect the health of the microcosm of the human, as they were connected by God, and that "nature largely consisted of the influences, emanations, and correspondences between the two" (Conrad et al., 1995, p. 316).

He was committed to the discovery of truth through observation and experiment, which inspired the new medicine, emerging with the new science, following his death (Porter, 1997, pp. 204–205). Paracelsus' theories represented a new medical tradition whose relevance was contained, not only in the new theories and cures, "but their associated radicalism and incorporation of contemporary medical and cosmological interests" which was lacking in earlier physick (Conrad et al., 1995, p. 316). Paracelsus' separation from the path to modern science derives, according to Conrad et al. (1995, p. 315), from his view that the essence of disease was spiritual, and that the agents of disease could include toxic emanations from the stars, or minerals from the earth, such as salt. However, Porter (1997, p. 202) claims that his theories may not be considered to be part of the emerging new science that evolved into biomedicine, because of their mystical and esoteric content, which included folk remedies. Both these references miss the most important historical point: It was not Paracrelsus (or natural medicine) who separated from truth or even science; it was evolving science, itself, which separated from the holistic perspective, for a variety of reasons that may not have included the welfare of the patient. Paracelsus thought that iatrogenic disease was the worst of felonies and was a symptom of a medical attitude which lacked genuine care for the welfare of patients. Griggs (1997) suggests that he "might have been lost for words to express his indignation at the reckless slaughter for which, over the next three centuries, the new chemical medicine was to be responsible" (p. 50). As science involves observation, experimentation and reason, it has accompanied humans through their entire cultural evolution — from the creation of fire to the use of herbs as medicine. The significance, here, is that as the new chemical science moved medicine away from nature and spirit, its problem of iatrogenesis increased, thus raising the question whether these new theories were based on science or myth.

Paracelsus' most ardent disciple, Joan Baptista van Helmont (1579–1644) was considered to be a key transitional figure because his laboratory researches gave medical chemistry fresh impetus, whilst retaining its Christian spiritual vision. He believed that "chemical analysis was a means of achieving understanding of nature and union with

God, the marriage of an enquiring mind with fervent mysticism" (Porter, 1997, p. 207). To van Helmont:

> every disease had a vital principle of its own (*archeus*) which could be treated by a specific medico-spiritual response. Medicines, especially minerals, targeted the disease and helped the host overcome its *archeus*. Such views led him to protest against excessive Galenic blood-letting — since plethora was not the cause of disease, phlebotomy only wasted the patient's vitality ... the more chemical aspects of his thinking were absorbed by later medical chemists (iatrochemists), while his underlying spiritual quest was cast aside. (Porter, 1997, p. 209)

The Paracelsians were creative in their quest to take their medicine to the ordinary people. In 1642, Theophraste Renaudot (1584–1653) produced a booklet, *The Presence of the Absent*, whereby the sick from the provinces could receive diagnosis of illness by post. They would place a tick beside their symptoms from lists provided, and mark on body diagrams where they experienced pain (Porter, 1997, p. 209).

Because of his Christianity, Paracelsus' paradigm was appealing to Christian Europe, particularly in the Reformation era. The ordinary people were attracted to its teachings, especially in its vision of medicine as a charitable vocation: a divine gift for the relief of suffering (Porter, 1997, p. 209). The Paracelsian association with Christianity has evolved, within natural medicine, into a flexible theory incorporating many perspectives of the Hippocratic tenet of the "healing power of nature". Contrary to some former and current Christian religious theory, for Christians and those of other religious beliefs, theories of "the healing power of nature" may be viewed as the power of God. For those with a spiritual conviction without religious beliefs, theories of "the healing power of nature" are not in conflict with the various spiritual perspectives, whether spirit is seen to be either part and parcel of all of nature, or essential to a reincarnation or other "soul" perspective. As the new medical science evolved away from Galenism, Christianity, other religions, spiritualism and folk medicine, its iatrogenesis suggests that it lost its soul. Parallel to that evolution, Paracelsian theories coalesced with European folk beliefs, to evolve as a prominent part of modern natural medicine.

By opposing Galenic physick, Paracelsian theory and practice recognised the role of spirituality in the healing process, and advocated the natural medicine perspective of assisting the body to heal itself safely and naturally. This also provided a unique opportunity for the unification of medicine through the elimination of the dominant and questionable Graeco/Roman influence. However, the vested interests in the continuance of Galenic influences were many, and included universities, physicians, professional associations, apothecaries, herb and other remedy growers, collectors, importers and retailers. Added to these were the numerous individuals who had felt insulted by Paracelsus's strident criticisms over the years. As the Paracelsians rebelled against the Galenic elite, the resultant divisions in medicine became professionally scarring, as:

> English monarchs from Elizabeth to Charles II sometimes supported unlicensed practitioners against the College of Physicians, while in France the Court afforded shelter to Paracelsian physicians ... against the hidebound Paris faculty. Thereafter medicine could rarely show a united professional front, and tended to factionalise. (Porter, 1997, p. 209)

The new science eventually supplanted the Galenic influences, but its further separation from nature rendered unification with natural medicine problematic.

5.4 Culpepper — Herbs for the Masses

The shortage of trained physicians in England in the 17th century advantaged the wealthy members of the College of Physicians, who protected their trade secrets, even from the apothecaries, by printing medical information in Latin. However, one apothecary, Nicholas Culpepper (1616–54), who had read Latin at university, found this protectionism exploitive, absurd and contemptible, and criticised the physicians for their callous indifference to the poor, and their medical ignorance, particularly in relation to English medicinal herbs (Griggs, 1997, pp. 91–93). According to Porter (1997), Culpepper supported the Paracelsian opposition to the use of Latin in medicine, as he believed Latin to be the tongue of monopoly, greed and obscurantism. In 1649 he daringly produced an unauthorised translation of the College of Physicians' Latin *Pharmacopoeia,* as he also considered the College's monopoly on medical information to be unchristian "because it drove up the costs of medical treatment beyond the pockets

of the poor" (p. 210). He later produced several other books, including his *English Physician*, which contained "a Compleat Method or Practice of Physic, whereby a Man may preserve his Body in Health, or cure himself when sick, with such things one-ly as grown in England, they being most fit for English Bodies" (Griggs, 1997, p. 94). This became known as *Culpepper's Herbal,* and revised editions are still in print. The *Herbal* prescribed over 500 plants for a wide range of diseases, and since then English medical books have been written mainly in the vernacular (Porter, 1997, p. 210). In view of this, it is notable that Australian doctors were still writing their prescriptions in Latin in the last half of the 20th century.

Conrad et al. (1995), in referring to Culpepper, theorised that "a political revolutionary was often a medical revolutionary" and described him as a student of astrology and physick and "a prolific writer of popular astrological-chemical medical books" and other publications (p. 323). As a Puritan and Parliamentarian, he saw politics and medicine from a radical perspective, and was wounded in the chest by a musket-ball while fighting in the rebel armies in the Civil War in 1649 (Griggs, 1997, p. 93). He saw through political tyranny, declaring that "priests, physicians, and lawyers most infringe the liberty of the Commonwealth". In particular, he castigated "the pride, ignorance, fearfulness, uncharitableness, and greed of the physicians" (Conrad et al., 1995, p. 323). He received a university education, without graduating, and became apprenticed to an apothecary before setting up his own practice. Like others, he provided the only affordable medicine for most local people, seeing up to 40 patients in a morning. He prescribed low-cost and easily accessible English herbs, and in this way became a physician to the London poor. He saw himself as an astrologer and a physician, and in prescribing, claimed to consult the motions of the planets. Each herb was identified with one of the astrological houses, and he theorised that "the remedies for a disease would be found either in herbs of the house opposite that which caused the disease, or else by sympathy, with each house curing its own disease" (Griggs, 1997, pp. 92, 94).

The evolution of Paracelsian iatrochemistry assisted the reform of medicine and was praised by Puritans for being truly Christian and therefore exposing the heathen roots of

Galenism. Radical proposals, such as those that sought to democratise or abolish the College of Physicians and fund state-provided health care, were soon forgotten, even though (it is presumed) Culpepper fought on the winning side in the Civil War. However, neither the College of Physicians nor Galenic medicine at large regained their former standing after the Restoration in 1660, especially when, in 1662, Charles II patronised the new experimental natural philosophy by chartering the Royal Society (Porter, 1997, pp. 210–211). Although Galenism was in sharp decline by the 1660s, the Paracelsian movement was also on the wane, "being overtaken by or absorbed into medical-chemical investigations pursued under the banner of the 'New Philosophy' and associated in England with the Royal Society, in France with the Academie Royale des Sciences, and in Italy with the Accademia del Cimento" (Porter, 1997, pp. 210–211).

5.5 Harvey — Disproving of Galenic Blood Theory

Because of proscription of human dissection, Galen developed his theories of human anatomy, including blood circulation, from the dissection of animals. Even though his theories were inaccurate in many ways, they were generally accepted until well into the 16th century (Gribbin 2002, p. 21). However, Galenism and the Graeco/Roman medical legacy were further subverted by the greatest achievement of Renaissance anatomy when William Harvey, who studied in Padua from about the late 1590s to 1602, demonstrated the circulation of the blood. Harvey's revolutionary work, which developed a new physiology, built on Versalian anatomy. Later investigators became convinced that, with the disproving of Galenic blood theory, medical science had to be put on a new footing (Conrad et al., 1995, p. 325; Porter, 1997, p. 211). Although Harvey's theories were initially criticised by conservatives, they found favour with emerging philosophers such as Rene Descartes (1596–1650), who were promoting the mechanical philosophy (Porter, 1997, p. 217).

5.6 Bacon — Evidenciary Science

European society had previously been dominated by rigid, dogmatic constraints on thinking, and from the Renaissance into the Enlightenment era, the revolutionary growth

in the importance of intellectual organisation and method depended on a continued and increasing secularisation of thought and attitude. Francis Bacon (1561–1626) expressed the need to:

> correct the partiality of axioms and opinions, which are commonly framed upon only common and familiar examples ... by following, and as it were hounding nature in her wanderings, to be able to lead her afterwards to the same place again. (Bacon, 1861, p. 71)

In order to distance science from the earlier received knowledge and superstition, Bacon insisted on discarding what could not rest on the production of evidence (Bacon, 1861, pp. 71–72). Bacon attempted to "trace with increasing clarity the development of a new form of logic which is not content merely to order and classify the given body of knowledge but which seeks also to become the tool of research" (Cassirer, 1951, p. 253). Bacon's theories evolved to become the basis of the dominant scientific approach in the following centuries.

The work of Bacon and others was, in epistemological terms, essentially the beginning of a way of thinking that was to change the relationship between people and the environment. Whereas that relationship had been severed and distanced by the plague, the work of Bacon and others maintained that distance, and made it possible to transform both nature, and the relationship humans have with it, in the name of progress (Heller, 1978, p. 391).

Early Renaissance thought attempted to separate myth from history and science, and that "the 'crimical spirit' was not directed against myth, but against the historical verification of myth" (Heller, 1978, p. 60). There was gradually an epochal shift from a God-centred universe to a man-centred one, in which a more complex inner life produced an intellectual detachment from community. This resulted in increasing conflict with the prevailing religious cosmology, since the ground of religion was not to be found in factual knowledge, but in dogmatic principles, or truths, which uphold a spiritual certainty, expressed as faith. At the beginning of the 17th century, Catholicism dissipated the conflict, through its explanation of its accommodation to capitalism:

"science must be accepted because — and in so far as it leads to practical results, 'but it is still the church that will provide the weltanchauung (world view)'" (Heller, 1978, p. 88).

5.7 Descartes — The Human as a Machine

Rene Descartes (1596–1650), who became the towering thinker of the Scientific Revolution, was born in Normandy and educated by the Jesuits, who introduced him to mathematics and physics, including Galileo's work (Porter, 1997, p. 217). He saw that true science required reliable observation and deduction, and through his commitment to absolute certainty and clarity, even questioned the fact of his own existence, by categorically defining the separation of mind from body (Cahn, 1990, pp. 402–445). This process may have lent support to the Catholic Church theory of the separation of mind from body, which the Church imposed on the profession of physick as a condition of its right to practice on the bodies of its patients, leaving matters of the mind, understood as soul, to the priesthood. In 1641, Descartes published his second great work, *Meditationnes de Prima Philosophia,* which elaborated the philosophy built around his most famous, but not always correctly interpreted line, "I think, therefore I am" (Gribbin, 2002, p. 113).

Descartes was grounded in the complex development of subjectivity in the Renaissance, which influenced his anchoring of the certainty of existence in the act of thinking. He validated such theories by dividing subjects into clear, distinct and certain definitions of separate categories. Descartes, says Porter (1997), "regarded medicine as a key to the natural world" (p. 217) and proposed the mechanical model of the human being, comparing the body's functions to those of clockwork mechanisms. He produced three major works on the life sciences, and discussed the concepts of mind and matter: "Mind and matter, he taught, were incommensurable: matter was extended, corpuscular and quantifiable, mind (or soul) was insubstantial and immortal, the source of consciousness. The two could (almost) never meet" (p. 217).

By his categorical splitting of the material and the immaterial, Descartes provided a momentous historical step, especially for medicine, even though this gift to medical thought and practice was of powerful potential. This gift — the Descartes or Cartesian model — resulted in the divided, categorised, separated, mechanistic view of life which, when established in biology, dominated the attitudes of physicians toward health and illness, leading to the conceptual foundation of modern scientific medicine — biomedicine. The human body became regarded as a machine that could be analysed in terms of its parts, ignoring to some extent, at least, the relationships between those parts. Disease is seen as the arbitrary malfunctioning of biological mechanisms, which are studied from the point of view of cellular and molecular biology. The physician's role is to intervene, either physically or chemically, to correct the malfunctioning of a specific mechanism (Cassirer, 1951, pp. 82–83).

Descartes' principles of mathematical physics were reinforced by Gottfried Wilhelm von Leibniz (1646–1716), particularly in terms of science's understanding of the processes of life (Cassirer, 1951, pp. 82–83). Leibniz held that all the phenomena of nature are capable of a strictly mathematical and mechanical explanation, and he enshrined this potentiality in the concept of the *monad* — the inner entity which was empowered by an original teleological force — explaining the consistency of the developmental processes found in nature. Further:

> Every monad is a true entelechy, each strives to develop; and improve its being, to rise from one stage of its development to another which is more complete. What we call mechanical processes are thus merely the outside, the presentation to sense, of those dynamic processes that go on within substantial entities, within the internal teleological forces. (pp. 82–83)

This theory imbued the mathematical insights of Descartes with a sense of dynamic, organic, internally powered movement, thus laying the foundation for a new philosophy of the organic (Cassirer, 1951, p. 84). It was Newton's acceptance of analytical method in physical science, allied to that of Descartes in philosophy, and Leibniz's conception of physical reality as governed by an essential intrinsic dynamism, which became the profound inheritance of Western thought, and the foundation of scientific method.

Four centuries after Descartes and Leibniz, the so-called "science of medicine" is still based on "the notion of the body as a machine, of disease as the consequence of the breakdown of the machine, and of the doctor's task as the repairer of the machine" (Engel, cited in Capra 1982, p. 118). That separation, between the concerns of the tangible natural world, and those of metaphysics, religion or spirituality, between the observer and the observed, even if they occupy the same territory, was concretised in the rule of reason and its scientific method, to spread throughout European society as the primary paradigm of reality in all spheres, not just science.

Descartes' revolution was incomplete because, as he was still essentially a Catholic deist, he held that reason would demonstrate the truth of that which had been revealed (Cassirer, 1951, p. 40). Gay (1973, pp. 11–12) suggests that a truly independent direction for science was facilitated by Enlightenment writers from Protestant countries, who, being opposed to the obedience ethic of Catholicism, and the mediation of priests between humanity and God, developed an inner self and life which was increasingly grounded on the independent judgment of the individual. However, Descartes believed that certain and irrefutable knowledge would advance only through scrupulous regard for rational thought. He was devoted to method, in particular "the method of proof and rigorous inference" (Cassirer, 1951, pp. 6–7). He was also convinced that for humans to break free of the miasma of ignorance, superstition, magical thinking and questionable knowledge, they required the ability to reason, which was the *sine qua non* of epistemological thought and its development, and therefore indispensable to intellectual clarity. This approach was to apply to logic, mathematics, physics, psychology and even art. Cassirer summarises the essential thrust of the scientific method after Descartes and Galileo:

> The explanation of a natural event is not merely the realisation of its existence thus and so; such an explanation consists rather in specifying the conditions of the event, and in recognising exactly how it depends on these conditions. This demand can only be satisfied by an analysis of the uniform presentation of the event as given in perception and direct observation, and by its resolution into its constitutive elements. This analytical process, according to Galileo, is the presupposition of all exact knowledge. The method of formulation of scientific concepts is both analytic and synthetic. It is only by splitting an apparently simple event

> into its elements and by reconstructing it from these that we can arrive at an understanding of it. (Cassirer, 1951, p. 10)

The Renaissance evolved concepts of the dynamic and the universal, which transformed the significance of human reality. As Agnes Heller (1978) says:

> ... all the things that Renaissance thinkers profess and write about man became the modes and attributes of the 'eternally human' and 'generally human' for them, dynamic man *is* man — and if that has not yet been demonstrated, this in itself clearly shows that the dynamic concept of man was not an historical concept of man. They discovered and described the dynamic categories which, in their opinion, were characteristic of man; and they termed these dynamic categories eternal and general categories. Men change, are confronted with alternatives, choose, rise and fall; they are autonomous, they have infinite possibilities, but they are such in every situation at all time, in the past and also in the future. (p. 427)

Heller (1978) also states that:

> until the 17th century world view, philosophy and science were inseparable; and, as we have seen, a fourth element, religion was often associated with the others. A scientific and philosophical credo — and I use the word 'credo' advisedly — invariably characterised the whole man. (p. 375)

The 17th century saw the exponential growth in Europe of commercial, imperial and scientific pursuits, including the discovery of the microscope, the circulation of the blood, and the first settlement of North America by English colonists. It was the age of Leibniz and Newton, in whose works many scientific and philosophical ideas found concrete formulation. However, the Industrial Revolution (from about the end of the 17th century) improved technology, increased the division of labour on a dramatically extended scale, expanded the middle class, and radically transformed British society. Heller (1978) observes that:

> The philosophy of emerging bourgeois society did not reject the notion of self-creation, nor that of technical many-sidedness, nor that of infinite capacities. But it searched in a new direction, it sought the motive which impelled man to create and it found that motive — which was no longer sublime, nor moral — in the real motivation of the bourgeois individual: egoism. (p. 453)

Heller (1978, p. 453) suggests that egoism, with little regard for ethical restraint, found expression through the competition of capitalism. Egoism perceived a world open to complete manipulation and the exercise of ruthless judgment, paying due attention to the growing complexity of political and economic reality. As the capitalist processes were based on fierce competition rather than cooperation, the sensation and meanings of pre-industrial life were distanced by new perceptions and perspectives which reduced social interaction and intimacy to a viable economic unit: the family. This new sense of privacy was detrimental to the ethos of community, yet villages and a communal world still existed, although cities now were central to national life. With the Enlightenment, political, social, economic and scientific discourse was freed of religious constraints and presuppositions.

5.8 Science Evolves to Reason

Gay (1973, p. 121) holds that "the most far-reaching invention of classical antiquity" was the Enlightenment era's discipline and habit of criticism — the passionate belief that nothing was beyond acute criticism. In fact, as Gay states, "as writer succeeded writer and polemic succeeded polemic, criticism became deeper and wider, more far-reaching, more uncompromising" (p. 18). With the Enlightenment, which began in the first half of the 18th century, criticism amounted to a unique attempt to dispel the vagaries and confusion of superstition and ignorance. Indeed, with the work of Hume, the dynamic of the critical attitude was a most arresting form of scepticism — a suspension of belief in anything which did not accord with informed opinion. This led to the formation of different intellectual and analytical perspectives, reflecting in a gradual and objective manner the complex and highly differentiated world of physical reality. The move to ground the scientific enterprise in observation and analysis, first attempted by Bacon and others, became an object of the Enlightenment.

David Hume (1711–1776), like Descartes, was committed to the theory that the growing dynamic of the critical attitude, and the method of reason, were prerequisites for clarity of thought and acquisition of knowledge. He was also sceptical of theories that did not accord with informed opinion or accepted methods of arriving at conclusions. He argued

that "there are no rational justifications ... for our ordinary non-deductive inferences. We make these inferences through the operation of habit, or ... custom" (Kitcher, cited in Cahn, 1990, p. 782). This argument was an impediment to the intellectual recklessness of the enlightenment and was a filter for religious-based perceptions. However, it plays a role in modern science: professional journals often refuse to publish articles from outside their consensual mainstream, thus effectively slowing ideological, philosophical and scientific progress. The natural medicine professions have responded by publishing their own professional journals.

Hume sought to achieve greater certainty in scientific insight so as to create more effective procedural processes. In order to develop frames of reference that would yield an objective and analytical understanding of the psychological process in European intellectual culture, Hume examined the nature of causality and substance. "He did not deny causality ... though he denied the rationality of the causal principle. What he did do was to devote most of his pages on the subject to a psychological account on the process of causal inference" (Chappell, 1966, pp. 41–42).

Hume found that belief in scientific logical certainty was threatened by the exposure of analytico-critical enquiry to the processes of human psychology. He was surprised to find that any claim to absolute proof was out of the question, as the accepted process and structure of causality was in itself not rationally provable, because human anticipations and beliefs are an inescapable part of the process. Human nature meant: "The outstandingly stubborn, virtually universal, and therefore presumably generic beliefs, emotions and reactions and the retrospectively evident processes by which they are brought about and connected with one another" (Chappell, 1966, pp. 42– 43).

This brought Hume to realise that the irrational in life was highly significant as a contributing factor to the structure of reality, in all its complex richness. Jessop says that this led Hume "to adopt an autonomous ethic: our general moral judgements are sufficient and final, are ultimates that need no props from metaphysics, whether theological or otherwise" (Chappell, 1966, p. 44). Contrary to Descartes, Hume thought

that every aspect of human life was naturalistically explicable, as people are placed "squarely within the scientifically intelligible world of nature, and this conflicts with the traditional conception of a detached rational subject" (Von Wright, 1983, p. 1). Hume was clearly opposed to the idea that pure reason, under the guise of science, could control all aspects of intellectual thought. He could not accept, and set out to "discredit a 'rationalistic' conception of man as a being who is independent from the rest of nature" (Von Wright, 1983, p. 2). Hume and Descartes stood for clearly opposed philosophical understandings of the significance and development of human civilisation and culture.

Isaac Newton (1642–1727) sought to optimise the accuracy of scientific evaluation by the development of scrupulous analysis of observations and experiments. He also adopted the ancient Greek concept of atoms, thus promoting the paradigm of the smallest possible component into which any material phenomenon can be analysed. Gribbin (2002, p. 174) claims that by writing the *Principia,* Newton established his image as the greatest scientist who ever lived.

However, in the 18th century, physick practices such as bleeding, purging and ingestion of toxic metals were seen to be problematic, due to their iatrogenesis. Some practitioners, such as Berkenhout (1784) were critical of these practices:

> I do not deny that many lives might be saved by the skilful administration of proper medicine; but a thousand indisputable facts convince me, that the present established practice of physic in England is infinitely destructive of the lives of his majesty's subjects. I prefer the practice of old women, because they do not sport with edged tools; being unacquainted with the powerful articles of the *Materia Medica.* (Berkenhout, 1784, cited in Porter, 1997, p. 267)

According to Gribbin (2002, p. 241), the period more or less following the Renaissance is often referred to as the Enlightenment, a name which was also given to the philosophical movement that reached its peak in the second half of the 18th century. The belief in the superiority of reason over superstition became a basic feature of the Enlightenment, which incorporated the idea that as humankind was in the process of progressing socially, the future would be an improvement on the past. Those

improvements involved challenges to orthodox religion and superstition, and promotion of human rights, which were a guiding principle of Enlightenment philosophers such as Voltaire. Although it was just one of many factors of the Enlightenment:

> the success of Newtonian physics in providing a mathematical description of an ordered world clearly played a big part in the flowering of this movement in the 18th century, encouraging philosophers of a rationalist persuasion, and also encouraging chemists and biologists to think that their parts of the natural world might be explained on the basis of simple laws ... the idea of order and rationality as a way to investigate the world had taken root by the early 18th century and seemed the obvious way forward. (Gribbin, 2002, p. 241)

Probably because of the availability of coal and the presence of the early flowering of a democracy, the Industrial Revolution, incorporating the Newtonian mechanistic world view, occurred first in Newton's homeland, England, during the period from about 1740 to 1780, before spreading to the rest of Europe (Gribbin, 2002, p. 242). The Industrial Revolution provided a boost to science particularly in relation to heat and thermodynamics, which were of great practical and commercial importance in the steam age, and in providing new tools for scientists. This applied particularly to chemistry, which required "a reliable and controllable source of heat to encourage chemical reactions" (p. 242).

Gribbin (2002) claims that science was originally an individualistic gentlemanly hobby, dependent upon the interests and abilities of single individuals, but during the 19th century it became "a well populated profession, where progress depends on the work of many individuals who are, to some extent, interchangeable" (p. 359). Charles Darwin is considered to be something of an anomaly, as although the 19th century coincides with his lifetime, he dominates any scientific discussion of this period.

By breaking out of the intellectual impasse created by the rigidity and inertia of previous systems and ages, the work of Renaissance and Enlightenment period pioneers of scientific philosophy became an irresistible force for reason in what became scientific method. A spirit of critical, constructive and free inquiry was formed toward physical and social reality, as researchers sought to reveal the underlying structures of all

observable realities. This scientific evolution became a dominant cultural determinant of Western Europe, and was fundamental to the practice of medicine and other disciplines. As Cassirer (1951) argues, "the lust for knowledge, the libido science, which theological dogmatism had outlawed and branded as intellectual pride, is now called a necessary quality of the soul as such and restored to its original right" (p. 14).

Cassirer (1951) also states that from the Enlightenment, reason was "no longer the sum total of 'innate ideas' given to all experience, which reveal the absolute essence of things", as truth may be discovered only by intellectual force. He continues, to claim that the discovery and determination of truth:

> is seen as the indispensable pre-supposition of all real certainty. The whole 18th century understands reason in this sense; not as a sound body of knowledge, principles, and truths but as a kind of energy, a force which is fully comprehensible only in its agency and effects. What reason is, and what it can do, can never be known by its results but only by its function, and its most important function consists in its power *to bind and to dissolve.* It dissolves everything merely factual, all simple data of experience, and everything believed on the evidence of revelation, tradition and authority; and it does not rest content until it has analysed all these things into their simplest component parts and into their last elements of belief and opinion. (p. 13)

Cassirer (1951) further explains that as the medieval world view was bound by theories which could not be proven by the emerging sciences, they were dissolved by the new reason and logic. Essentially, the power of reason, as perceived and used by Cartesian thought, did not "consist in enabling us to transcend the empirical work but rather in teaching us to feel at home in it" (p. 13). Ultimately reason "is the realm of the 'eternal verities', of those truths held in common by the human and the divine mind. What we know through reason, we therefore behold in God" (p. 13).

With the support of the Protestant God, reason became a unifying ideology which promoted a static world view, albeit a very different static view from that of the medieval Catholic Church. The effects were thoroughly dynamic, but it was a dynamic of change, albeit far-reaching and revolutionary, from one static Unitarian view to another. As Cassirer (1951) remarks:

> The 17th century owed its inner solidarity, particularly as exemplified in French classical culture, to the consistency and rigour with which (reason) clung to this postulate of unity and extended its application to all spheres of knowledge and living. This postulate prevailed not only in science, but in religion, politics and literature as well. (p. 23)

Saul (1992) points out that as reason developed into rationalism, it produced a distorting and unbalancing effect on society:

> Reason began ... to separate itself from and to outdistance the other more or less recognized human characteristics — the spirit, appetite, faith and emotion, but also intuition, will and, most important, experience. This gradual encroachment on the foreground continues today. It has reached a degree of imbalance so extreme that the mythological importance of reason obscures all else and has driven the other elements into the marginal frontiers of doubtful respectability. (p. 15)

As advocates of scientific reason have engaged in a "very real struggle against superstition and arbitrary power" they have banished other ways of seeing, knowing and living, which may have been just as valid in their own terms as those produced by scientific method, had they been allowed the same latitude to develop (Saul, 1992, p. 15).

5.9 Germ Theory

In establishing the germ theory of disease in 1885, Louis Pasteur (1822–95) demolished the earlier theory of spontaneous generation of disease from within the body and "explained the effectiveness of the asepsis and antisepsis of Semmelweis and Lister, and laid the basis for the biological preventive measures of the future" (Lyons & Petrucelli, 1987, p. 556).

Pasteur trained as a chemist and was appointed as professor and Dean of the Faculty of Science at Lille in 1854 (Lyons & Petrucelli, 1987, p. 556). His early research involved a study of fermentation, including:

> the souring of milk, the alcoholic fermentation of wine and beer, the forming of vinegar ... By 1860 he had established the biological (rather than chemical) character of fermentation, showing that it required such micro-organisms as brewers' yeast. These organisms could in some cases

> even live without oxygen, in an atmosphere of carbon-dioxide; they were thus 'anaerobic'. (Porter, 1997, p. 431)

Some other researchers believed in the spontaneous generation of organisms from within, say, broth left in a flask as it went 'bad', but Pasteur was convinced that the organisms came from living agents in the atmosphere, and examined samples of air to prove it (Porter, 1997, p. 432). After he found that the organisms would be destroyed if the air was sufficiently heated, he proved that by heating wine, beer and milk to 55 degrees Celsius, the problematic micro-organisms were eliminated; thus, he invented "pasteurisation" (Porter, 1997, p. 433).

Pasteur had a stroke of luck in his investigations into chicken cholera when, on returning from holidays:

> he found that cultures of the chicken cholera organism prepared before he left were harmless when injected into healthy fowls, and subsequent injections of fresh virulent cultures into the same hens failed to produce the disease. Armed with this new knowledge, Pasteur treated cultures of the anthrax bacillus in various ways until he found that microbes grown in a particular temperature range became harmless without losing their capability of producing resistance in injected animals. (Lyons & Petrucelli, 1987, p. 556)

Pasteur's further successful experiments with sheep, cows and goats gave the germ theory a boost, as they suggested "the possibility of preparing vaccines against diseases by attenuating the infective agent" (Porter, 1997, p. 435). In 1885, after Pasteur's further successful experiments into rabies, using rabbits and dogs, a local doctor referred to him a 9-year-old boy who had been bitten 15 times by a dog thought to be rabid. The boy remained well during a 14-day series of increasingly virulent, and painful injections, as did a second case treated 3 months later. The resultant publicity saw more than 2000 people receive the rabies vaccine during the next 15 months, and during the next decade, about 20,000 people worldwide became recipients. Critics of the process were concerned that, as not all those bitten by rabid animals develop rabies, healthy people may be injected with what might later prove to be an unsafe virus. "Pasteur's confidence was posthumously vindicated in 1915, however, when a ten-year study revealed that, of 6000

people bitten by rabid animals, only 0.6 per cent of those vaccinated had died, compared with 16 per cent of the rest" (Porter, 1997, p. 435).

Other researchers later isolated the diphtheria bacillus and developed an antitoxin, and as other bacteria were discovered, and numbers of vaccines and antisera were produced, "the mechanisms of prevention became increasingly clarified" (Lyons & Petrucelli, 1987, p. 557).

Robert Koch (1843–1910) was a country physician who studied micro-organisms in his spare time. He revolutionised bacteriology, and in addition to establishing the sporulation and pathogenic character of the anthrax bacillus, "developed and refined techniques of culturing bacteria, advanced the method of steam sterilisation, discovered the cause of many diseases ... and introduced effective preventive measures in typhoid fever, plague, malaria, and other diseases" (Lyons & Petrucelli, 1987, p. 557).

Numerous other researchers contributed to the development of bacteriology and microbiology, and the last decade of the 19th century saw "the development of antitoxins and the discovery of viruses" (Lyons & Petrucelli, 1987, p. 558). Bacterial diseases were increasingly studied after it was observed that "the toxins produced by the bacteria of diphtheria — not the organism itself — could cause the damage to the body that made up the clinical picture" (p. 558). It was discovered:

> that the body manufactured circulating substances which acted against the toxins (prompting) Von Behring to obtain neutralising antitoxic sera from the blood of animals injected with intermittent doses of the toxins. This use of antitoxic sera in treating diseases was called 'passive immunisation' by Paul Ehrlich, in contradistinction to 'active immunisation' by inoculating attenuated cultures of the pathogenic organism or its toxin to call forth protecting antibodies. Jenner's vaccination against smallpox and Pasteur's antirabies inoculations were examples of the active production of immunity. (p. 558)

Diagnosis was enhanced by the recognition that the identification of the specific antibody against a particular germ in the blood determined the problem organism. The natural role of cells in fighting disease became overshadowed by the use of biologically

produced chemical substances until the Russian pathologist, Elie Metchnikoff (1845–1916) "proved that some cells destroyed bacteria by engulfing them (phagocytosis) and by elaborating antibodies against them, for which he was awarded a Nobel Prize in 1908" (Lyons & Petrucelli, 1987, p. 558). The comprehension of host resistance to disease contributed significantly to public health, as it was realised that humans could be carriers of pathogenic germs of dangerous diseases without being ill themselves.

Whereas most germs responsible for illness could be viewed under a microscope, some others could not, producing a new field of investigation, virology. The discovery that the mosquito was an intermediate host of malaria, and that the disease could be transmitted through the human population only by mosquito bite which transferred the virus through infected human blood, yielded improvements to public health through mosquito eradication programs (Lyons & Petrucelli, 1987, p. 561).

Paul Ehrlich (1854–1915) is credited with providing the most important impetus to fighting micro-organisms, through his development of a discipline that sought agents against bacteria, and the construction of criteria for evaluating effectiveness. Later, Ehrlich became involved in research on syphilis and synthesised chemicals to destroy the causative organism; his 606th compound, the arsenical salvarsan, proved effective. Later, "other less toxic arsenic compounds ... arose out of his work" (Lyons & Petrucelli, 1987, p. 561). Ehrlich's demonstration that dyes could be anti-bacterial agents led to the use of sulphonamides in the treatment of bacterial infections. Also, Ehrlich "drove immunity investigations one stage further by developing chemotherapy, pinning his faith on the creation of artificial antibodies" (Porter, 1997, p. 435). Later, following the introduction of penicillin, Ehrlich's anti-syphilis drugs were abandoned.

During the 19th century, the study of *materia medica* developed into laboratory based pharmacology, as drugs research and manufacturing became inseparably linked. "The booming chemical industry developed pharmaceutical divisions, often as a sideline of the thriving dyestuffs business" (Porter, 1997, pp. 448–449). In the 19th century,

technological advances assisted the mass-production of drugs, including sugar-coated pills, gelatine capsules and compressed tablets.

The pharmaceutical industry soon worked closely with academic pharmacology and by 1900:

> pharmaceutical manufacturers were turning discoveries made in university laboratories to profit. Such cooperation between science and commerce was not always plain-sailing: industrial patenting and profit-seeking potentially clashed with the ideals of open scientific inquiry. When John Jacob Abel (1857–1938) and some academic colleagues established the American Society for Pharmacology and Experimental Therapeutics (1908), they excluded anyone in the permanent employ of a drug firm. (Porter, 1997, pp. 449–450)

Following the successful chemical treatment of syphilis, the search for new chemical solutions to disease expanded rapidly; however, the search was generally unsuccessful, and Chemotherapy came to be seen as an impossible dream. Even well into the 20th century, as there were no effective therapies for most infections, ancient and useless remedies like emetics were still prescribed. Even as late as the 1920s, Harvard's professor of applied pharmacology admitted that, generally, damage from diseases could not be repaired by medicine. "The only effective therapeutic substances, as distinct from painkilling drugs like morphia, were mercury, and Salvarsan and its variants, antimony for schistosomiasis, and quinine" (Porter 1997, pp. 452–453).

The new "sulpha drugs" which emerged in the 1930s and 1940s were "bacteriostatic, affecting the bacterial metabolism and preventing its multiplication in the host, thereby permitting natural body defences to succeed against the invader" (Porter, 1997, p. 454). These "sulpha drugs" were effective in treating streptococcal infection, pneumonia, mastoiditis, meningitis, gonorrhoea and other diseases, and by 1941, 1700 tons were consumed by 10 million Americans. "However, deaths were reported, and strains of sulpha-resistant streptococci appeared. Controls over pharmaceuticals were then minimal, and experience showed that the sulphonamides had their dangers and could also become ineffectual" (Porter, 1997, pp. 454). These successes in the control of bacterial diseases encouraged research into other anti-microbial agents.

The word *antibiotic* means "destructive of life", and comes from the word *antibiosis*, a condition in which "one creature destroys the life of another to preserve his own" (Porter 1997, p. 455). During the Second World War, penicillin became the first antibiotic, and was highly effective against "most types of pus-forming cocci, and against the pneumococcus, gonococcus, meningococcus and diphtheria bacillus, the bacilli of anthrax and tetanus and syphilis". The pre-penicillin pneumonia fatality rate dropped from around 30 per cent to around 6 per cent, "and pneumonia, once the old man's friend, ceased to be a major source of death" (Porter, 1997, p. 457).

In the 1960s, as laws controlling the launching of new drugs became more stringent, and required lengthy and exacting testing, the pace of innovation slowed. "That may in some measure explain why the late 20th century brought no new drugs whose impact could compare with the sulpha drugs or penicillin" (Porter, 1997, p. 459). Porter sees the century from Pasteur to penicillin as one in which the ancient dreams of medicine came true, as the knowledge of the causes of disease resulted in the development of both preventions and cures, and which "may one day be nostalgically recalled as an anomalous, if fortunate, exception to medicine's sisyphean strife" (Porter, 1997, pp. 460–461).

5.10 Conclusions

As medieval physick evolved to biomedicine, it further separated from natural medicine as it developed new paradigms, and made significant gains in knowledge, skill, technique, processes, procedures and products. In addition to the aforementioned, this included the identification and treatment of new diseases, new psychiatric paradigms, and advances in clinical science and surgery. The cutting edge of biomedicine involves the cooperation of basic research, clinical science and technology, and that medical progress has ensured that "for almost all diseases something can be done; some can be prevented or fully cured." However, "the major killers in Western society — particularly heart and vascular disease, cancer, and chronic degenerative illnesses — [remain] largely incurable and in many cases increasing in incidence" (Porter, 1997, p. 595). The

following chapter will examine the failings of biomedical science, particularly in relation to its crises of iatrogenesis and nosocomial illness, and criticisms of its philosophical and scientific underpinnings.

CHAPTER 6

MEDICAL SCIENCE OR MEDICAL MYTH?

6.1 Introduction

The previous chapter showed that as Western science developed, European medical theory and practice evolved from medieval physick to biomedicine, and further separated from natural medicine. That separation became increasingly identified with science, as some proponents of the biomedical paradigm claimed that, unlike biomedical theory, natural medicine theory lacked adequate scientific underpinnings and, therefore in the public interest, its practice ought to be proscribed or at least discouraged. However, in order to assess the likelihood of biomedical and natural medicine theories and practices becoming integrated into a new medical model, it will be necessary to understand their differences. Any new integrated medical model would appear to require the acceptance by both the biomedical and natural medicine professions of the positive aspects of the other's practice. However, as biomedicine's adverse events, and their resultant iatrogenesis and nosocomial illness are in conflict with natural medicine theory of safe and efficacious treatment, they need to be re-assessed.

This chapter will therefore explore the appropriateness of Western scientific theory and practice. Six aspects will be examined: Totalitarian Medicine, Science and Myth, Capitalist and Corporatist Influences, The Rule of Law and Professionalism, Technology, and Adverse Medical Events. The section on Totalitarian Medicine will review the appropriateness of Western scientific theory and practice, particularly in relation to the biomedical paradigm. Science and Myth will look at the extent to which biomedical theory and practice are based on sound scientific underpinnings, the role of science and myth in modern society, and whether deductive certainty is achievable. The section on Capitalist and Corporatist Influences will review the influence of capitalism and corporatism on biomedical theory and practice, emphasising conflict of interest

issues, and the apparent overuse of technology and testing. The section on Rule of Law and Professionalism will assess the evolution of medical professionalism in terms of problems that may arise from barriers between practitioners and patients, created by professional distance and language, and their influence on the incidence of adverse medical events. The section on Technology will assess concerns about increasing usage of technology, particularly from the aspects of cost, the effects on the "doctor/patient" relationship, and adverse medical events. The final section, on Adverse Medical Events, will provide some details of the extent of the problem.

6.2 Totalitarian Medicine

This examination of Western scientific thought and practice is not an attempt to discredit them as tools of explanatory and remedial power, but seeks to achieve a clearer perspective on their capacity to ensure the safety and efficacy of biomedical practice. Whereas theories of medical science evolved significantly from the Renaissance, regular, or government-approved medicine was transformed in the 19th century by "changes in the professional environment and from decisions internal to medical thought" (Shylock, 1963, p. 196). From 1790 to 1840, technological innovations and economic trends in Western Europe led to increased wealth, and to a rapid growth of urban populations. Shylock (1963) claims that communication of scientific ideas through personal contacts was facilitated by improvements in transportation and printing and through the publication of books and journals. Also, opportunities for medical observations in hospitals expanded with their growth (p. 196).

University chairs in pharmacology were established in Europe in the middle of the 19th century, following the chemical refinement of active therapeutic ingredients extracted from herbal medicines (Porter, 1997, p. 334). At that time, despite the growing importance of the profession of physick, "whether used simply or in compound mixtures, distilled, dried, ground or decocted, herbs still constituted the bulk of the *materia medica* employed by apothecaries and in kitchen physick" (p. 268). This chemical refinement changed the nature and incidence of adverse medical events, as although this evolution appeared to facilitate reliable and predictable strength and

dosage, it led to the separate use of each active ingredient (p. 334). These single substances were used in isolation from the other ingredients that natural medicine theory considers crucial to the complementarity and synergy which are essential to the safe, therapeutic action of herbs. This led to the deleterious side-effects of modern pharmaceutical drugs, but at that earlier time, they may have appeared less problematic than purgative chemicals, such as the toxic and highly destructive mercury-based calomel.

While Western medicine was evolving professionally in the 19th century, natural medicine's "new scientific and professional movements generated counter-trends — a populist, anti-elitist backlash" (Porter, 1997, p. 396). The popularity of natural medicine arose from the desire of people for more than a cure for their disease. They sought clear holistic explanations that would assist them to control their own health, and possibly find a key to the meaning of life. "Not least, so long as the message of orthodox medicine was pessimistic, alternative medicine instilled hope" (Porter, 1997, p. 396). The medical market was competitive then, and because of its diminished market share, the Western medicine industry assessed that its desire for professionalism would not be realised without some unique source of power, such as by becoming a government-sponsored monopoly. Porter (1997, p. 396) claims that this was unlikely while Western medicine had few answers to disease and premature death, but as those threats receded — for reasons which owed little to Western medicine *per se* — its power increased.

Shylock (1963) claims that Western medical theory and practice therefore became part of the modern scientific approach, from late in the 19th century, with the application of rational processes, such as innovations in mathematics and the natural sciences. Also, technology-enhanced examination of the anatomy and physiology of the client replaced potentially erroneous guesswork, and eventually Western medical theory:

> distrusted speculation, believed that all knowledge derived originally from sensory experience, and insisted that research in clinical medicine and pathology should be pursued in the spirit of the natural sciences. This demand called for systematic and objective observations of the phenomena of the illness — observations which could be made only in a hospital environment. (p. 197)

Scientific thought appears to have adopted a kind of approach that obscured all others, leading to a peculiar proliferation of closed-mindedness (Bohm, 1980, p. 15). Consequently, Western medical theory deems other approaches to treatment of disease as being inferior, and perceives itself as the standard benchmark by which all other therapies are to be judged. This superior attitude arises from the view that reality can ultimately be understood in predominantly mechanical terms.

Increasing specialisation has marked the evolution of Western medical theory and practice. This has taken place in spite of the growing understanding, from the late 18th century, of the importance to physical health of the emotional and psychic well being of the individual. The impetus to specialisation developed from the Cartesian philosophical division of the individual into two parts — body and soul (or mind) — and from the analytical distinctions of Newtonian science. Consequently, Western medical theory persisted in perceiving that its work was best served by a focus on the body, and on increasing specialisation. Reinforcing this approach, Western medical science evolved considerably as the hard sciences became dominant in the study of structure, function and biochemical complexity, in areas such as immunology, bacteriology and pathology. However, this evolution yielded a limited approach to therapeutic practice, and "the current emphasis upon disease specificity, as well as the accumulation of technological knowledge encouraged specialization" (Shylock, 1963, p. 250). Western medical science became limited to the hard analytical discipline of the natural sciences, ignoring other approaches to disease. Bohm (1980) sees a similarity in science's attitudes to people and nature, when he states that the "natural environment has correspondingly been seen as an aggregate of separately existent parts, to be exploited by different groups of people" (p. 2).

The evolution of specialisation has affected the power and role of the individual. Saul (1992) suggests that specialisation brought with it a belief in a rare, indeed even unique form of competence, so much so that it led to the conviction that with it the individual was increasing his control over his own existence. All this gave rise to the assumption

that this new professionalism "would lead to bodies of expertise joining together in a sort of populist meritocracy" (p. 472). However, what did develop was a form of elitism "in a horribly twisted form, with the rise of corporatism which then turned into fascism" (p. 472). The result of this is that despite the defeat of fascism during the Second World War, the experience and power of corporatism did not die with it, but flourished under a different guise. Saul says that the rise of globalism has enhanced international corporations; yet globalism strikes at the very heart of national sovereignty. At the lowest level, globalism increasingly shapes the isolation of individuals, as they lose the meaningful intimacy which belongs to a sense of communal reality. Individualism, as a process of modern society "was created around the principle of a self-centred feeling or conduct. In other words, the conviction grew that the only way to develop individual qualities was to reject society" (p. 473).

The problems with Western science arise from its prevailing tendency to think and perceive in terms of a fragmentary self-world view, which suggests that the world is constituted of "nothing but an aggregate of separately existent 'atomic building blocks' and provides experimental evidence from which is drawn the conclusion that this view is necessary and inevitable" (Bohm, 1980, p. 15). Ultimately, what is unsettling with this process is the fact that "people are led to feel that fragmentation is nothing but an expression of the way everything really is and that anything else is impossible," and that there is in society "a kind of prejudice in favour of a fragmentary self-world view fostered and transmitted (to some extent explicitly and consciously but mainly in an implicit and unconscious manner)" (p. 15). Also, to the extent that there are vested interests in maintaining a fragmentary view of the world (which, of course, is reinforced by the plethora of various professional bodies), there is little chance of an integrated world-view being adopted or even being imposed on the scientific world. This may have implications for the development of integrated medical models, and suggests that the concept of volunteerism, rather than compulsion may be appropriate.

Bohm (1980) is concerned with the misuse of the concept of scientific analysis, and emphasises that, as a tool of understanding, it is only "one" tool for shedding light on

integrated wholes. The misuse of this concept gives rise to "a function that divides the totality of existence into separate entities, which are considered to be essentially fixed and static in their nature" (p. xii). He proceeds to point out that "our general world view is itself an overall movement of thought, which has to be viable in the sense that the totality of activities that flow out of it are generally in harmony, both in themselves and with regard to the whole of existence" (p. xii). He sees that "the proper operation of the mind requires an overall grasp of what is generally known, not only in formal, logical, mathematical terms, but also intuitively, in images, feelings, poetic usage of language etc." He continues, to state that this kind of thinking is "not only a fertile source of new theoretical ideas, it is also needed for the human mind to function in a generally harmonious way, which could help to make possible an orderly and stable society" (p. xiv).

Saul (1997) criticises the current nature of rational thought in social, political, scientific and economic discourse. He says that the vision of Voltaire and others was to see that reason could devote knowledge to the development of morality and common sense (p. 39). Analytical rationalism was cultivated as an epistemological technique to facilitate understanding; yet over time, through science, it became the only way to address understanding. It appears that from physick to biomedicine, as in other Western intellectual pursuits, attempts have been made to impose control on what was perceived to be essentially outside such control.

Habermas (1971) says that "if emancipation is to remain a project for humanity, it is essential to counter the influence of 'scientism' in philosophy and other spheres of thought" for "scientism means ... that we no longer understand science as *one* form of possible knowledge, but rather identify knowledge with science" (p. 4). With the destructiveness of technological consciousness within science, Habermas claims that "epistemology as the critique of knowledge had been progressively undermined" (pp. 68–9). Consequently, science can no longer be understood merely as one category of knowledge, nor be comprehended by philosophy. The rise of scientism resulted in:

> a radical de-emphasis of what had been the traditional concern of the critique of knowledge — inquiry of conditions of possible knowledge as well as into the meaning of knowledge as such. Epistemology became increasingly restricted to an examination of questions internal to methodology, thereby losing sight of the significance of the rule of the epistemic subject (the knower) and of reflection by the subject on his or her activities. (pp. 68–9)

Habermas believes that Western scientism threatens the survival of societal fabric as "knowledge is formed in virtue of three interests: information that expands our power of technical control; interpretations that make possible the orientations of action within common traditions; and analyses that free consciousness from its dependence on hypostatized power" (Held, 1980, p. 297). Ultimately, as Held says, the process is one in which the knowledge-constituted, or knowledge-leading, interests are "general" interests; they are underlying modes through which reality is disclosed and acted upon. They delineate a general orientation which yields a "view point" from which reality is constituted.

Consequently, the rise of scientism has rendered independent critique of knowledge, or epistemology, almost impossible. If philosophy is a way of comprehending in a meaningful way the significance of knowledge, then that task is made difficult by the Western scientific enterprise which claims that answers lie, exclusively, in their intellectual approach to the acquisition of knowledge. "From an epistemological stand point there could be no attempt to question the meaning or function of science because there was no source of knowledge held to be independent of science by which to criticize its results" (Held, 1980, p. 297). Further, "as a result, the conditions are created for a decline in the susceptibility of society to critical thinking" (p. 68). He suggests that the cause of this impotency of critical thought is found in the expansion of capitalism and technological rationality, which, while:

> massively increasing coercive power has, at one and the same time, transformed numerous modes of external compulsion and authority into modes of self-discipline and self-control. All men and women who seek the maintenance of their own lives have to act rationally, that is they have to act according to the standards which ensure the functioning of the apparatus. This introversion of authority reinforces and sustains modes of

> behaviour that are adaptive, passive and acquiescent. Needless to say, the mechanisms of social control are strengthened. (p. 68)

This results in an "illusion, in which a wholly enlightened mankind has lost itself, [which] cannot be dissolved by a philosophy which, as the organ of domination, has to choose between command and obedience" (Horkheimer & Adorno, 1979, p. 39). Such is the monumental scale of the cultural and epistemological deceit that Horkheimer and Adorno characterise this process as "the abandonment of thought, which in its reified form of mathematics, machine and organisation avenges itself on the men who have forgotten it, [so that] enlightenment has relinquished its own realization" (p. 41).

Held (1980) observes the perceptions of Habermas relating to a cultural world that allows humans to foster the "ability to reflect on their own development, and, as a consequence, to act with greater consciousness and autonomy so that the basis of the emancipatory interest can be uncovered" (p. 317). Habermas is concerned with the massive cultural shift which the dominance of scientific thought and rationality has brought about. He holds that the value of scientific thought must now be recognised as all–pervasive, as the demands of "technological consciousness" seek to penetrate all manner of social and cultural discourse. He sees the need for society to move away from these influences in order to seek freedom of being and thought, in "understanding the activity of the knowing subject and, in particular, the moment of reflection and of self understanding" (p. 297). The "mechanisms for the achievement of self-consciousness are not those determined by the extension of technical control; rather, they involve a complex struggle for reflection and understanding" (p. 299).

Habermas insists that "knowledge must discard the illusion of objectivism — the idea that the world appears objectively as a universe of facts whose law-like connection can be grasped descriptively." He proceeds to say that "the illusion conceals the processes in which facts are constituted, and thereby prevents consciousness of the interlocking of knowledge with interests from the live world" (cited in Held, 1980, p. 297). This appears to be supported by Eveleen Richards, a member of the Department of Science and Technology Studies at the University of Wollongong, who in 1988 wrote that "the

randomized controlled clinical trial, no matter how tightly organized and evaluated, can neither guarantee objectivity nor definitely resolve disputes over contentious therapies or technologies" (Richards, 1988; cited in Carter, 1992, p. 10).

The preoccupations with Western science's objectivity and analytical procedure are not the only concepts and criteria that are problematic for modern biomedicine. Indeed, just as formidable is the fact that "throughout the course of Western civilization there has been a strong resistance to new information in other scientific fields" (Carter, 1992, p. 21). The conscious cultivation of scientific rational thought within Western civilisation, which began arguably with the Renaissance, gave to cultural and social reality a significance that was not to be found in Europe before. Also, over time, there was a rapid growth of bureaucracy within government and other areas of civic life; but the spread of reason, or rational thought, on such a scale brought with it the deliberate development of structure. Additionally, central to the creation of structure was the need to formulate a useful, administrative sense of distance which, of course, gave rise to the enshrinement of power. Structure was the end result of the successful implementation of reason, which "began to abruptly separate itself from, and to outdistance the other more or less recognised human characteristics — spirit, appetite, faith and emotion, but also intuition, will and most important, experience" (Saul, 1992, p. 15).

The distortions found in biomedical science are replicated elsewhere. Habermas argues that the distorted use of science allied to positivism has encouraged the corporate greed of organisations. Habermas recognised that:

> positivist philosophy had an initially liberating intent; its concern to provide a criterion for a strict separation between science and metaphysics was motivated by the desire to dispel all dogmas — all modes of thought that placed themselves beyond empirical test and relevant independent controls. The exclusive concern with science, and in particular natural science, had, he thinks, a certain plausibility in the eighteenth and nineteenth centuries (Held, 1980, p. 300).

However, Habermas realised that in spite of "science and natural science having a certain plausibility" and "appearing to offer the road to salvation, the preoccupation with

science and philosophy with an examination of its methodology impaired the understanding of the 'meaning' and 'import' of knowledge" (Held, 1980, p. 300). Ultimately and more importantly, this distorted process has, in Habermas' opinion, led to the rise, development and reinforcement of technological consciousness. This forces Habermas to accept that "scientific knowledge while a necessary condition, is certainly not sufficient for human emancipation" (Held, 1980, p. 300).

It may be argued that the crises in biomedicine, at least in part, arise from questionable medical paradigms and practices, and questionable attitudes. According to Goldberg, (1993):

> when the germ theory of disease became dominant, the birth of contemporary medicine, with its emphasis on infectious causes of diseases rather than physiologic balance or harmony, occurred. This provided medical science with the opportunity to greatly expand its role in the treatment of illness. This was followed by the rapid development of microscopy, bacterial cultures, vaccines, x-ray, and in the 1930s, the discovery of antibacterial drugs such as penicillin and the sulfa drugs. However, the more that medical science embraced the germ theory of disease, the more it also superseded the individual's role in his or her own health. (p. 5)

Willis (1989) agrees that germ theory has come to provide the theoretical underpinning for what is referred to as "scientific medicine" (p. 61). He further argues that:

> the corporatist mode of medical production entailed a view of disease as being the result of germs; that is specific causative agents. Disease was thus an individual and biological phenomenon rather than a social and political one. In crude terms it was 'germs that made people sick' rather than 'capitalism making people sick'. Such emphasis thus diverted attention away from the social and structural causation of disease. (p. 23)

Willis (1989) continues his Marxist thrust:

> Support for the germ theory placed responsibility for disease in an individual and amoral microbe rather than the environment (as the miasmatic theory had) or the social relations of production (as social medicine had) ... Germ theory in other words was attuned to the interests of the dominant class. As it developed it became consistent with and defensive of a growing capitalist economy ... A particular paradigm of medical knowledge and technology was promoted by bourgeois interests

> based upon the general affinity between germ theory and bourgeois individualism. (pp. 89–91)

However, Cassidy (1996, p. 22) suggests that the germ theory of disease is based on religious theories from the Middle Ages. Germ theory requires external invasion by agents of disease, and counter-invasion of the patient's body by doctors, drugs and technology, to kill the germs and purge the body of infection. Cassidy theorises that this process derives from the witch-hunting image of invasion and irreversible contamination of witches and heretics by the devil, which required counter-invasion by the Inquisition and the burning of the invaded, to also purge society of infection. With these processes, both medicine and religion claim to have acted in the public interest. The disempowerment of the sick by modern biomedicine follows the pattern of disempowerment imposed by early religious theory — based on the myths of Satan, witchcraft and the invasion of evil influences — whereby the sick, as sinners, were being punished by God.

In 20th century Europe, general health improved, and life expectancy increased from about 45 years to about 75 years (Lock, 1997, pp. 123, 144). These advances were due mainly to the intrinsic, natural cycles of initial virulence and eventual decay of many or most infectious or contagious disease and to improved living standards and better hygiene. They owed little, despite germ theory, to improvements in the ability of Western medicine to cure patients or combat disease.

Over the centuries, then, the key paradigm of all knowledge shifted from Catholic totalitarianism to the hegemony of physical science. This is perhaps best summed up in Wilber's (1998) allusion to the trend to "make science itself into a new religion of positivism (which is exactly what Auguste Comte would propose, with Comte himself volunteering to be, literally, the Pope of Positivism)" (p. 16). Indeed, the positivist ideology of science has arrived at much the same position in which the medieval Catholic Church found itself: seeking totalitarian control of the way knowledge is formulated and legitimised. Just as medieval Christendom was a missionary country, with crusades and Inquisitions seeking, ultimately unsuccessfully, to convert the

peasantry to control by the Church of Rome, so biomedicine has sought unsuccessfully from the 20th century to convert the population of the world to its view of science.

Western scientific thought and practice have contributed much to societal evolution, particularly in relation to medicine — despite the aforementioned criticisms. For example, although it is probably impossible to define reason, as a practical notion it has proven to be a dynamic tool for the advancement of civilisations' standards. However much it can be argued that reason "has provided the most basic assumptions and therefore created the most basic decisions", it has simultaneously been "the sign of Western man's conscious self and therefore of his better self. Reason is still accepted as the light which leads the way across the treacherous ground of our baser instincts" (Saul, 1992, p. 14). Biomedical science, by its commitment to the explanatory and analytical approach and its power to understand disease through science, has not only relieved suffering, but has made a profound contribution to the maintenance of health through its grasp of diagnostic and preventive measures. However, apart from it being accompanied by adverse events and dramatically escalating costs, so often it intervenes with its expensive curative measures, when simpler measures would do. In this regard, unlike natural medicine practice, biomedical practice has evolved, to some extent, to ignore even the natural healing and immunological properties of the human body (Carter, 1992, p. 243).

6.3 Science and Myth

In Europe since the Middle Ages, at least, there has been a divide between the practice of Western medicine and natural medicine. The related debate, which has continued for centuries, usually involves claim and counter-claim about the relative safety and efficacy of these forms of medicine and the quality of their practitioners. Supporters of the various sides of the on-going debate generally agree that the beliefs of their opponents are to varying degrees false. An accusation of falsity is usually accompanied by the suggestion that those beliefs are therefore myths, and that myths, being either un-scientific or otherwise not in the public interest, ought not to play a role in "modern" medicine. As has been seen, proponents of Western medicine have occasionally

successfully advocated this case to the Church and government, which have responded with proscription of various medical services and/or classes of providers, or individual providers, regardless of their public support or the public interest. When opponents hold contradictory views, it is usually assumed that, at the most, only one of the views can be true, whereas either both or one of the views may be false. By applying this logic to the biomedicine/natural medicine debate, because of their contradictory nature, some of the competing claims must be false, even though they enjoy a great deal of support from their believers.

From a scientific perspective, the concepts of randomness and symbolic thinking are incompatible. The distribution of tea leaves in a cup, or the fall of the milfoil sticks in divining by the *I Ching* would be seen to be mere noise, and therefore irrelevant to the future. However, the transformation of noise into information is a function of symbolic thinking, and "most scientific theories rest on the assumption that, for any particular purpose, some events (and usually most events) are indeed noise, from which no information can be derived" (Smith, 1989, p. 19). However, the justification for adopting randomness as a component of scientific theories is that they have proved to be useful (pp. 19–20).

Although science has provided convincing theories about the origins of the universe and the evolution of humans, people in all societies have constructed alternative myths about their origins, whose function is to "define man's place in nature, and thus to give him a sense of purpose and value" (Smith, 1989, p. 40). It was not always intended that the myths were to be taken literally, as the truth they conveyed was often a symbolic one. Smith (1989, p. 42) explains that the function of a myth is to give moral and evaluative guidance rather than technical help. However, it is sometimes difficult to distinguish between science and myth:

> If Darwin demonstrated the impossibility of acquiring certainty through induction, Einstein showed that what scientists had been most certain of — classical mechanics — was at worst false and at best a special case of a more general theory. After this twin blow, sure and certain knowledge is something we can expect only at our funerals. (p. 43)

From a philosophical perspective, all science may be regarded as myth as the scientific method of disproving hypotheses provides the potential for the adjustment of all "known things". The argument that some alleged science may be myth can arise through diverse circumstances. The following example appears to describe the realisation of a different kind of "myth". The 2001 joint declaration by the editors of 11 leading medical journals including *The Lancet*, *Medical Journal of Australia*, *New England Journal of Medicine* and *Journal of the American Medical Association* accused the pharmaceutical industry of interfering in scientific research (Stock, 2001, p. 7). Whereas it is vital for clinical trials involving human testing of prototype treatments to be totally independent, there was growing evidence that sponsors had regularly dictated trial participation terms, and also impeded full disclosure of the results. This occurred because of the desperation of scientists for funding (Stock, 2001, p. 7). The reputation of these prestigious journals is clearly threatened by publication of scientific papers written in these circumstances. Marxists may not be surprised by this interference in science by capitalist corporations. Little (1995) claims that "medical scientific fraud began to emerge in the 1970s" (p. 43). According to Kohn (1986), breaches in ethics in scientific research include "outright fraud and conscious falsification, through plagiarism and concealment of information" (p. vii). The quality of some medical publications is therefore questionable, particularly as Lock (1991) claims that only about 1 per cent of medical publications represent "good" science (pp. 1–8).

Although Newtonianism may have contributed much to science, it has also been credited with alienating human beings from the universe they inhabit. People feel demoralised, depersonalised and helpless when they are encouraged to accept that they are merely cogs in a machine that has no interest in them as persons, and which will continue its work regardless of their feelings or actions (MacKay; cited in Davies & Gribbin, 1991, p. 7). As a result, many people have rejected much of society, including its scientific values. For example, Darwin's paradigms are probably the most disbelieved on the planet, and although the Judeo-Christian theories of human nature have great support in the United States:

> the modern sciences of cosmology, geology, biology, and archaeology have made it impossible for a scientifically literate person to believe that the biblical story of creation actually took place. As a result, the Judeo–Christian theory of human nature is no longer explicitly avowed by most academics, journalists, social analysts, and other intellectually engaged people. (Pinker, 2002, p. 2)

However, Cassirer (1951) points out that the various scientific systems were incapable of "ever wrestling from things their ultimate mystery, or ever penetrating to the absolute being of matter or the human soul" (p. 13). The implications of the separation of the beliefs of the populace from the beliefs of science are exemplified by Pinker (2002) as follows:

> According to recent polls, 76 percent of Americans believe in the biblical account of creation, 79 percent believe that the miracles in the Bible actually took place, 76 percent believe in angels, the devil, and other immaterial souls, 67 percent believe they will exist in some form after their death, and only 15 percent believe that Darwin's theory of evolution is the best explanation for the origin of human life on Earth. Politicians on the right embrace the religious theory explicitly, and no mainstream politician would dare contradict it in public. (p. 2)

The separation of science from society is not just a religious question, as evidenced by the divide between biomedicine and natural medicine. However, possibly the populace is seeking more comforting or profound explanations for their existence than that provided by Gribbin (2002) who stated that "the most important thing that science has taught us about our place in the universe is that we are not special," (p. xvii) and justifies that view with the fact that the Earth was merely one of hundreds of billions of stars in its Milky Way galaxy alone. He also claims that human life was no different from any other kind of life on Earth, as "all you need to make human beings out of amoebas is the process of evolution by natural selection, and plenty of time" (p. xix). Further, he argues that "life is just a rather complicated form of chemistry" (p. xvii). He describes the period of the new science as one "which has taken us from the realisation that the Earth is not at the centre of the Universe and that human beings are 'only' animals, to the theory of the Big Bang and a complete map of the human genome in just over 450 years" (p. xix). Even though the scientific advancements have been remarkable, clearly, most people with religious, spiritual or alternative beliefs that allow them to feel *special* would seek

explanations for their existence and beliefs elsewhere, as evidenced in the above polling of Americans.

The claim that some science is myth is supported indirectly by philosophers such as Kuhn, who believe that some scientists "adopt certain distinct paradigms that are tenaciously retained, and are abandoned only in the face of glaring absurdities" (Smith, 1989, p. 17). Also, even though experimental scientists pride themselves on their objectivity, "they unwittingly massage their data to fit in with preconceived ideas". It is a disturbing fact that "several different independent experimenters will carefully measure the same quantity and consistently get the same wrong answer, because it is the answer they have come to expect" (Smith, 1989, p. 17).

According to Kuhn (1970), the pursuit of science takes place within paradigms subject to profound shifts: paradigms are "universally recognised scientific achievements that for a time provide model problems and solutions to a community of practitioners" (p. viii). It seems that beliefs in established paradigms are notoriously difficult to shift or destroy, as Carter (1992) claims that "despite the unprecedented advances in modern research there exists a strong inertia to change, in science and medicine" (p. 3). Popper was concerned that "there is much less accumulation of knowledge in science than there is revolutionary changing of scientific theory" (Smith, 1989, p. 46). Kuhn sees difficulties for science where frequently one paradigm appears merely to replace another through a "paradigm debate in which the proponents fail to make complete contact with each others viewpoints and in which they see the world differently" (Smith, 1989, p. 46).

The paradigm problem between natural medicine and biomedicine may be represented by, say, traditional acupuncturists who seek to assist their clients with the relief of pain, the origins of which are a mystery to biomedical science. Although the acupuncturists and their clients may be satisfied with the treatment process, its rationale and the outcome, many biomedical practitioners would still regard the whole scenario as myth, probably because it is outside their scientific paradigm. It is for reasons like this that discussions between natural medicine practitioners and biomedical practitioners often

degenerate into incomprehensible paradigm debates, as they fail to agree about what is certain and what is myth.

6.4 Capitalist and Corporatist Influences

The increasing participation by corporations in the provision of health services indicates a need to examine their influence. The control of the current complex Western economic situation is found in the:

> continual confusing of industrialization with capitalism with corporatism; the sort of confusion that ought to drive a modern economist crazy, but doesn't because all three fit together in a comfortable, flexible way. All three are *interest* oriented. They are now to be seen to be about organization and capital. (Saul, 1997, p. 90)

From a political perspective, Durkheim is concerned that the distinction between public and private will be blurred if corporations become the "elementary division of the State, the fundamental political unit", as this will divide people into "discrete functional groupings, which are no longer capable of joint political action ... [and] scientific rationality [will] achieve its rightful standing as the creator of collective reality" through the corporations (Saul, 1997, pp. 90–91).

Carter (1992, p. 289) believes that the contemporary extreme specialisation of biomedical practice and thought arises, not so much from the desire to understand the complex aetiology and disease process, as the urge to attract the powerful financial sponsorship of pharmaceutical corporations. Further, this specialisation often has positive benefits, but it is specialisation that functions at the behest of powerful financial incentives, and which is no longer in touch with the original purpose of the healing art, and ultimately the world of ethical curative skills and moral integrity. This has resulted, with particular reference to America, in a medical profession of specialists who:

> control the practice of medicine, and whose vested interests are the driving force for the ever-increasing emphasis on new and better technologies, the fragmentation and compartmentalization of patient care, and the exorbitant fees charged for invasive procedures of all kinds. Their needs become dominant, and a holistic approach to the patient, in the

> context of primary health care, becomes subservient or, more accurately, falls through the cracks. (Carter, 1992, p. 289)

In the US there is a concentration on providing medical care for those who can afford to pay, and utilising the most sophisticated technology and prescribing expensive surgery, radiation and so called ethical pharmaceuticals "in order to maximize profits for the medico-pharmaceutical-industrial complex" (Carter, 1992, p. 289).

As demonstrated earlier, whereas biomedical theory and practice are limited, they are closed to other paradigms. As one American biomedical practitioner puts it:

> The American public has no idea how politics secretly control the practice of medicine. If a doctor dares to introduce a natural, less costly method, no matter how safe or effective, organised American medicine can target this doctor for license revocation using fear tactics and legal manoeuvrings. Why do holistic therapies threaten medicine? (1) they involve a major change in scientific thought. (2) they imply that current methods are inadequate and (3) they threaten huge profits of a powerful branch of medicine or a drug company. (Carter, 1992, p. xv)

Carter (1992) is further concerned with the tactics of powerful American medical bodies as they seek to maintain the power of their profession. He states that:

> Investigations against alternative practitioners follow a pattern of arrogance, dogmatism, deprivation of constitutional rights and a might-makes-right attitude. To suppress alternative medicine, organised medicine resorts to bad behaviours: disinformation, smear campaigns of libel and slander, harassment, unwarranted IRS audits, enticement of patients and family members to sue doctors when there is no reason (even offering financial payment to do so), entrapment by undercover agents posing as sick patients who may persistently beg for alternative treatments, illegal wiretaps, and break-ins and records theft ... Once organised medicine targets an alternative practitioner, the following sequence of events occurs: (1) Negative, sometimes fabricated, evidence is presented to the state board of medical examiners with a request for an official investigation. (2) This process results in prosecution. (3) Intimidating pressures are exerted on the doctor to cease his alternative approach or lose his license to practice medicine. (4) The licensing boards engage in investigations and proceedings which are often confidential and kept secret even from the doctor. (p. 11)

Natural medicine paradigms are deemed to be a threat to corporate wealth, professional control and competence. As the pharmaceutical company is the main source of information about its products to doctors, and provides "lavish incentives for the prescription of those drugs and sales incentives" bordering "on bribes" to maintain market dominance, it is of no surprise to find that:

> American medicine has also isolated and quarantined new ideas and treatments ... especially when they have been contrary to the prevailing point of view or when the discoverer was unpopular or did not have the right credentials. American medicine has been incapable of taking a world point of view and of overcoming professional classicism, which prevents them accepting the innovations of 'outsiders'. (Carter, 1992, p. xv)

Further, Carter (1992) discusses:

> the frightening power mongers who have orchestrated financially-motivated cover-ups for the purpose of (1) controlling the treatment of heart disease and the related conditions of stroke and peripheral vascular disease (2) controlling the treatment of cancer (3) promoting the use of drugs in the treatment of psychosomatic disorders which respond better to stress management (4) promoting drugs instead of acupuncture to relieve chronic pain (5) discounting natural remedies and nutritional therapies as being useless (6) controlling the treatment of advanced cases of AIDS, which have remained incurable in part, because of the failure to consider alternatives. (p. xvii)

The difficulty for patients seeking alternative therapeutic paradigms is sometimes problematic, as biomedicine has a great deal invested "in the perpetuation of the myth of objective evaluation. It underpins the cognitive and social authority of its practitioners and legitimate powerful vested interests, not only in medicine but in society at large" (Carter, 1992, p. 10). In the US at the turn of the last century, moves to upgrade all medical education through an enquiry conducted by Abraham Flexner, sponsored by industrialist Andrew Carnegie "gradually eliminated all of the other schools of the healing arts, sparing only allopathic medical schools affiliated with universities" (Carter, 1992, p. xviii). With reference to Berliner (1977, p. 100), Willis (1989) argues that the Carnegie foundation desired to build up professional groups which would:

> act both as a buffer between the capitalists and the workers and also foster dependency on the part of the working class in different areas of life (such

> as health, law etc) where they were being ministered to by experts who were outside their class domain. (p. 90)

According to Carter (1992), as well as writing about paradigm shifts in 1970, Kuhn also grasped the "process of inertia" in the scientific process. In his view, the process of inertia has a structural and epistemological purpose; and by that is meant that the easy validation and inculcation of scientific ideas is to be seen as dangerous, and possibly inimical to the scientific process — and that the difficulty of being adopted should be seen as valuable to the process. This appears to provide room for argument, as the process of inertia does not always arise from a commitment to scientific rectitude and scrupulousness, but could arise from the desire of the current power structure to maintain the *status quo* (p. 21). Indeed, Michael Polanyi, a philosopher and professor of physical chemistry, commented in 1969 that "new ideas in science are not acceptable in a rational manner, based on factual evidence, but instead are determined by random chance, the ruling economic/political powers or the ruling ideology" (Carter, 1992, p. 22). Also, as sociologist, Marcel Truzzi, states, "It is even harder today for new discoveries and ideas to break through, due to the escalating economics of research," and that new forms of vested interests will emerge from current funding that must compete for massive funding and that this "has become a growing and recognised problem in some areas of modern science" (Carter, 1992, p. 22).

In Europe, the corporate control of medical science has been of the order of that found in the US. A survey carried out by the European Board of Consumers Association has shown that in major European countries, despite having similar rates of disease and sharing the same patterns of mortality, drugs were being prescribed "at a rate not in accordance with the disease rates that occur in their respective countries" (Carter, 1992, p. 231). In all cases, the most prescribed drug was that which was being promoted by a pharmaceutical corporation within each country. Clearly, the factor that determined medical sales was not the demand for a range of drugs that matched the pattern of disease occurrence, but a corporate decision to promote a particular drug irrespective of what was actually required. This raises ethical considerations similar to those posed by "health-care professionals who are more concerned with selling their services and

products than with the promotion of health, disease prevention and sadly, even disease treatment" (p. 233).

The ethos of biomedicine is driven by an ethic and belief in the technological and diagnostic refinement of medical practice, which yields a number of apparently counter-productive tendencies. Because of the prohibitive costs of innovation, medical practice and research have become seamlessly joined to the economic ethic and ethos of capitalism and its commitment to profit, sometimes at any price. Ethical standards become compromised when wealth creation becomes the social objective of medical practice, and the medical players seek political power to maintain or gain their position of political influence.

The societal background to the degeneration of biomedicine includes a necessary understanding of a global, multinational corporatism as the dominating shape of late capitalist society in Europe, and the other industrialised countries which derive their culture from Europe. Corporatism is understood as a method of societal organisation in which individuals have few rights and effectively no voice except in so far as they are members of or subject to a corporation. Corporations of the capitalist variety dominate economic activity, and the state licenses (and restricts or shapes) all activities. In summary, corporatism is:

> a system of interest representation in which the constituent units are organised into a limited number of singular, compulsory, noncompetitive, hierarchically ordered and functionally differentiated categories, recognised or licensed (if not created) by the state and granted a deliberate representational monopoly within their respective categories in exchange for observing certain controls on their selection of leaders and articulation of demands and supports. (Schmitter, 1974, cited in Newman, 1981, p. 47)

Williamson (1985) exemplifies as corporatist societies the Fascist Italy of 1922 to 1943; Portugal under the dictators from 1933 to 1974; Vichy France; Austria 1934–1938; and post-1945 Brazil, Peru and Mexico. The Soviet Union under Stalinism would be another example, with the Communist Party seen as the most powerful organising corporation.

The influences of capitalism and corporatism on medicine may be better understood by an examination of their role in medication research and distribution. Firstly, the reporting of adverse medication events is informative, as Cohen (2001, pp. 2–5) claims that the American federal Food and Drug Administration (FDA), and others, accept that the 250,000 annual reports represent only about 5 per cent of the total. In the public interest there is a professional obligation to fully report such reactions, but the gross under-reporting suggests that biomedical practitioners, hospitals, other medical institutions and pharmaceutical companies all have their own reasons for under-reporting and/or under-estimating these adverse events. This gross under-reporting suggests that the influences associated with the professionalisation of biomedical practice and of medical capitalism and corporatism may, at least in this regard, run counter to the public interest.

Cohen (2001, p. 6) says that whereas prescription drugs help millions of people annually, the problems caused by hundreds of drugs are obscured. In the four years prior to 2001, the FDA has had to remove 10 prescription drugs, one vaccine and an anaesthetic that it had previously claimed to be safe. Cohen (2001, pp. 7–10) claims that much of the adverse medication reaction problem arises because the pharmaceutical companies do not recommend the lowest, safest doses of these potent drugs. Even though the technology exists to determine such doses, the intense competition of the medical marketplace requires fast-paced, inadequate testing through small, brief, insufficiently extensive studies. This has resulted in 51 per cent of approved drugs being found to produce severe side effects which were not detected, or revealed, prior to approval — usually after the drugs leave the trial setting and are prescribed for sicker patients. Many adverse events arise from inadequate methods of drug development and prescription because, rather than serving the needs of sound science or patients' safety, company research and development often serves marketing strategies.

Most research can be conducted in many ways, and Cohen (2001, pp. 9–10) lists several questionable methods that he claims are used by pharmaceutical companies to serve their own ends. First, they can choose research study designs that are more likely to

produce favourable results, rather than designs that may provide more accurate results. Second, they can conduct multiple studies on new drugs, then select and publish the study that is most favourable, while suppressing the rest. Third, their studies can measure a drug's effectiveness in multiple ways; they then select and publish only the best results. Sometimes these favourable results have little to do with whether the drug will help patients. Further, as pharmaceutical companies provide 70 per cent of all medication research funding, their power allows them to control most researchers, even to the extent of having them sign confidentiality agreements so that adverse findings can be suppressed. Those who publish unfavourable findings risk being sued, or losing future funding.

Cohen (2001, p. 12) claims that because of lack of adequate funding of the FDA, its monitoring of newly approved drugs is so limited that some drug toxicities have been initially identified by the media or health interest groups; when 230 deaths were associated with Viagra within seven months of its release, the FDA did not follow up to assess the effectiveness of recommended label changes. Cohen is also concerned about adverse event reports to the FDA; even though Medicare records had disclosed 28,000 annual hospitalisations for adverse events from a best selling heart drug, Digoxin, the FDA received only 82 reports. Funding, however, does not appear to be a problem for the pharmaceutical industry — the most profitable industry, with earnings of around $US125 billion in 1999 — which spends about 20 per cent of its income on research and up to 40 per cent on marketing and advertising (p. 15).

Further, Cohen (2001) states that during the last half century, new drugs have continuously been developed and marketed at unnecessarily high doses that disregard individual variation. In addition, because they are provided in capsule form, flexible dosing is made difficult. Instead of doses being designed for maximum patient safety through lower, safer, proven-effective doses, they are designed to satisfy practitioners' preference for easy-to-use medications (p. 33). Although these dosage rates are often eventually lowered to safe levels, there are still two problems: firstly, it indicates that

patients have been unnecessarily injured; secondly, practitioners often continue to prescribe the dosages they have originally learned (p. 34).

Because of natural biological variations among individuals, doses will not suit all people equally. However, Cohen (2001, p. 35) draws attention to several ways in which US pharmaceutical companies use this for their own purposes. First, companies take shortcuts, and although the additional costs of more thorough testing would be insignificant to the company, it would save billions in health-care expenditures through reduction of adverse events, and save many lives. However, as companies do not pay for these expenditures, there is no incentive for undertaking better research. Second, as the top priority of pharmaceutical companies is to market their new drug ahead of their competitors, they are motivated to do as little as they can get away with. Third, as marketing and advertising are enhanced by higher efficacy rates, which result from higher doses, the coincidental generation of higher rates of adverse events is therefore, in this context, insignificant, particularly as simple dosing also makes good copy. Fourth, marketing is designed to please practitioners, and easy-to-use dosing regimens save doctors' time, thus increasing their productivity in terms of patients seen per hour. Fifth, whereas it would be in the public interest for the pharmaceutical industry to improve its science by conducting better research and providing vital low-dose information to physicians and patients, the FDA has limited power to enforce such conduct. Sixth, as neither the public nor the media are generating public pressure for reform, it is unlikely to occur. Seventh, by investing in improved research, a company runs the risk of being beaten by less-conscientious competitors — market dynamics appear to sometimes work against good science. Eighth, basic economics dictate that with record profits and weak regulation there is no incentive to change anything.

In an editorial in the *Journal of the American Medical Association* (JAMA), Wood (1999) states that drug safety will improve "only when it is viewed as a cooperative venture between regulator, industry, and prescriber, when all parties are prepared to engage in open dialogue so they may learn from the past with a view toward improving the future" (pp. 1753–4). Cohen (2001) says that this dialogue "should have begun long

ago, because ending the side-effect epidemic doesn't require some new insight or discovery: it simply requires restoring sound, practical, scientific principles to the ways we research, develop, regulate, and prescribe medications" (p. 18). Clearly, the competition and excessive power of capitalism and corporatism are combining, within biomedicine, to damage the health of the populace.

Also, pharmaceutical corporations appear to be generating most of their income under false pretenses, aided and abetted by prescriptions willingly written by biomedical practitioners. According to Corkill (2003) "We've been swallowing a big lie" (p. 13). Corkill suggests that it is widely known within the pharmaceutical industry that most drugs are ineffective for most people. He supports this by referring to statements made by Dr Allen Roses, vice-president of genetics with GlaxoSmithKline, the largest pharmaceutical company in Britain. Roses stated that more than 90 per cent of pharmaceutical drugs had an efficacy rate of less than 50 per cent, that chemotherapy treatments for cancer were as low as 25 per cent effective, and that genetics were the cause of the problem (Corkill, 2003, p. 13). This blaming of patients' genes for the failings of the pharmaceutical industry is an interesting new development in an industry that appears to have often blamed its patients for the failure of its treatments.

The corporatist understanding does not invalidate the fundamental criticisms which Marx made of the exploitative nature of capitalism; in fact, it builds on and elaborates those criticisms, and updates Marx's analysis of power as stemming from a relationship to the means of production into the realities of the 21st century. It illuminates the mechanisms by which the capacity to employ economic, political and social power increasingly resides in giant corporations, which at the very least have a massively distorting (and increasingly determining) effect, not only on specific market sectors, but on social institutions such as professions and governments, and on their interrelationships.

6.5 The Rule of Law and Professionalisation

The power of the medical profession was enhanced during the Renaissance and Enlightenment eras by the rule of law. This legal principle developed slowly, and took its essentially final form in the 19th and 20th centuries as it provided strength and justification to the slowly coalescing nation-state. These developments evolved from a growing and ramifying consensus across Western Europe as to the need, on a national level at least, for reliability, general applicability, consistency, impartiality, openness, accessibility and clarity of interpretation and application of laws (Walker, 1988, pp. 12, 16–17, 19–22). These developments eventually formed an indispensable basis not only for capitalism, but also for what is currently understood to be the professionalisation and the socio-legal role of professions. This sturdy base was to play an important part in the establishment of the biomedical profession. Saul (1992) claims that although the rule of law has proved highly flawed and imperfect in action, its establishment was arguably indispensable to the development of the legal role of biomedical practitioners. The legal framework that created national universal public health systems also provided various roles for biomedical practitioners, relating to its scientific, medical and legal rationale (pp. 318–335).

Saul (1992, pp. 110–112) is concerned with the increasing dependence on expert professionals such as the doctor, the lawyer, the psychiatrist, the politician, the bureaucrat, and the scientist for all the important transactions and interactions of life. From the age of Enlightenment, increasing complexity has sounded the death-knell of community amateurism and ushered in an era of expertise, experts and professionalism. The individual became isolated from other individuals by a growing psychic distance based on fear, mistrust, alienation from traditional skills and community, and an increasingly vacuous spiritual and practical anomie and helplessness — and now depends, powerlessly, on the knowledge, ministrations and unintelligible language of the professional (p. 475). Further:

> One of the specialist's most successful discoveries was that he could easily defend his territory by the simple development of a specialized language incomprehensible to non-experts. The explosion in terminology over the last fifty years has left the languages of the West reeling ... the

> new specialized terminology amounts to a serious attack on language as a tool of common understanding. (p. 475)

The evolution of a multitude of specialised languages appears to be influenced by attempts to create hegemonies of power that are exclusive and elite. Saul (1992) says that "when language begins to prevent communication, that civilization has entered into serious degeneracy" and he observes that the Western university "is at the heart of what divides society rather than seeks to unite it ... They — the custodians of the Western, intellectual tradition — now devote themselves to the prevention of integrated thought" (p. 476). The growth of professional expertise ensures that the voice of the consumer is rarely heard. The impenetrable professional dialects can destroy consumer comprehension of even the simplest of details. Experts demur when these dialects are described as rhetoric that is being used to obscure understanding. Consumers have learned that they are unlikely to be taken seriously if they attempt dialogue with a professional, even if they are personally paying for their professional services. Saul sees that expertise is the only safeguard of the professional, and that as "information" is the currency of a society built upon systems, the professional doles it out with care (pp. 474–477).

6.6 Technology

Although medical technology has contributed much to society, there are growing concerns about its increasingly widespread use. Inlander et al. (1988) claim that medical technology has placed an emotional, psychological and possibly a healing distance between practitioner and patient, particularly as the practitioner's words become less comprehensible to the patient, and the patient's words and actions become less important to diagnosis and treatment (pp. 25–26). Inlander et al. (1988) also observe that over-reliance on technology, at the expense of human skills and instinct, can contribute to misdiagnosis, particularly as new medical technology is usually introduced without adequate risk/benefit studies. They refer to a 1983 Harvard University study which found that in a review of patients who had died, 10 per cent would have survived "if the doctors involved had used their heads instead of their plugged-in devices" (p. 38). They

are concerned that the over-reliance on technology ignores human variability, which can lead to erroneous pronouncements — such as a mistaken diagnosis of coronary occlusion from a misleading cardiograph printout. They cite the concerns of Sidel and Sidel that "because of the inherent dangers of powerful diagnostic and therapeutic methods and because of their misuse by incompetent and venal personnel and institutions" they are, themselves, an increasing cause of iatrogenesis (p. 38). Rice (1988, p. 15) has examined the cases of 218 women who attended the Australian Westmead Hospital, a teaching hospital, for mammography from 1979 to 1985. In 95 cases the mammogram failed to detect the cancer, and for 47 women, treatment was delayed for up to 4 years, allowing their tumours to become more advanced.

Walton (1998) is concerned for the unnecessary and inappropriate use of technology, and observes that medical practitioners are obviously seeking its instant results (p. 7). She sees that technology has increased health costs and undermined "the doctor–patient relationship by introducing competing commercial interests". Walton further says that:

> the failure to monitor equipment and the qualifications of the people operating it also contribute to poor outcomes. In one investigation by an American Health Research Group, of 2000 patients who had pacemaker implants in Maryland, the researchers found 500 implants were unnecessary and another 280 questionable. (p. 8)

6.7 Adverse Medical Events

Although health practices are usually assessed on their record of safety and efficacy, this part of this study is more concerned with questions of safety. Earlier, it was shown that iatrogenesis has accompanied Western medicine for the past thousand years. Iatrogenesis usually follows an adverse event which is described as "an unintended injury or complication which results in disability, death or prolonged hospital stay and is caused by health care management" (Wilson, William, Gibberd, Harrison, & Hamilton, 1995, p. 459) "rather than the disease process" (Porter et al., 1998, p. 4). These adverse events are followed by iatrogenic illness, which is caused by the administration of prescription drugs or other actions of biomedical practitioners, and/or nosocomial illness, which occurs as a direct result of hospital processes and procedures. Those

injured emerge from treatment "with a new injury — sometimes minor, or simply uncomfortable; sometimes permanent, crippling or fatal. Many never know for certain who or what caused their injury. Most would never dream of suing" (Rice, 1988, p. 7). Even though Porter et al. (1998, p. 1) claim that health care is a risk-laden activity, the following statistics are significant and may explain why some people are turning to natural medicine practice.

Barraclough (2002) claims that "safety is the dimension of quality that is most valued by patients and their families when they receive health care" and that "developing a culture of safety requires a significant effort" (p. 4). He continues, to claim that:

> adverse events are more likely the result of error prone situations rather than error prone people. Fundamental changes are needed to achieve a just health care culture where individuals feel more secure and are encouraged to report error and system failures and to act on opportunities for system improvement. (p. 4)

Professor Bruce Barraclough is Chair of the Australian Council for Safety and Quality in Health Care, which "was established in 2000 by all Australian Health Ministers to lead national efforts to improve the safety and quality of health care, with a particular focus on minimising the likelihood and effects of error" (Barraclough, 2002, p. 1). That such a body has been established suggests that biomedicine is in crisis. It also indicates that Australian Federal and State governments genuinely desire to improve patient safety in a health system that is a mix of socialism, capitalism and corporatism. However, Barraclough's claims, above, appear also to suggest that some biomedical systems are unsafe, the existing health care culture is unjust, and individuals feel relatively insecure and are discouraged from reporting error and system failures.

Further evidence of biomedical adverse events is provided in an anonymous report in the Brisbane *Courier Mail* of July 14, 2002 (Anon. 2002, p. 36), which claims that each year, adverse events in the practice of biomedicine in Australia cost about 4 billion dollars, affect more than 500,000 Australians, require about 80,000 hospital admissions and cause about 11,000 accidental deaths. This report appears to have accompanied the release of the 2002 Annual Report of the Australian Council for Safety and Quality in

Health Care, which, interestingly, contains a higher hospital admission figure for only part of the adverse events, and estimates that:

> around 140,000 hospital admissions each year are associated with problems with the use of medicines (including harmful side effects). We **know that pro**blems with medicines may make up about 20 per cent of all **the things that** go wrong in health care, and that a considerable proportion of these events may be preventable ... with inappropriate use of medicines in Australia costing approximately $380 million per year in the public hospital system alone. (Barraclough, 2002, p. 17)

This Report also says that "every year there are over 100 million general practice encounters in Australia" which produce over 190 million prescriptions, "with around 400,000 of these thought to involve adverse drug events" (Barraclough, 2002, p. 5). Further, of 5.9 million hospital admissions, about 140,000 are associated with problems with medicines (p. 25). Hospitals appear to be places of potential and actual danger, as the Report finds that "where patients are given medicines from common ward supplies, the error rates are between 15 and 20 per cent, compared with error rates between 5 and 8 per cent when individual patient medicines supplies are used" (p. 29).

However, some other studies are also significant. For example, Wilson et al. (1995) examined 14,179 admissions to 28 hospitals in New South Wales and South Australia in 1992, and found that 16.6 per cent of the patients studied experienced adverse events (pp. 458–459). Although 51 per cent of the adverse events were highly preventable, 4.9 per cent of those events, involving 0.81 per cent of the admissions, resulted in death. By extrapolating these figures to the Australian population, it was estimated that in Australia in 1992, adverse events resulting from largely preventable hospital accidents caused from 10,000 to 14,000 deaths, with a further 25,000 to 30,000 suffering some permanent disability. Wilson et al. (1995, p. 458) also refer to an earlier study of admissions to a university hospital. In this instance 4 per cent of those admitted experienced iatrogenic fatality or serious injury. Further, Harrison estimated that adverse events in Australian hospitals caused 14,000 deaths in 1999 (Ragg, 1999, p. 17). Rice (1988, p. 9) says that in Australia, of approximately 3.5 million hospital admissions

every year, some 245,000 patients will suffer some kind of medical accident. About 70,000 of these accidents can be attributed to negligence.

Infection is also a major problem in hospitals. Rice (1988) claims that "all hospital patients — and particularly those who have undergone surgery — become candidates for malpractice simply by staying in hospital" (p. 22). Rice proceeds to explain that infections in Australian hospitals affect 6 per cent of patients — 150,000 patients annually — and cost about $150 million. The extent of permanent injury and death is unknown. More alarming are the statistics for intensive care and surgery units, where "for every 100 intensive care beds, there were 20 infections in 13 patients, and in surgical wards there were 10 infections in 8 patients" (p. 22). Saloojee and Steenhoff (2001) claim that although hand washing is the single most important measure in infection control in hospitals, nurses' hands were cleaned after only 30 per cent of general patient contacts, and after 50 per cent of activities likely to result in heavy contamination (pp. 16–17). Pittet et al. (2000) promoted hand hygiene through a hospital-wide programme, and found that "hand hygiene improved significantly among nurses and nursing assistants, but remained poor among doctors" (p. 1307). Infections are becoming more difficult to treat, and Fulder (1994) claims that the vast overuse of antibiotics has caused the development of 'super-bugs' that are resistant to the usual antibiotics (pp. 185–186). Further, although antibiotics are designed to kill bacteria and stop infections, despite regular warnings about their overuse and misuse, many doctors around the world continue to prescribe them inappropriately. For example in the UK, 66 per cent of hospital patients who were prescribed antibiotics had no bacterial infection (pp. 185–186).

Further evidence that hospitals are dangerous places is provided by Inlander et al. (1988) who claim that residents make diagnosis errors 13.1 per cent of the time, and interns 15.6 per cent of the time (p. 68). They also claim that, each year, about 78,000 Americans develop cancer from medical and dental X-rays (p. 106), and that misdiagnosis accompanies many unnecessary X-rays (p. 108). Fulder (1994) says that "there used to be mass screening for lung cancer until it was realised that regular chest X

ray of millions of people caused more illness than it cured" (p.33). Hospitals may not even guarantee basic human rights; Rice (1988) claims that "students at the University of Tasmania's Medical School were making vaginal examinations of women patients while the women were unconscious, and without their consent. Similar practices occur at teaching hospitals in other states — even though, legally, they may amount to criminal assault" (p. 13).

Rice (1988, p. 8–10) claims that biomedical practice in the US and Britain produces similar 'medical epidemics' — a term used by Cohen (2001, p. 3). Lazarou, Pomeranz and Corey (1998) claim that adverse medication reactions are the fourth largest cause of death in the US, and of 2,216,000 severe reactions in US hospitals each year, 106,000 result in fatalities (pp. 1200–5). Usher (1998) says of the US that 88,000 people die each year of complications from nosocomial illness, of which about a third are estimated to have been preventable, and that in 1994, 106,000 hospitalised Americans had fatal adverse drug reactions (p. 64). Further, the American Iatrogenic Association (2002) reports that adverse events in American biomedical practice cost about US$29 billion annually and cause from 44,000 to 98,000 accidental deaths. Evidence that diagnostic tests are sources of adverse events is becoming voluminous. Fulder (1994) says that in the US in 1987 there were 1400 diagnostic tests available, and that 19 billion tests were conducted — 80 tests for each citizen — at a cost of $US100 billion (p. 30). In the UK the position is not dissimilar. McTaggart (1996) states that "every year 1.17 million British people ... are put in a hospital bed by a medical procedure gone wrong" (p. 380).

From the above, it appears that there is a crisis in biomedicine wherever it is practiced. What is remarkable is that this crisis is not widely recognised as such. Even so, critics of biomedicine, both from inside and outside the profession, are numerous. For example, in 1969, Robert Moser published a study of iatrogenic disease, and in 1976 Ivan Illich first published his benchmark critique of the damage, limits, costs and contradictions of biomedicine. This latter study focussed on many current issues including ineffective treatment, iatrogenesis, the disabling effect of over-professionalising medicine which

renders the patient helpless in the face of illness, and in the presence of the alleged expert. Illich (1976) concludes:

> A world of optimal and widespread health is obviously a world of minimal and only occasional medical intervention. Healthy people are those who live in healthy homes on a healthy diet in an environment equally fit for birth, growth, work, healing and, dying ... The true miracle of modern medicine is diabolical. It consists in making not only individuals but whole populations survive on inhumanly low levels of personal health. Medical nemesis is the negative feedback of a social organization that set out to improve and equalize the opportunity for each man to cope in autonomy and ended by destroying it. (pp. 274-275)

There is a considerable literature, including media reports, which focuses on examples of patients' complaints about biomedical treatment; but there appears to be little evidence of systematic research into the causes of public discontent with biomedicine. Indeed, there is evidence that there are built-in mechanisms in the practice of biomedicine which deter complaints. For example, there is Sanson-Fisher's report (Parnell & AAP, 1999, p. 5) of a study revealing that cancer and other patients feared retribution from hospital staff if they complained. Another study showed 78 per cent of hospital patients being critical of their treatment.

Merrilyn Walton, New South Wales Health Care Complaints Commissioner from 1994, has published her concerns about biomedicine. Although Walton writes from the collective experiences provided by her private life and her unique public position, her observations of the deficiencies of biomedicine are reflected by numerous other researchers. Through her public role, Walton (1998) has heard complaints from hundreds of patients regarding their treatment (p. 4). Walton claims that biomedicine is experiencing problems because it is practiced in a web of professional, commercial, organisational, government and consumer interests: "My doctor friends agree that medicine is in a mess but there is no consensus on what the problems are or how to fix them" (p. 5).

Walton (1998) is also concerned about biomedical practitioners who participate in medical research for a fee — whether or not they have received special training in

research principles or methodology — particularly if they falsify results (p. 77). Further, in relation to medical research, she points out that recognition of the abuses of people by Nazi doctors during the Second World War brought about a new era of ethical research in the West (p. 78). However, some reports still suggest that abuse of people in the name of medical research may not have ceased. For example, Walton describes how, from 1944 to 1974, the US government sponsored unethical experiments, one of which involved injecting patients, including children and prisoners, with plutonium and uranium (p. 79). Walton also refers to a study involving mentally retarded children who were deliberately infected with hepatitis, and the Tuskegee experiments, from 1932 to 1972, whereby 412 poor African-American men with syphilis remained untreated; they were told only that they had "bad blood" (p. 79). Further, Walton cites a New Zealand experiment relating to cervical cancer, conducted by doctors at the National Women's Hospital in Auckland, which involved women with carcinomas that were left untreated (p. 80). She also refers to a 'deep sleep' therapy experiment in Australia, where four doctors involved 1430 patients in the therapy in a private hospital, and 25 died (p. 80). These doctors apparently ignored the literature from the beginning of the century, which documented the possible serious side effects.

Walton (1998) says that the media continues to report on questionable research practices where patients have actually been harmed. For example, during one week of August 1997, three Australian news reports described violations during research and experimental treatments:

> faulty heart valves being inserted into people, women exposed to Creutzfeldt–Jakob disease as a result of fertility treatments, and thousands of people in Sweden having forced sterilisations from the 1940s until 1976. The message such reports send us is that we cannot trust those in authority to look after the interests of the participants. (pp. 78–79)

Many biomedical adverse events are reported in the media, but then apparently become hidden from general public view. McTaggart (1996) refers to a list of reports from her morning newspaper in Britain in a single month in 1995:

> Just consider the following headlines and their litany of professional disaster, most treated as everyday revelations, given little more than a few column inches:
>
> - Women are found to be given hysterectomies without their consent.
> - Pregnant women abort perfectly healthy babies after the foetus is wrongly diagnosed as being defective.
> - Some 1000 cervical smear tests are misdiagnosed.
> - In one hospital district, nearly 2000 patients are misdiagnosed as having cancer and given treatment that may increase their chances of developing the disease.
> - New evidence emerges about hormones containing Creutzfeldt–Jakob disease in fertility treatments given to women. Growth hormone was also found to be contaminated with CJD.
> - Surgical patients are dying from bad care in hospital.
> - Complaints against doctors have tripled since 1977.
> - Half of all trainee doctors admit to major mistakes in giving intravenous drugs.
> - Drug prescriptions have gone up by 30% in seven years.
> - 13,000 British lives are lost a year because intensive-care patients aren't monitored properly. (p. 6)

Because of the extent and damage of adverse medical events, it may be appropriate to assess whether some biomedical practitioners ought to be denied the right to practice. For example, Walton (1998) claims that about 10 per cent of physicians have sexually exploited their patients (pp. 58–59), and Inlander et al. (1988) claim that 5 to 10 per cent of American physicians are incompetent to practice medicine because of addictive, psychological, psychiatric, or other problems (p. 25). It is of no surprise then that Walton (1998) claims that inappropriate treatments generally range from about 15 to 30 per cent, but rise to 40 per cent for some procedures at individual institutions (p. 146). This could imply questionable student selection criteria. Rice (1988) says that a survey at the Faculty of Medicine at the University of New South Wales has revealed that 29 per cent of medical students would have been rejected for, amongst other things, personality problems if the selection procedure had been extended from academic criteria to include an interview (p. 231). Willis (1989) sees a class-based bias in medical student selection, as early in the 20th century, recruitment was class-restrictive: students from protestant private schools dominated the profession, and entry by working class students was almost impossible. This inequity was compounded in several ways: by

prerequisites in Latin and Greek, which were usually offered only in private schools; by significantly high university tuition fees; and by the relatively long period of training needed before the receipt of an income (pp. 85–86).

Rice (1988) claims that patients appear to be exposed to greatest danger by the latest trends in surgery and medicine, such as cosmetic surgery, as non-experts seek to cash in on popular fads (p. 22). Classic biomedical and hospital mishaps cited include: an operation on the wrong leg; a surgical sponge left in the abdomen after a caesarean procedure and discovered seven months later after the patient complained of great pain (p. 36); a patient who lost two teeth while receiving electric shock treatment without a mouth guard to protect the teeth as the jaws became clenched (p. 37); a biomedical practitioner who performed several "violent" cervical manipulations on a patient who soon "died from a lack of oxygen to the brain caused by a clot of major blood vessels at the back of the neck" (pp. 38–40). In this final example, the practitioner appears to have bungled a chiropractic adjustment, and the incident is representative of concerns of the natural medicine professions that some inadequately trained biomedical practitioners are performing natural medicine treatments to the detriment of patients. This is evidenced in acupuncture, where Martyr (2002) reports that "the 'adverse event rate' of non-medical practitioners was actually less than half the mean adverse event rate of medical practitioners" (p. 304).

The history of surgery and hospital processes contains alarming reports. For example, Rice (1988) details how, in the first part of the 20th century — because sections of the medical profession believed that masturbation was a major cause of insanity, impotence, disease, and blindness — boys were cured by castration, and girls by the surgical removal or cauterisation of the clitoris (p. 2). Rice also claims that early in the 20th century, distinguished British surgeon Sir Arbuthnot Lane removed 1000 colons as a cure for constipation, leaving the patients with continuous diarrhoea, until the practice quietly disappeared (p. 166). Further, Rice explains that in the 1950s, premature babies were exposed to high concentrations of oxygen in order to increase their lung function; after 10 years, it was realised that the survival chances of premature babies were not

improved, and that thousands of infants suffered permanent blindness from the treatment (p. 2).

In commenting on unnecessary surgery, Rice (1988) claims that unnecessary surgery is usually associated with oversupply of surgeons, as is the case in Australia, where it is seen in unwarranted caesarean sections, gall bladder operations, tonsillectomies and mastectomies (pp. 166–167). Rice says that despite warnings of the danger of circumcision, particularly within the first four years, and especially within the first year, most of Australia's 25,000 annual circumcisions are performed "before the newly born infant is discharged from hospital" (p. 180). Also, although there is convincing evidence "that the uterus is not 'useless', but produces hormones which protect women from heart attacks after menopause," Rice claims that hysterectomies, which threaten women's lives, are unnecessarily occurring (pp. 175–176). Rice also claims that "money plays a big role in the level of unnecessary surgery", but doctors seem to believe uncritically in surgery theory, as operation rates for them and their relatives are between 25 per cent and 35 per cent higher than the national average (p. 168). Whereas 15 per cent to 25 per cent of surgery is unnecessary, Inlander et al. (1988) claim that these figures rise to 50 per cent to 60 per cent for some operations; the figures rise to 40 per cent to over 80 per cent for tonsillectomies and hysterectomies (p. 113). Evidence that surgery is not necessarily scientifically validated prior to its use is provided by Rice (1988) who says that properly controlled trials of heart surgery were conducted only after the operation had become widespread (p. 181). Moynihan (1998) states that "perhaps thousands of Australians are still being harmed every year by surgeons performing operations which may be unproven, unnecessary or unsafe" (p. 49). Further, Rice (1988) claims that when patients seek second opinions, there is a corresponding reduction in surgery of 19 per cent (p. 191).

Some prescription drugs appear to be based on questionable science. For example, Rice (1988) claims that many drugs which entered the Australian market before 1969 have never been assessed, and that clinical trials for some drugs are questionable, in that the number of trial participants is inadequate, and that the trials tend to exclude the young,

the elderly, the pregnant, and those with liver or renal disease — who may later use the drug (p. 189). Further, Moynihan (1998) claims that many commonly prescribed drugs have not been properly evaluated, as they have not been tested in large scale, medium or long term, randomised controlled trials (p. 77). Evidence of the over-supply of drugs is provided by Rice, who says that, "in one Australian study, 78 per cent of pseudo-patients who presented at doctors' surgeries were prescribed psychotropic drugs without asking for them" (p. 183), and that doctors give inadequate instruction to patients about their prescribed drugs. Further, drugs can be addictive — 30 per cent of people taking normal doses of prescription drugs are significantly dependant on them, and that patients may become trapped in a cycle of dependence (p. 185). McCall (1996) claims that valium was so oversubscribed in the 1960s that it became the most prescribed drug in the US and millions of Americans, particularly women, became addicted (p. 168). Although adverse reactions to drugs cause 3 per cent of admissions to acute medical wards, from 6 per cent to 15 per cent of patients in medical wards suffer adverse reactions to drugs "while they are in hospital" (Rice, 1988, pp. 23, 185). Drugs may also be used for social control, so Walton (1998, pp. 113–114) is concerned with the overuse of medication in nursing homes as research conducted in 46 inner Sydney nursing homes found the incidence of residents taking minor tranquillisers among the highest in the world.

Proponents of biomedicine often imply that it is thoroughly "scientific". However, Robert J. Weiss, M.D., of Columbia University has challenged this view: "For a profession which considers itself scientific, we have approached in a most unscientific fashion the issue of the appropriate use of technology and treatment ... not only have we not been scientific, we have not been humanitarian" (Weiss, cited in Inlander et al., 1988, p. 38). Further, McTaggart (1996) says that "the shocking truth is that 80 per cent of the treatments we take for granted — cholesterol lowering, heart surgery, even treatments for everyday conditions like arthritis or asthma — have never been scientifically proven to work, let alone to be safe" (p. 380).

It is of significance that what some critics of biomedicine generally have in common is that, although they concur on the dangers and unscientific nature of much of

biomedicine, they still see it as the only path to treatment; their desire to improve it, worthy though that is, blinds them to the alternatives. In particular, they never seriously contemplate whether natural medicine could play an expanded role. In discussing healing, Walton (1998) laments the absence in biomedical practice of qualities such as compassion, empathy, recognition of the power of the human spirit, and individual responses to adversity — qualities that would be difficult to exhibit during the standard 6-minute biomedical consultation; qualities which earlier in this study were ascribed to natural medicine practitioners from prehistory (pp. 20–21).

Because so many people are harmed by adverse medical events, there are differing community views as to the safety and efficacy of biomedicine and the competence of its practitioners. The parameters of those views appear to be separately represented by Walton (1998) and McTaggart (1996). Walton adopts a "doctors know best" perspective and suggests that because "patients will never be in a position to know whether or not doctors have sufficient knowledge and skills ... they must trust their doctor's abilities and skills ... A belief in the moral worth of doctors as professional people is necessary" (p. 20). On the other hand, McTaggart urges more caution: "One glance at the statistics shows that, except in the case of getting run over or needing an emergency caesarean, orthodox Western medicine not only won't cure you but may leave you worse off ... scientific medicine itself is responsible for a good percentage of disease" (p. 5). Those who accept the biomedical perspective appear to be handing over responsibility for their health to a biomedical practitioner and seem to believe that whereas biomedicine is based on sound science, natural medicine is not. There are many who believe rigidly in the efficacy of biomedicine to the exclusion of all other forms of healing; there is another group, however, who accept — at least to some extent — the natural medicine perspective. This group is dominated by the more highly educated (Martyr, 2002, p. 270), and accepts that natural medicine, unlike biomedicine, is both relatively safe and efficacious. Many of these people also see biomedicine as being little more than a "drugs and surgery" approach, more involved in the masking of symptoms than healing. Martyr observes that "a groundswell of public opinion turned on organised medicine in the 1970s, denouncing its perceived arrogance, its iatrogenic effects, its links with the

pharmaceutical industry, and the perceived medical interference in all aspects of human life" (Martyr, 2002, p. 269).

6.8 Conclusions

The incidence of adverse medical events is of such magnitude as to suggest major deficiencies in biomedical theory and practice. While there is evidence that some biomedical practice is not based on sound systems or sound scientific theory — and in some circumstances any scientific theory at all — there is further evidence that Western scientific thought, itself, contains deficiencies. This has led to the concept of the division of the totality of existence into separate entities — that is, a fragmentary world view — in which the fragments are deemed to be essentially fixed, and static in their nature. In biomedicine, this is marked by increasing specialisation, which ensured that biomedical science became limited to the hard, analytical disciplines known as the natural sciences, ignoring other, traditional approaches to disease. Also, because concepts of Western science such as the gaining of certainty by induction and the reliance on classical mechanics are now questionable, it is more difficult to separate science from myth. It appears that capitalist and corporatist influences have compromised and corrupted biomedical practice and research through selective funding, aggressive marketing, abuses of power, retention of information, and maximising of prices — all of which support corporate goals for maximising profits. Also, the professionalising of biomedicine has constructed a communication barrier between patients and practitioners, as the language of the professional is incomprehensible to patients, and the overuse of technology has placed an emotional, psychological, and possibly a healing distance, between practitioner and patient. The incidence of adverse medical events suggests that biomedicine is in crisis wherever it is practiced.

The following chapter will outline the further evolution of the natural medicine paradigm and detail its current role in Western society.

CHAPTER 7

THE EVOLUTION OF MODERN NATURAL MEDICINE

7.1 Introduction

The previous chapter discussed how the influence of science on biomedicine produced a fragmentary perspective marked by increasing specialisation and greater reliance on technology, ignoring other, traditional approaches to disease. Also, while the increasing use of technology and the evolution of professional language caused new communication barriers to emerge between practitioners and clients — further widening professional distance — capitalist and corporate processes appear to have compromised and corrupted some biomedical practices and research. Further, rates of biomedical iatrogenesis and nosocomial illness remain significant.

However, this study has shown that as natural medicine evolved from prehistoric times, health was seen to require a temperate lifestyle so that body, mind and spirit could be maintained in balance. Illness was seen to arise from imbalance, and healing involved the restoration of balance to all aspects of an individual's life. Ancient Mesopotamian and Egyptian medicines were found to be intertwined with medical, religious and spiritual theories, beliefs and practices, some of which appear to be generally represented in current natural medicine practice: aromatherapy, massage, reflexology, "food as medicine" therapies, herb and other plant therapies, reflexology, prayer, positive affirmations, sooth saying, creative visualisation, magic, dreams, spells, incantations, tender loving care, love, and relaxation. Diagnostic techniques which have evolved to the present include astrology, divination and intuition. The evolution of the practitioner/client relationship involved emotional responses such as optimism, trust, confidence, faith, reassurance, caring and hope. This interpersonal bonding of the practitioner and the client saw no need to maintain unemotional, professional distance.

This chapter will explore the evolution of the modern natural medicine paradigm in six distinct sections. The sections on European Influences and American Influences will examine the post-Roman evolution of British natural medicine; European concepts of temperance and nature cure; and the evolution of American natural medicine practices such as osteopathy, chiropractic, spiritualism, Thomsonianism, and Eclecticism — and the influence of Indian medicine. The section on Science Empowers the Regulars details the growth in power of the Regulars — who were seen to be more scientific — and the demise of others. The Resurgence of Natural Medicine will look at increasing public support in Britain and the US for natural medicine, particularly from the 1960s, and the response of the authorities. From European Nature Cure to American Naturopathy will assess various European nature cure practices which were exported to the US, and the development of American naturopathy. The section on The Australian Experience will look at Aboriginal medicine, the effects of European colonisation, the practices of European physicians, the medicine of the settlers, the development of various natural medicine practices, and the development of what is possibly Australia's most significant contribution to global natural medicine: its colleges and professional associations.

As this study is exploring new academic territory, resources available for examination and reference are often limited. The sections on Science Empowers the Regulars and The Resurgence of Natural Medicine rely predominantly on Griggs (1997) and Porter (1997), which appear to be the only available histories that deal significantly with the evolution of these aspects of natural medicine. Powell (2003), also, is repeatedly cited. However, he appears to be the only relevant contemporary source of commentary on current Australian natural medicine political and organisational matters.

7.2 European Influences

Although natural medicine paradigms evolved throughout the world, this study is concerned with those that evolved in and from Europe from prehistoric times, and were particularly influenced by the Graeco–Roman tradition.

Griggs (1997) claims that Hippocratic theory, belief and practice influenced the evolution of medicine in Britain: with the withdrawal of Roman forces from Britain in 407, aspects of its Graeco–Roman medicine remained (pp. 15–17). After the fall of Rome, the Church dominated medical practice in Europe's Dark Ages. With the arrival of Christianity in Britain in 597, its Benedictine monastic medicine cared for the sick, and each monastery grew medicinal herbs in its physic garden. Until the establishment of medical schools and universities in the 11th and 12th centuries, formal medical education was also controlled by the Church through its monasteries (Griggs, 1997, p. 17; Porter, 1997, p. 111).

Britain also became innovative in natural medicine practice. King Alfred (870–899) encouraged the development of medicine by importing exotic drugs and scholars, establishing schools and monasteries, and translating various medical texts into English. Griggs (1997, pp. 17–18) and Porter (1997, p. 91) claim that this translation into the vernacular, which apparently did not occur in any other European country — since monks were fluent in Latin — suggests a wider demand for medical information from households and "leeches", as healers were called. Eventually the English appear to have become more knowledgeable than the continentals about medicinal plants, and "had names and uses for perhaps 500 different plants" (Griggs, 1997, p. 18).

England's oldest surviving Anglo-Saxon medical text is the early 10th century *Leech Book of Bald* (Griggs, 1997, p. 18). Porter (1997, pp. 91–92) explains that as well as compiling the best available Greek and Roman medical literature, Bald recommended a wide range of local herbal and food remedies, and practical treatment and caring suggestions. Treatment of disease also involved prayers, the invoking of saints' names, exorcism, Christian amulets, meteorological and astrological advice, uroscopy, bleeding, and the transference of the disease to animals, plants or the soil. Number magic was also used, and it seems the Anglo-Saxons preferred the number nine. According to Porter (1997), Bald recommended treatment for paralysis: "scarify the neck after the setting of the sun and silently pour the blood into running water. After that, spit three times, then say: 'Have thou this unheal and depart with it'" (p. 91). Griggs (1997) claims that Bald

also said that a leech must be a carefully trained observer, who must exercise care in bloodletting: first, the patient was to be located in a warm place; then care must be exercised to control the volume of blood extracted, as an excess could result in death. Further, patients' diets were to be controlled, as food was used as medicine (p. 18).

Griggs (1997) explains that in Wales, Druid priest-healers studied theology, astrology, divination, the influence of lunar cycles on humans and plants, and herbal medicine. They considered the mistletoe to be the most sacred and magical of plants. By the 6th century at Myddfai, a Hippocratic-influenced independent school of physicians (who were more "rational" than "priestly"), had emerged (p. 15). Griggs (1997) claims that Welsh medical practice, particularly herbal practices, may have influenced the evolution of medicine in England (p. 16). Also, for more than a thousand years to the 18th century, "an unbroken tradition of skilled doctoring was handed down in one Myddfai family, who served as personal physicians to the Princess of South Wales" (p. 19). Griggs describes the Myddfai medical tradition as "the best of its time in Europe: rational, humane, and Hippocratic in its emphasis on the patient's own responsibility for his health" (p. 19). Also, they advocated the need for a balanced life: "whosoever shall eat or drink more or less than he should, or shall sleep more or less, or shall labour more or less from idleness or from hardship ... without doubt he will not escape sickness" (Abithel, 1891; cited in Griggs 1997, p. 19). Myddfai physicians were holistic, and they "sought the causes of a disease as well as attempting to alleviate its local symptoms" (p. 19). As in England, the Myddfai physicians brewed herbs in infusions, or crushed and mixed them with lard to make a poultice. Like peasants, they used herbs singly, or in combinations. Their estimated 175 herbs were mainly those which grew freely in the countryside, or could be cultivated with ease in a peasant's plot. For a troublesome cough, they used a popular global remedy: "garlic pounded and boiled in milk, or eaten freely" (p. 19). For pneumonia, they used "an infusion of white horehound (*Marrubium vulgare*) to be drunk warmed and sweetened with honey". To dress a burn, they used "lily roots pounded with egg white" (p. 20).

Competition for English physicians, some of whom had studied at Oxford or Cambridge for up to 14 years, came from herbal practices of most housewives, other amateurs, and quacks; from surgeons, who progressively expanded into internal medicine through prescription of remedies, particularly for syphilis; from barber-surgeons, who had obtained a Royal Charter in 1462, and who expanded their usual role of simple surgery, cupping, bleeding and tooth extraction; and from apothecaries who also began prescribing remedies. In the 16th century, following lobbying from physicians, Parliament passed several laws controlling the practice of medicine. This favouring of physicians caused much professional discontent, and left a void in medical care for the poor. Griggs (1997) says that another Act, which later became known as Henry VIII's Quacks' Charter, legalised non-physician practitioners who were experienced in "Herbs, Roots and Waters", to treat "any outward sore, uncome, wound, apostemations, outward swelling or disease, [with] any herb or herbs, ointments, baths, pultes and amplaisters" (p. 59). This Act has ever since protected the right of British herbalists to practice. Its other significance is the apparent acceptance that natural medicine was widely and competently practiced by a variety of men and women to the advantage of the poor.

Medieval health advice often urged temperance. Luigi Cornaro (*c.* 1464–1566) claimed "that a temperate life would enable the body's finite supply of vital spirits to last until life ebbed peacefully away" between 100 and 120 years. He credited his longevity to "moderation, exercise, keeping his mind occupied and heeding his diet" (Porter, 1997, p. 199). Also, Andre du Laurens (1558–1609), physician to Henri IV and professor at Montpellier, claimed that aging was caused by mental as well as physical causes: "Nothing hastens old age more than idleness". Porter (1997, p. 199) sets out the popular "temperate" 1608 poem, *The Englishman's Doctor*:

> Salerne Schoole doth by these lines impart
> All health to England's King, and doth advise
> From care his head to keepe, from wrath his heart,
> Drinke not much wine, sup light, and soon arise,
> When meate is gone, long sitting breedeth smart:
> And after-noone still waking keepe your eyes.
> When mov'd you find yourself to Natures Needs,
> Forebeare them not, for that much danger breeds,

Use three physicians still; first Doctor Quiet,
Next Doctor Merry-man, and Doctor Dyet.

The temperate theme of the Renaissance was in parallel with a deep-seated scepticism towards physick. This theme was reflected in Shakespeare's *Timon of Athens*: "Trust not the physician, his antidotes are poison" (cited by Porter, 1997, p. 200). Griggs (1997) claims that this scepticism resulted in a desire for "home-doctoring", for which numerous texts were published, and which recommended much milder forms of herbal or simple kitchen remedies, and the importance of diet (p. 142).

One of the most successful of these publications, *Primitive Physick*, was written by the Methodist preacher, John Wesley (1703–1791), in 1747 (Lyons & Petrucelli, 1987, p. 493). As well as portraying that health was next to godliness, Wesley provided details of how simple kitchen ingredients such as onions and honey could be used for treatment (Porter, 1997, p. 283). He made numerous treatment suggestions, including the use of liquorice for pacifying a consumptive cough, and the binding of toasted cheese to stop bleeding from a deep cut.

The 18th century had been called the golden age of quackery (Porter, 1997, p. 284). Whereas in continental Europe, laws were enacted to control the most brazen quacks, the English common law adopted the free-market maxim of *caveat emptor* (let the buyer beware), thus allowing for a free medical market, including irregulars, quacks and nostrum-mongers.

Although beliefs as to the healing power of water were ancient, Vincent Priessnitz (1799–1851) originated the practice of hydropathy (Porter, 1997, p. 392). Lyons and Petrucelli (1987) describe hydrotherapy as "an all-purpose therapy ... based on the ancient concepts of the humours — the necessity for expelling excesses" (p. 525). Porter (1997) cites Priessnitz, who claimed that water could facilitate the expulsion of poisons from the body by bringing an acute condition to a crisis (p. 392). Hydropathy practice required abstention from consumption of drugs, alcohol and rich food; consumption of only coarse bread, milk, and 12 glasses of water, daily; and the promotion of sweating,

followed by cold baths and wet bandaging. Priessnitz's spa at Graffenberg offered "head baths — patients would lie on the floor with their heads in basins of cold water; wet stomach packs; the ascending douche, spraying water up the genitals; and the wet sheet treatment, in which patients were wrapped for hours" (p. 392). Also, the water in the cold shower fell 6 metres on to "an overfed, over-drugged and stressed out generation" (p. 392). By the 1840s, the spa was so popular with the European and English upper classes, and even royalty, that a spa was opened in England. The Spartan treatments were the physical representation of Priessnitz's theory that "people need mountains", or as Porter (1997), says: "no pain, no gain" (p. 393).

Porter (1997) claims that Samuel Hahnemann (1755–1843) became disillusioned with his German medical practice on realising that instead of curing his patients, through "powerful drugging, bleeding and blistering" he was becoming "a murderer and a malefactor" (p. 391). He ceased practice, became a professor at Leipzig University concentrating on chemical research and writing, and became interested in the ancient Hippocratic theory that *vis medicatrix naturae* (like cures like). This theory was also a part of German folk medicine, where hot compresses were indicated for burns, and cowpox vaccination immunised against smallpox. In 1790, he reviewed the theory that cinchona was effective in treating malaria, due to its tonic action on the stomach. Hahnemann did not have malaria, or its symptoms, but found that by regularly dosing himself with cinchona for several days, he developed the "malarial" symptoms of intermittent fever, which subsided when he ceased taking the remedy. He theorised that cinchona was effective because it stimulated the body's own defence mechanism, through the creation of an artificial illness in the body, similar to malaria, or "like cures like", a concept first recognised by Hippocrates (Murray & Pizzorno, 1990, p. 7). With the cooperation of his students, who recorded their physical, emotional and mental reactions as they were dosed with various remedies, he developed "provings" for about 99 remedies (Griggs, 1997, p. 171; Endacott, 1996, pp. 28–32).

Hahnemann also found that a poison could be therapeutic in minute doses, and that, through dilution, the characteristic healing effect of a remedy could be replaced by a

different action. For example, a dilution of opium could arouse a near-comatose patient. Homeopathic remedies include the use of minerals such as arsenic or sulphur, some animal products such as snake venom, and plants. The lasting appeal of Homeopathy "has stemmed from its stress on purity and the attractive idea of the body striving to cure itself" (Porter, 1997, p. 391). By 1813, homeopathic practice was popular throughout Europe, and in 1825 arrived in New York (Griggs, 1997, pp. 171–172).

However, Lyons and Petrucelli (1987) state that "perhaps the most influential system was homeopathy ... which taught that drugs which produced symptoms in a person resembling those of a specific illness would cure the patient if used in smaller amounts" (p. 524). They proceed to claim that because of the "infinitesimal doses ... they could hardly have had any effect" (p. 524). They also criticise homeopaths for being "uncritical in their evaluation of results" (p. 524).

In 1869, Prussia deregulated its medical market by ending its long-established corporatism of Regular medicine and established the principle of "freedom of healing" (Porter, 1997, p. 353). Progressives were convinced that an informed public would use only physicians. However, as in America, natural medicine practices flourished, at least until the Nazi era. This is evidenced by the increase in Irregulars from 269 in 1876, to 4104 in 1902, which was 20% of the number of Regular physicians.

7.3 American Influences

7.3.1 General

There were many similarities between the North American Indian and some evolving local European-settler natural medicine paradigms. Although the Indians also sweated patients, administered emetics to induce vomiting, and used an extensive *materia medica* — including herbs, roots, barks, fruit and leaves — they used no mineral poisons. Occasionally, in some areas, they relieved inflammation and pain with mild bleeding, but mostly they were opposed to bleeding as "it wasted the river of life" (Griggs, 1997, pp. 158–159). Porter (1997) states that chest conditions were treated by the Indians with sassafras, holly, sunflower seeds, and infusions of flaxseed. Hallucinogens were

produced from decoctions of mushroom and peyote. Other healing practices, as observed in areas now known as Texas, involved the healer blowing, and laying hands, on the diseased body (pp. 163–164).

The medicine of the Indians gained the attention of their invaders. In 1813, Peter Smith published *The Indian Doctor's Dispensatory*, which claimed that "the natives of our own country are in possession of cures, simples etc. that surpass what is used by our best practitioners" (Griggs, 1997, pp. 167–168). In 1814, Samuel Henry published his *New and Complete American Family Herbal*, which appealed to nationalism by advocating the benefits of herbs of the United States, and crediting his experiences as a prisoner of war of the Creek tribe of Indians. Also, mid-west pioneers acquired Indian herbal theories, beliefs and practices, as detailed by Madge Pickard and Carlyle Buley in *The Midwest Pioneer.*

Virgil J. Vogel describes the popularity of Indian medicine during the first half of the 19th century:

> ... every muddy backwoods trail was trod by horseback-riding "Indian" doctors, toting saddlebags of herbs and root-medicines to isolated cabins and frontier communities ... Most of these white medicine men claimed to have learned their lore from the red men; so common was this claim that, whether true or not, it suggests that Indian medicine enjoyed a high reputation among the frontiersmen. (Vogel, cited in Griggs, 1997, p. 168)

The Indian medical paradigm influenced the evolution of European natural medicine, through the exportation of its plant medicines to Europe.

The 19th century also saw other significant American developments, particularly relating to osteopathy, chiropractic, and Christian Science. Andrew Still (1828–1917) originated the osteopathy movement in 1874 and opened his college in Missouri. Osteopathic theory held that the body had an inherent capacity to resist disease and self-repair; that there was an intrinsic unity of all body parts; and that disease resulted from osteopathic lesions, which were caused by "structural derangements" or "somatic components of the disease process". Whereas Still concentrated on the spine, some of

his followers evolved the practice to the entire skeletal structure, and also used techniques such as "electric and water treatments, massage and eventually surgery" (Porter, 1997, p. 394).

Dr Daniel Palmer (1845–1913), a "magnetic doctor" established chiropractic, in 1895, after he restored hearing to a man by adjusting his spine. Palmer claimed that "energy flow from the brain was the essential life-giving force in the body and, rather as with mesmerism, that obstruction produced disease" (Porter, 1997, p. 394). Further, as the spine commonly interfered with nerve function, it required manipulation. The word "chiropractic" comes from the Greek for "doing by hand". Palmer opened the Palmer School of Chiropractic in Iowa, in 1899 (Porter, 1997, p. 395).

Spiritual healer, Mary Baker Eddy (1821–1910) suffered much illness in her life, and after relief through homeopathy and mesmerism, and divine revelation from Bible readings, she successfully engaged in her own self-healing. Eddy believed that "there is but one creation, and it is wholly spiritual ... Since all was spirit and matter a phantasm, there could be no such reality as somatic disease; all sickness was in the mind" (Porter, 1997, p. 395). Eddy further believed that "true 'mind healing' would dispel the 'illusions' of sickness and pain". America produced numerous spiritual and fringe faiths which, while urging temperance, targeted the self-help experience of the individual. The Mormons and the Seventh Day Adventists were critical of regular medicine, and supported root and herb remedies. The Mormons also opposed compulsory smallpox vaccination, and the Adventists encouraged vegetarianism, and proclaimed a "gospel of health", encouraging hydropathic cures and restricting diet, alcohol and sexual activity. "Medical faiths and fads went together in America, anticipating the later popularity of all manner of psychotherapy" (Porter, 1997, p. 396).

7.3.2 Thomsonianism

Colby (1846) claims that iatrogenesis caused by American Heroic Regular medical practices — such as bloodletting and use of toxic substances, especially the mercury-based calomel — became so obvious by the early 19th century that many prominent

academics and others decried its practice; some turning to natural medicine practice (pp. 6–13). For example, Colby states that a member of the medical faculty of Cincinnati, Dr Cox, wrote to the editor of the *Medical Reformer* advising that he was personally aware of 50 cases of calomel-induced iatrogenesis causing death, where many patients "were sent to their graves mutilated, disfigured, and partially decomposed before death released them from their sufferings" (p. 8). Cox said, "Lest I should give further countenance to a species of legal and wholesale murder by the use of it, I hereby notify my friends, that from this 22nd day of November, A.D. 1844, I forthwith and forever relinquish the use of mercury" (p. 9). He then went on to urge the banning of such remedies, and advocated the use of "the simple plants of nature's garden" (p. 9). Colby (1846) also sets out the concerns of others, including Dr Powell, a former professor at the Medical College in Burlington, who observed that his last dose of calomel was as effective as arsenic in killing rats, and Dr Robertson of Cincinnati who was concerned for "the millions who have perished through this practice" during the previous 50 years (p. 7).

Cox's use of the word "murder" was echoed by others, including Hahnemann (cited in Porter, 1997, p. 391) and Thomson, who believed that the overwhelming evidence of iatrogenic mortality from calomel meant that those who continued to prescribe it, knowing that it would kill so many, were "fools and murderers" (Griggs, 1997, p. 162). On being charged with murder of a deceased patient, Thomson said: "The fashionable educated doctor may lose one-half of his patients without being blamed; but if I lose one out of several hundred of the most desperate cases, most of which were given over as incurable, it is called murder" (cited in Lloyd, 1909, p. 40). However, according to Thomson, the judge said that "any person may administer medicine with an intention to do good; and if it has the contrary effect from his expectation, and kills the patient, it is not murder, nor even manslaughter ... where no malice is, no action lies" (cited in Lloyd, 1909, p. 58). However, the judge recommended discrimination against natural medicine practice by proscribing practice by quacks who had not graduated from an approved college — a recommendation implemented by the Massachusetts legislature and many others (Lloyd, 1909, p. 58).

With Regular medicine under attack, other medical systems became popular. Lyons and Petrucelli (1987) state that "the Thomsonians, who emphasized herbal medicines and steam baths, were one of a diverse group of practitioners — prominent especially in the US — who stressed 'Nature's remedies and folk medicine" (p. 525).

Samuel Thomson (1769–1843) claimed that after years of ineffective "heroic doctoring", he was healed with simple, insignificant-looking green plants (Lloyd, 1909, p. 13). He developed a life-long fascination for the healing power of plants, memorising their tastes and their functions. One of his early major discoveries was that nibbling the leaves of the pale-blue-flowered lobelia (*Lobelia inflate*) caused him to vomit, as did his friends when, as a joke, he induced them to taste it (Lloyd, 1909, p. 12). Once, the joke appeared to go too far, when a male recipient "was in a most profuse perspiration, being as wet all over as he could be; he trembled very much, and there was no more colour in him than a corpse" (Thomson, cited in Lloyd, 1909, p. 17). The man was violently ill several times, then ate his full lunch and worked energetically all afternoon. "He afterwards told me that he had never had anything do him so much good in his life; his appetite was remarkably good and he felt better than he had for a long time" (Thomson, cited in Lloyd, 1909, p. 17). Thomson, (cited in Lloyd, 1909) described lobelia as a harmless "emetic herb" which:

> may be prepared and used in almost any manner. It is a certain counter poison, having never been known to fail to counteract the effects of the most deadly poison, even when taken in large quantities for self-destruction ... it operates as an emetic, cleanses the stomach from all improper ailment, promotes an internal heat, which is immediately felt at the extremities, and produces perspiration (p. 12).

Thompson observed the decline of root and herb healers, particularly as they were replaced by Heroic physicians. Thomson said with astonishment that "whenever any of the family took a cold, the doctor was sent for, who would always either bleed or give physic", as occurred with his mother, who died after 9 weeks of such treatment (Thomson, cited in Griggs, 1997, pp. 156-157).

Thompson later married, and prior to the birth of his first child, his wife experienced a long and difficult labour. He reluctantly sent for the physician, and was devastated by the "horrid scene of human butchery" (Thomson, cited in Griggs, 1997, p. 157). Later, his two-year-old daughter contracted the "canker rash", went into a coma, and experienced difficulty in breathing. The physician said that she was doomed. Thomson observed the convulsive struggles of his daughter, and then, instinctively wrapped her in a blanket and held her over a hot shovel "and I poured on vinegar to raise a steam, and kept it as hot as I found she could bear" (Thomson, cited in Lloyd, 1909, p. 18), with a cold cloth over her eyes. After 20 minutes, she relaxed and breathed more easily. Although she eventually recovered, and was blind in one eye, the experience caused Thomson to finally reject regular medicine. He then took personal responsibility for the health of his family (Colby, 1846, p. 18), and, when necessary, steamed them, or administered "his favourite emetic herb, lobelia, and infusions of other herbs" (Griggs, 1997, p. 157).

Thomson eventually entered full-time practice as a root-and-herb practitioner, in competition with the Regular physicians in his area (Colby, 1846, p. 18). As well as being a gifted healer, Thomson was "a plain-spoken, obstinate, cantankerous crusader" (Griggs, 1997, p. 158). In later life, he explained that his inspiration had come from a root-and-herb practitioner whose practice was underpinned by a belief about the need for restoration of body heat, of which sweating is an indicator: "the whole of her practice was with roots and herbs, applied to the patient, or given in hot drinks, to produce sweating; which always answered the purpose" (Thomson, cited in Griggs, 1997, p. 158). Thomson developed his own theory of disease:

> All diseases ... are brought about by a decrease or derangement of the vital fluids by taking cold or the loss of animal warmth ... the name of the complaint depends upon what part of the body has become so weak as to be affected. If the lungs it is consumption, or the pleura, pleurisy: if the limbs, it is rheumatism, or the bowels, cholic or cholera morbus ... all these different diseases may be removed by a restoration of the vital energy, and removing the obstructions, which the disease has generated. (p. 159)

Thomson (cited by Lloyd, 1909) also believed that:

> all animal bodies are formed of the four elements, earth, air, fire, and water. Earth and water constitute the solids, and air and fire, or heat, are the cause of life and motion. That cold, or lessening the power of heat is the cause of all disease; that to restore heat to its natural state, was the only way by which health could be produced; and that, after restoring the natural heat, by clearing the system of all obstructions and causing a natural perspiration, the stomach would digest the food taken into it, by which means the whole body is nourished and invigorated, and heat or nature is enabled to hold its supremacy; that the constituents of all mankind being essentially the same, and differing only in the different temperant of the same materials of which they are composed; it appeared clearly to my mind, that all disease proceeded from one general cause, and might be cured by one general remedy; that a state of perfect health arises from a due balance of temperature of the four elements; but if it is by any means destroyed, the body is more or less disordered. (pp. 26-27)

Thompson's simple theory that cold is the cause of disease was the underpinning of his explanation for a successful treatment of dropsy: "the heat had gone out of the body, and the water had filled it up; and all I had to do was to build fire enough in the body to boil away the water" (Thomson, cited in Griggs, 1997, p. 160). It is of interest that traditional Chinese medical practice also uses heat to expel cold. Colby (1846) claims that Thomson subscribed to the Hippocratic theory of the healing power of nature (p. 3), and that "in order therefore to preserve health, a proper regard must be had to food, drink, clothing, exercise, air, and bathing" (p. 23). He refined his theories, and although using about 65 herbs, often used lobelia to induce vomiting, cayenne (*Capsicum frutescens*) to restore bodily heat, and the vapour bath to induce sweating (Porter, 1997, p. 393).

Thomsonian practices were apparently outstandingly successful in treating the bulk of 19th century diseases (Colby, 1846, pp. 18-19), including fevers, colics, quinsies, dysenteries and chest ailments, particularly when compared with the "physicking and bleeding favoured by the Regulars" (Griggs, 1997, p. 161). Griggs explains that during the 1805 epidemic, probably yellow fever, he sweated and prescribed herbal heating mixtures, while the Heroic Regular physicians bled copiously, and prescribed calomel. Whereas Thompson claims that all of his patients survived, nearly half or those treated by the regulars died (pp. 161-162).

Thomson was not critical of all physicians, but he described some as "quacks, or ignorant pretenders; as all their merit consists in their self-importance and arrogant behaviour towards all those who have not had the advantages of learning, and a degree at college" (cited in Lloyd, 1909, p. 25). His criticism of the use of professional language appears to be two centuries ahead of its time:

> They have learned just enough to know how to deceive the people, and keep them in ignorance, by covering their doings under an unknown language to their patients. There can be no good reason given why all the technical terms in medical works are kept in a dead language, except it be to deceive and keep the world ignorant of their doings, that they may the better impose upon the credulity of the people; for if they were to be written in our own language, everybody would understand them, and judge for themselves; and their poisonous drugs would be thrown into the fire. (pp. 25-26)

The hostility of the Regulars was ensured, as he publicly attacked their calomel practice. Colby (1846) says that Thomson found "that the sentiments of the celebrated Dr Harsey was true — 'that he who attempts a reform in medicine, runs the risk of the sacrifice of his life, reputation and estate'" (p. 19). Colby claims that because of Thomson's "success in curing the incurables of the faculty, that their indignation was aroused against him, and poured on his devoted head without mercy" (p. 19). However, Griggs (1997, p. 162) claims that his reference to the Regulars as fools and murderers caused the entire profession to oppose him, and describe him as an illiterate quack. In 1808, he was accused of sweating two children to death, and the following year was charged with murdering a young man by administering lobelia, and arrested and imprisoned. Although acquitted, the questionable trial proceedings convinced Thomson that he was the victim of a malicious medical plot.

Griggs (1997, pp. 162-164) explains that the shock of these experiences caused Thomson to take stock of his life. In 1813, in order to gain financial security and to take his theories and practices to a wider audience, he took out a patent for a commercial medical system. Lloyd (1909, p. 66) claims that this was the beginning of American patent medicines. Griggs continues to explain that his plan required the appointment in each city of an agent, who would promote the system to individuals, who could buy

"family rights" for twenty dollars. This provided a certificate and access to information and remedies. Porter (1997, p. 393) states that Thomson claimed that about 100,000 "family rights" were sold, and that medicines were dispensed from a central warehouses in competition with pharmacists. Griggs (1997, p. 164) explains that the agents on-sold remedies and literature to Rights-holders, and gave them instruction in the system. Some agents were also practitioners. The success of the operation supported Thomson's theory that the basic principles of health, in their "astonishing simplicity", did not require years of medical study, and that individuals and families could be responsible for their own health. Although the Thomsonian system was particularly popular with the working class and country people, it seemed less attractive to the educated and more sophisticated, possibly because of the required "vomiting and heavy sweating" (Porter, 1977, p. 393). Indeed, Haller (1994) described Thomson as "the steam and puke doctor" (p. 37). However, by 1839, Thomson claimed 3 million adherents, and his organisation published journals and books; ran effective public relations, marketing and advertising campaigns; and "directed a constant savage onslaught against the excesses of Regular medicine" (Griggs, 1997, p. 169).

Thomson conducted his first annual convention in 1832, to publicise the success of his followers in responding to the cholera epidemic that summer. Alva Curtis, from Richmond, detailed how he had lost only 1 of 200 patients, and was then invited to edit the *Thomsonian Recorder* (Griggs, 1997, p. 178). Other speakers were equally convincing, and the public relations triumph turned to political gain, as States began repealing Acts which exclusively corporatised the regulars. Porter (1997) explains that these conventions blended "aspects of revivalist religion and political caucuses" (p. 393). In the late 1830s, at the height of the Thomsonian movement, Curtis and others, against the wishes of Thomson, decided to set up a formal college to teach Thomson's system. Following much acrimony, they broke away and formed the "Independent Thomsonian Botanic Society" (Griggs, 1997, p. 178).

Lloyd (1909) states that Thomson "exerted a tremendous influence on the American practice of medicine" and that his aggressive methods provided a stimulus to the

evolution of "kindlier theories that have largely succeeded the heroic age, an era of barbarism, in American medicine" (p. 7).

7.3.3 Eclecticism

Wooster Beach (1794–1868) came from a wealthy background, developed a "horrified aversion" to Regular medical practice, and questioned the Heroic system (Griggs, 1997, pp. 172-174). He eventually became apprenticed to a New Jersey German herbalist, and following his death, studied medicine in New York, determined to reform medicine from within. He believed that Thompson's actions and anti-intellectual attitudes which encouraged the study of patients, instead of books, had set back the cause of medical reform.

Beach used his considerable family fortune to publish his views on medicine in a variety of newspapers, journals and tracts, and was disappointed to observe that all he achieved was the hostility of his new profession (Griggs, 1997, pp. 175–177). In 1827 he opened The United States Infirmary, and offered "superior systems of Medical and Surgical practice" (p. 176), where the remedies would mainly be from the vegetable kingdom, and where the poor would be treated for free. As Beach planned to use the best of the old and new practices, his new system was called eclecticism; a name suggested by a friend (Forman, 1947, p. 775). In 1829, he opened a college next to the infirmary. However, the New York Medical Society refused to charter his college, so, in order to gain acceptance for his graduates, he purchased the degree-awarding Worthington College in Ohio, and in 1837 added an infirmary to it. His graduates spread his new paradigm throughout the US (Griggs, 1997, pp. 176-177).

Haller (1994) states that "the eclectic school of reform medicine stood as a symbol of America's optimism, imagination, enthusiasm, and eccentricities" (p. xv), and "symbolized a faith in science and practical experience, the value of self-direction and dedication, and the distrust of theory as an end in itself" (p. xvi). Haller (1994) claims that each medical system contains some special feature that distinguished it from the rest:

> For the allopaths, a remedy, to be efficacious, produced a morbid state in the body different from the one already existing, thus justifying their predilection for puking, purging, and depleting patients with calomel, tartar emetic, blistering agents, and bloodletting. In a contradistinction to this theory, homeopaths claimed to cure disease by using drugs that in a healthy person produced symptoms similar to those of the disease (*simila similiabus curantur*). Samuel Hahnnemann (1755–1843) and his disciples, refusing to administer doses in conventional amounts choose remedies in small quantities, in infinitesimal amounts. (p. 169)

An eclectic practitioner, Johann Martin Honigberger (1795–1869), introduced the eclectic "'medium system' into the material medica as an alternative to the allopathic and homeopathic systems of the period" Haller (1994, p. 169). In the eclectic medium system, the strength of prescribed doses of remedies fell between the allopathic and homeopathic standards. Lloyd (1909) claims that although the Thomsonians refused to use any poisons, mineral salts or the inorganics, these substances, including energetics such as podophyllum, sanguinaria and rhus "became important agents with Beach and his followers, the Eclectics" (p. 107).

7.4 Science Empowers the Regulars

Griggs (1997, pp. 210–212) explains that emergence of new sciences allowed the Regulars to realise the dangers of bloodletting, blistering, and toxic remedies after almost two millennia of often fatal misuse. Griggs (1997, pp. 226–229) also goes on to note that in order to save face, as they withdrew from bloodletting in the middle of the 19th century, the Regulars falsely announced that as the diseases had mutated, bloodletting was no longer needed. Griggs (1997, pp. 217–225) claims that in the US in the 1890s, the 15,000 Irregulars prospered, sometimes attracting huge waiting lists, while the 60,000 Regulars were clearly not prosperous, as their average annual income was less than 1000 dollars.

The evolution of science appears to have enhanced the political power of the Regulars. Griggs (1997, pp. 214–216) says that in 1854, a Medical Reform Bill was presented to the UK Parliament. Its object was to stamp out quackery by excluding from medical practice those who had not graduated from a Regular medical school. In 1851 it had

been calculated that, whereas nationally, there were about 6000 Irregular practitioners, there were only about 5000 Regulars, including apothecaries and surgeons. Obviously, excluding the Irregulars would greatly increase the market share of the Regulars. The Bill had followed numerous allegedly malicious and needless coroners' inquests and court cases, and frequent criticisms in the Regular medical journals. Eventually, the Irregulars organised a deluge of petitions to Parliament and the Bill was defeated.

In the 1870s and the 1880s, the Industrial Revolution changed society: it generally increased the prosperity of the working class but the growth in population produced unsanitary living conditions which accompanied new workplace and other diseases (Porter, 1997, p. 29). Lyons and Petrucelli (1987) claim that the Industrial Revolution also indirectly resulted in "the organization of physicians, hospitals, and public health activities" (p. 497) which improved public health and sanitation, thus reducing disease. Griggs (1997) says that whereas 30 years earlier there had been much publicity about "medical murder by calomelisation and bleeding" (p. 232), with the abandonment of the Heroic methods, there was now little publicity of the dangers of Regular practice. The relatively prosperous working class became attracted to the "glamorously packaged and enticingly advertised new patent medicines" (p. 232). The herbalists' dark brown mixtures appeared to be old-fashioned. However, Griggs (1997) explains that British medical herbalists retained countless thousands of committed clients, and that the records of the National Institute of Medical Herbalists "show a continuous record of harassment, vexation and attempted legal suppression by the medical establishment" (p. 234).

In the US in 1909, there were calculated to be 80,000 Regulars, 10,000 Homeopaths, 8000 Eclectics, and a few thousand Physio-Medicals, osteopaths, chiropractors, hydrotherapists and others (Griggs, 1997, p.237). Porter (1997, p. 530) claims that from 1802 to 1976, there were 62 medical colleges created, in addition to 11 homeopathic and 4 eclectic schools. Lyons and Petrucelli (1987, p. 537) and Porter (1997, p. 530) explain how early in the 20th century the AMA, in concert with the Carnegie Foundation for the Advancement of Teaching, arranged for Abraham Flexner to investigate the quality of

medical education in the US. His 1910 report was critical of much medical education. As Flexner concentrated on disease rather than health, his preferred model of education was underpinned by sciences which would prepare clients for the pharmaceutical corporations. Eventually all Irregular schools closed, and a drug-oriented medicine gained a monopoly (Griggs, 1997, p. 243).

7.5 Resurgence of Natural Medicine

There was a resurgence of public support for herbal medicine in Britain in the 1920s (Griggs, 1997, pp. 257–261). Griggs also claims that the success of natural medicine in a community may be measured by "the degree of public disillusionment with the orthodox medical system of the day", as the "quacks triumph is the doctor's failure" (p. 276). Griggs claims that a similar disillusionment with biomedicine occurred in the 1960s following the thalidomide and other biomedical tragedies, the apparent failure of science to provide sufficient answers to personal health challenges, and growing public awareness of iatrogenic and nosocomial illness (pp. 276–279). These, amongst other things, resulted in the whole range of natural medicine paradigms receiving growing public support.

The public support for American health-food shops in the 1960s made them prosperous businesses, as they retailed vitamins, dietary supplements, and packets of dried herbs. The US Food and Drug Administration (FDA) seems to have responded to concerns raised by the AMA about "health quackery", by declaring a "holy war on medical heresy" (Griggs, 1997, pp. 267–268). The FDA determined that any book in a health-food shop, which described the use of any remedies that happened to be sold in the shop, constituted "labelling", and had to be seized and burned. In one case this involved 3000 copies of a popular book. The FDA also seized a consignment of honey from a health-food store, on the grounds that a claim in a single book in the shop, that honey was nutritionally valuable, constituted labelling. The FDA continued to harass these retailers for years, forcing them to gradually reduce their product range down to a few relatively mild remedies (p. 268).

Griggs (1997) explains that in 1964, the then British Ministry of Health began tentative drafting of a new Medicines Bill. Because of the public outcry in 1941, this time they adopted an inclusive process, thus allowing the profession to garner support from the public and influential individuals (pp. 281–282). Biomedical lobbyists are aware that one way to stop herbal medicine is to have legislation that keeps remedies unavailable until they have been scientifically validated. As this normally takes years and considerable funds for each remedy, it becomes impossible to approve new remedies within a reasonable timeframe. Apparently to overcome this problem, the Ministry decided that proof of the safety and efficacy of herbs would be evidenced by their traditional, extensive, safe use, and presumably the satisfaction of consumer needs. Also the monographs of non-poisonous herbs that were contained in any standard reference book would be acceptable (p. 282). This approach was mirrored by the Australian Labor government in 1991, when it appointed the researcher of this dissertation to chair its new Traditional Medicine Evaluation Committee, a position that was held from 1991 to 1997.

Griggs (1997) details how the popularity of natural medicine in Britain was confirmed by a survey in 1981, which found that about 10 million individuals had consulted a practitioner, and that 90% of them would do so again (p. 301). The British Medical Association (BMA) was further alarmed in 1983 when the Prince of Wales advocated support for natural medicine (p. 302). The BMA responded with a partisan enquiry which, without receiving evidence from natural medicine practitioners, was critical of the practice. However, the natural medicine professions could see that their future could be guaranteed only by increased educational standards and quality registration processes. The growth in popularity of natural medicine had yielded a plethora of colleges of varying quality (p. 302).

In 1988 the British Ministry of Agriculture, Food and Fisheries (MAFF) had withdrawn licenses for products containing mistletoe, squaw weed, broom and sassafras. Griggs (1997) explains that the later moves to proscribe comfrey produced challenges, to which the profession had to respond vigorously to protect other interests (p. 304). The

pyrrolizidine alkaloids of comfrey also occur in other plants such as ragwort, borage and coltsfoot, and even in whole plant form, the alkaloids can pose dangers. For example, farmers know that stock may be at risk from grazing ragwort. However, comfrey had always been regarded as one of the safest and most effective medicinal plants, particularly therapeutic as a wound healer and soother of the mucous membrane. Herbalists believed that if comfrey, or any other medicinal plants, had any dangerous side effects, then they would have been revealed by centuries of widespread use (pp. 304–305). Hirono, Mori and Haga (1978, pp. 469–471) found that comfrey was far too dangerous for human consumption. This finding was based on evidence of liver tumours found in rats that had been fed 24 times their body weight in comfrey leaves (Pembery, 1982, pp. 1–3). The herbalists defence of comfrey was based on the theory that evidence of toxic constituents within a plant does not automatically prove that the whole plant is toxic; a plant was more than a mere physical dilution of alkaloids (Griggs, 1997, pp. 304–306). Supporting evidence for this theory came in the form of tea, almonds, apples, pears, mustard, radishes and hops, which are safe to consume, but have potentially toxic constituents (Whitelegg; cited in Griggs, 1997, p. 305). Eventually, MAFF's Committee on Toxicology allowed the continuing use of comfrey leaf tea, or tincture, as a food, as well as mistletoe and broom. However, MAFF called for a voluntary ban on chaparral, and the herbalists decided to concede comfrey as well, whilst retaining comfrey tea (p. 306).

In France, the increased popularity of natural medicine provided contrasting experiences. Griggs (1997) points out that because of the French law of September 27, 1945, which made it lawful for only biomedical practitioners to practice medicine, natural medicine practice became monopolised by biomedical practitioners (p. 287). Regardless of the law, France's long tradition of folk natural medicine practice continued, particularly amongst rural women. Aromatherapy was popularised in France in the 1960s (p. 295), and Griggs explains that by the early 1980s, a poll found that 84% of those polled desired gentler medical treatment, with plants (p. 296). The government and Industry responded, and the popular herbal *Magistrale* prescriptions, which were prescribed by biomedical practitioners and specially made by pharmacists, were

reimbursed by the French National Health Service (p. 296). Also, a new university phytotherapy course commenced (p. 298). However, safety concerns were raised in relation to the widespread prescription of, for example, dangerous essential oils by inappropriately trained biomedical practitioners. The government was also concerned that the rapid growth of costly *Magistrale* prescriptions presented budget problems. Both problems were solved with one action, as from 1989, *Magistrale* prescriptions ceased to be reimbursable by the government (p. 298). This French medical revolution collapsed as patients ceased treatment, enrolment in training courses declined, and the university phytotherapy course closed in 1993 (p. 299).

Griggs (1997) explains that as Brussels became the centre where the future of European herbal medicine would be decided, the British herbalists realised that they had few local friends (pp. 306–308). In France, Spain and Portugal, non-medical herbal practice is illegal, and none of the continental European countries had developed a quality profession of practicing herbalists. The EC Committee on Proprietary Medicinal Products decided to proscribe 30 herbs which had been used throughout Europe for centuries. Further, the Spanish and French had advocated that the processes of licensing herbal remedies be the same as for pharmaceutical drugs.

7.6 From European Nature Cure to American Naturopathy

The evolution of naturopathy may be viewed from various perspectives. Endacott (1996) claims that "naturopathic medicine is an American invention derived from a European tradition, which came together at the turn of the 20th century. Its antecedents emerge from prehistoric times" (p. 90). Several current common naturopathic methods, such as fasting, hydrotherapy and botanical medicine are also "employed by animals, and are instinctive to the pursuit of healing after injury or disease" (p. 90). Further, the:

> immediate precursors to modern naturopathic medicine include European and native American herbalism, the Physical Culture and health food movement of the late nineteenth century, the hydrotherapy tradition popularised by Preisnitz and Kneipp of Europe, the emerging homeopathic medicine of Europe and America, the natural hygiene movement, the public health movement, and the mechanotherapy and physiotherapy developments of the nineteenth and early twentieth

> centuries. Elements of these traditions literally came together in convention about 100 years ago, invented a new medicine, and called it "naturopathy". (p. 90)

Endacott (1996) also claims that the new naturopathic system thrived in America and Germany. In America, naturopathic practitioners were first licensed in California in 1906, and this had increased to 26 states by 1950. However, an effective "anti-quackery" campaign conducted by the AMA resulted in a reduction to eight states by 1955. Also, the 22 naturopathic colleges, operating in the 1920s, closed. The American naturopathic profession was considered obsolete until the 1960s, when public interest in it again revived (p. 90).

The term *naturopathy*, or "*nature cure*", was first used in 1895 by Dr John Scheel of New York City to describe his medical practice, which apparently included "hygienics and hydrotherapy", concepts with forerunners "in America and in the Austro-Germanic European core" (Murray & Pizzorno, 1990, pp. 3–4). Murray and Pizzorno suggest that the terms *naturopathy* and *natural medicine* are interchangeable:

> Many naturopaths choose to specialize in specific areas of therapy while others choose to be eclectic. A wide variety of different types of therapy can be employed by the naturopathic physician in the treatment of an individual, including nutrition, botanical medicines, homeopathy, acupuncture, physiotherapy, counselling and lifestyle modification. (p. 7)

Murray and Pizzorno (1990) also report that, through his teachings and organisational energy, Bernard Lust initiated naturopathy as a profession in the US. He "began using the term 'naturopathy' in 1902 to name the eclectic compilation of doctrines of natural healing that he envisioned as the future scope of natural medicine" (p. 5). He included "nutritional therapy, natural diet, herbal medicine, homeopathy, spinal manipulation, exercise therapy, hydrotherapy, electrotherapy, stress reduction and nature cure" (p. 5). Lust (1918), in his book *The Principles, Aim and Program of the Nature Cure*, described naturopathy:

> The natural system for curing disease is based on a return to nature in regulating the diet, breathing, exercising, bathing and the employment of various forces to eliminate the poisonous products in the system, and so

> raise the vitality of the patient to a proper standard of health. (Lust, 1918, cited in Murray & Pizzorno, 1990, p. 5)

Murray and Pizzorno (1990, p. 5) cite the three steps of Lust's "Program of Naturopathic cure". First, the "Elimination of Evil Habits" required elimination of "over-eating, alcoholic drinks, drugs, the use of tea, coffee or cocoa that contain poisons, meat eating, improper hours of living, waste of vital forces, lowered vitality, sexual and social aberrations, worry". The second step, "Corrective Habits", required the adoption of "correct breathing, correct exercise, right mental attitude. Moderation in the pursuit of health and wealth". The third step, "New Methods of Living", included "proper fasting, selection of food, hydropathy, light and air baths, mud baths, osteopathy, chiropractic and other forms of mechano-therapy, mineral salts obtained in organic form, electropathy, heliopathy, steam or Turkish baths, sitz baths" (Murray & Pizzorno, 1990, p. 5). Lust's theoretical underpinnings, and supportive arguments, follow:

> There is really but one healing force in existence and that is nature herself, which means the inherent restorative power of the organism to overcome disease. Now the question is, can this power be appropriated **and guided more** readily by extrinsic or intrinsic methods? That is to say, **is it more** amenable to combat diseases by irritating drugs, vaccines and serums employed by superstitious moderns, or by the bland intrinsic congenial forces of Natural Therapeutics, that are employed by this new school of medicine, that is naturopathy, which is the only orthodox school of medicine? Are not these natural forces much more orthodox than the artificial resources of the druggist? The practical application of these agencies, duly suited to the individual case, are true signs that the art of healing has been elaborated by the aid of absolutely harmless, congenial treatments. (Lust, 1918; cited in Murray & Pizzorno, 1990, p. 5)

Naturopathic medicine flourished in the US from early in the 20th century, until the mid-1930s (Murray & Pizzorno, 1990, pp. 5–6). Its decline, and the virtual monopoly of biomedicine, appears to have been caused by several factors: the pharmaceutical industry's substantial funding of biomedical education; the replacement of biomedicine's heroic treatments of blood letting and mercury dosing, with more-effective and less-toxic therapies; and the political maturing of the biomedical profession. Further, by adopting popular technological advances from the two world

wars, the biomedical paradigm's apparent superiority resulted in legislation restricting other health systems.

7.7 The Australian Experience

7.7.1 The Aborigines — Australia's Original Natural Medicine Practitioners

The original natural medicine practitioners in Australia were the Aborigines — people of extreme diversity who have practiced their healing arts for millennia. As the Aborigines probably settled in Australia from 40,000 to 60,000 years ago, Chevallier (1996) describes Australia as the "cradle of the oldest continuous culture on earth" (p. 46). Because of the social and cultural diversity of Aboriginal groups throughout the continent, the literature contains a variety of terms that may or may not describe similar titles, processes or things. Also, although generalisations about Aboriginal society cannot always be applied to all Aboriginal groups, the literature contains many generalisations.

Aboriginal medicine is diverse. The spirit world has played a major role in Aboriginal attitudes to health, disease and illness. As occurred in other hunter-gatherer societies, much time was devoted to ritual "which reinforced the sense of place and purpose in the lives of each individual. They used healing plants and the laying on of hands in a complex weave of culture and medicine" (Chevallier, 1996, p. 46). Aboriginal medicine involves, amongst other things, plant remedies, traditional magic, and spiritual activities (Cribb & Cribb, 1990, p. 17). Healers are usually male, with no major distinction between the roles of "sorcerer" or "doctor". However, the two roles are kept separate, as the "sorcerer may always be regarded as potentially dangerous, whereas the doctor must depend on the trust placed in him by the sick" (Martyr, 2002, p. 16). Cochrane (1996) claims that the traditional Aborigines may present a view of Stone Age healing arts: "Their local doctor, or medicine man, wanders with them in their nomadic life, and uses traditional cures for any ills" (p. 8). Traditional Aboriginal medicine involves the mystic and the practical, and "each tribal group has a medicine man who has been taught the spells and herbal remedies" (Cochrane, 1996, p. 11). Possibly because of its spiritual content, Aboriginal culture, including its medicine, was generally little valued by the

European settlers. Although certain Aboriginal remedies were adopted by some settlers, many other settlers decried Aboriginal practices as witchcraft, or just another form of quackery (Martyr, 2002, p. 15).

As in the Americas, 18th century European colonisation caused many infectious and lifestyle diseases to wreak havoc on Aboriginal populations. These included smallpox (Martyr, 2002, p. 15), measles, mumps, tuberculosis, influenza and, especially, venereal diseases (Cribb & Cribb, 1990, pp. 16–17). Charles Darwin (cited in Porter, 1997, p. 466) wrote that "wherever the European has trod, death seems to pursue the aboriginal". Although the Aboriginal medical paradigm evolved to cope with standard disease profiles, time did not allow for the evolution of treatment plans to cope with the sudden onslaught of devastating European diseases.

European medicine was claimed to be as devastating to Aborigines as the contagious European diseases. A Victorian Aborigine, Monnop, said to Daisy Bates, "*meenya janga bomungur*" (the smell of the white man kills us) (Garrick & Jeffrey, 1987, p. 4). After the surviving Tasmanian Aboriginals were forcibly exiled on Flinders Island in Bass Strait, they were devastated by pneumonia. The resident surgeon used regular Heroic practices to ineffectively bleed, purge and blister them. The surviving Aboriginals saw white physicians as ineffective "quacks", who could not heal, and whose medicine was not to be trusted. They refused any treatment that involved pain, bleeding or medicines, and preferred traditional methods such as the wearing of amulets containing the ashes of dead relatives to offer protection against sickness. On being assured by a missionary that the wearing of an amulet was unnecessary, as the doctor would protect a woman from sickness, her husband said that "the doctor was no good, he killed plenty of blackfellows" (Reynolds, 1994, pp. 187–188).

Not all white medicine was rejected by Aborigines. By letter dated 21 May 1835 to the Rev. W. Jowett, a missionary in the Wellington Valley, William Watson (cited in Martyr, 2002) claims that the liquor Ammonia Fortiss "wrought almost miraculous cures amongst both Europeans and natives, especially among the latter who are very much

afflicted with pains in the joints and bones ... they ... ask me for oils to rub themselves with" (p. 36). In this scenario, the whites merely provided the oil, whereas the Aboriginals performed the healing, probably through traditional massage and/or other techniques. Possibly because of illness or other eventuality, these Aboriginals had no access to traditional healing oils, such as those obtained from the goanna, the emu, or healing plants.

The Aboriginal medical paradigm evolved a "sophisticated empirical understanding of indigenous plants, many of which ... are unique to Australia" (Chevallier, 1996, p. 46). As this and other knowledge was retained by oral tradition, the post-colonial death of elders and dispersal of tribal groupings caused loss of much of the knowledge. Cribb and Cribb (1990, p. 12) claim that 500 Australian plant species have been used medicinally in Australia and overseas. Whereas in areas of lush vegetation there were hundreds of plants available for medicinal use within a tribal boundary, the availability was considerably reduced in drier areas (p. 17). The Aboriginal Communities of the Northern Territory (ACNT) produced their extensive Aboriginal pharmacopoeia in 1988 (ACNT, 1988).

ACNT (1988, p. 8) claim that because knowledge of medicinal plants was essential to their survival, all Aborigines traditionally held detailed knowledge of plant location, structure, value and application. In the absence of a written language, this vast knowledge was committed to memory, and passed on to others through practice, song, and dance. This knowledge included optimal times for collecting, preparation method and indications for use. ACNT further report that the time of collection of leaves, roots, pods or bark impacts on chemical content and efficacy, and is governed by local ritual. In the central desert of the Northern Territory, in order to enhance medicinal value, remedy collection must follow a "special dreaming path", and be accompanied by "special dreaming songs" (pp. 8–9). ACNT also explain that Aboriginal nomads use medicinal plants only from within their tribal area, as similar plants from outside their area are not believed to possess healing power for them. Also, the use of similar plants in different tribal areas may be governed by different practices such as the part of the

plant to be used, method of preparation and indications for use. Further, the metaphysical aspect of Aboriginal medicine involves "the esoteric power and mysticism of deeply held beliefs" (p. 9).

ACNT (1988) explain that remedy preparation involves:

> infusing, grinding in a basic mortar, pounding and macerating materials, and boiling with finely cut leaves; ointments are made using available fats — indeed the same basic methods are used that were used in Western society in the days of the apothecary, the predecessor of the modern-day pharmacist. (p.16)

Also, Aboriginal theories of herbal usage were often similarly based to early European Herbal theories. For example "strongly aromatic plants were sniffed to treat headaches. Plants growing near water were regarded as valuable in cases of painful micturition" (Cribb & Cribb, 1990, p. 17).

Chevallier (1996, p. 46) explains that herbal remedies are a crucial aspect of the Aboriginal medical paradigm. For example, the eucalyptus (*Eucalyptus globus*), which are unique to Australia, are aromatic herbs whose leaves were crushed and the aroma inhaled to treat respiratory diseases such as influenza and many other common illnesses. Chevallier (1996, p. 46) claims that due to the absence of metal technology, water could not be directly boiled prior to European colonisation, so traditional herbal decoctions were prepared in water heated by hot stones. Decoctions were either ingested or applied to the skin. Acacia (*Acacia*) was used to treat skin eruptions such as boils and scabies, and eucalyptus or kino (*Pterocarpus marsupium*) was used for acute diarrhoea. In Queensland, fevers were treated with fever bark (*Alstonia*).

Chevallier (1996, p. 46) claims that during the last two centuries, many Australian plants have gained widespread international usage. For example, research into the Aboriginal remedy, fever bark, discovered the alkaloid roserpine, which is now prescribed by herbalists and biomedical practitioners to lower blood pressure. Essential oils extracted from eucalyptus and tea tree (*Melaleuca alternifolia*) are used worldwide as antiseptics. Also, other Australian native plants such as gotu kola (*Centella asiatica*) and visnaga

(*Ammi visnaga*) are now used by local herbalists, after being identified as plants with extensive histories of medicinal use in India and the Middle East.

ACNT (1988) claim that there are satisfactory explanations for the efficacy of some Aboriginal medical practices: the presence of essential oil in *Eremophila duttonii*, when boiled in water and used as a body wash, may produce successful scabies treatment; an anti-histamine in the leaves of *Ipomoea pescabrae* relieves marine sting pain, provided the leaves are heated and then applied to the painful area; and coughs and colds may be relieved by inhalation of essential oils released through heating the leaves of the *Eucalyptus* and *Melaleuca* (p. 16). The Aborigines used hundreds of different remedies to treat a wide range of conditions including joint and muscle pain, toothache, sore mouth, gastro-intestinal disorders, cold and influenza symptoms, skin problems, bites, stings, burns, major wounds, eye disorders, general pain and fever. Treatments also included smoke or vapour baths, bandages and splints, and tonics (p. 16).

The healing practices of the Aboriginals are diverse and included the coating of broken limbs with clay to aid setting and healing, the chewing of selected herbs to relieve stomach upsets and the covering of wounds with leaves to keep them clean (Cochrane, 1996, p. 11). Spencer and Gillen (cited in Porter, 1997) describe an Aboriginal practice that they observed in Central Australia:

> In ordinary cases the patient lies down, while the medicine man bends over him and sucks vigorously at the part of the body affected, spitting out every now and then pieces of wood, bone or stone, the presence of which is believed to be causing the injury and pain. This suction is one of the most characteristic features of native medical treatment, as pain in any part of the body is always attributed to the presence of some foreign body that must be removed. (p. 32)

Porter (1997) explains, apparently from a psychic perspective, that for the "medicine-man, the foreign body in his mouth attracts the foreign body in the patient" (p. 32). However, it is also possible that the healer secretes the object/s in his mouth prior to treatment, in order to later spit it/them out as *evidence* that something has been removed from the body. With that convincing evidence, an individual may then feel healed, and

pain-free. This is also an apparent explanation of the *psychic surgery* phenomena of The Philippines, where the object/s may be secreted in the hand prior to treatment.

Aboriginal medical theory, philosophy and practice are also portrayed in traditional paintings. For example, ACNT (1988) provide a translation by Miriam-Rose Ungunmerr Baumann and Patricia Marrfurra McTaggart of an explanation of a bush medicine painting by Philomena Mulvien, relating to ironwood:

> The leaves of the ironwood, when heated (but not burnt) over a fire, are crushed and rubbed on sores to relieve inflammation. The vapour from the leaves is inhaled to cure headache and flu. The ironwood leaves are also used in smoking ceremonies. For young or old the smoke symbolizes the driving out or release from evils which can be causing physical and spiritual distress. When a person dies, smoke from the same wood is used in ceremony, driving away the remains of hurts, hard feelings, and wrongs toward or from relations or close contacts. It brings peace and new hope. (pp. 28–29)

There are numerous other examples of Aboriginal healing methods. These include the use of termite mounds for diarrhoea, and to assist with pregnancy and relieving period pain (ACNT, 1988, pp. 215–216), and the use of green tree ant nests for coughs, colds, and sores on the mouth and lips (p. 211). According to the people of Apatula, Papunya and Angkarripa, although witchety grubs are an important food source because of their high protein and fat content, when they are crushed and ground, they are used for the treatment of serious burns and wounds with major tissue damage (p. 221). The people of Wadeye, Umbakumba and Yirrkala explain that they use white clay for the treatment of diarrhoea. The clay is collected, baked in the fire like damper, and when cool is either formed into pellets or ground to a powder and mixed with water. Diarrhoea treatment requires about one teaspoonful of the clay, as required. Although excessive consumption of clay may be dangerous, this traditional Aboriginal remedy treats the same gastro-intestinal disorders as biomedicine's kaolin (p. 218).

Cribb and Cribb (1990, pp. 201–202) explain that medicinal bloodletting was used in both the Aboriginal and European cultures. The Aboriginals used it for pain control. For headache, they would either bleed near the site of pain, or distal from the pain. Port

Lincoln Aborigines treated headache by bleeding the lower arm. North Queensland Aborigines were observed treating headache by pushing a sharp piece of blady grass (*Imperata cylindrica* var. *major*) up the nostril to induce bleeding. Backhouse (1843) was apparently unimpressed by scarification practices which he observed on Bruny Island: "The Doctor had his instruments lying by him, consisting of pieces of broken glass, picked up on the shore; with these he cuts deep gashes in any part affected with pain" (p. 103). In certain circumstances the blood of a healthy individual was drunk by a patient (Cribb & Cribb, 1990, p. 202).

The Aboriginal medical paradigm evolved many massage practices, and Cribb and Cribb (1990) describe several of these. They claim that human blood extracted from a healthy individual could be applied externally to an ill person, by massage to the whole body for more than 15 minutes. Rheumatic pain could be cured by massage incorporating kangaroo bone that had been ground to a fine powder. Massage was employed in the external application of fats from various oils (p. 202). Cribb and Cribb further describe some Aboriginal medicinal uses of fat: in the Musgrave Range, a universal remedy for all wounds was emu fat and ochre; in other areas, fat from emus and other animals, including goannas, snakes and birds, was generally used for healing and comfort, with or without ochre; emu fat would control skin chapping in winter, and when sand was added, would protect against insect bites at night; goanna fat was massaged into the skin of new-born babies. The Aboriginal massage of goanna fat into the skin for relief of headache, body pain or stiffness was widely adopted by "white" natural medicine (p. 203). A Northern Territory treatment for influenza involved massage with heated eucalyptus leaves as the patient lay face down beside a slow fire. Ash was used to warm and sterilize the skin. Ill babies would be lovingly massaged on the abdomen with warm ash, and newborn babies were cleaned with warm, soft, sterile ash (pp. 207–208).

Other practices described by Cribb and Cribb (1990) include the use of heated rocks — practices that have been dated from 4000 years ago — in medicinal steaming and fumigation (p. 207). The widespread practices are diverse: one method involved the digging of a narrow trench and lining it with eucalyptus leaves; layers of hot stones were

placed in the trench, and removed at the desired temperature; the naked patient was placed in the trench and covered to the neck with eucalyptus leaves and warm sand for 10 to 15 minutes. Another method, for the treatment of rheumatism, involved the patient lying on his back on eucalyptus leaves placed over hot stones in a trench. Headache could be treated through inhalation of the steam from heated eucalyptus leaves. Other aromatic plants used for the steam bath included *Prostanthera striatiflora*, *Stemodia viscose*, *Scaevola spinescens* and *Eremophila gilesii*. Fumigation was sometimes used in place of steaming (p. 207). In the Musgrave ranges, treatment of abdominal complaints involved the patient crouching over a smoking fire on hands and knees while the warmth and smoke from the fire flowed over the abdomen for a considerable time. Fumigation was also used on mothers after birth (pp. 207–208). This involved the mother crouching over aromatic smoke from acacia leaves and sandalwood (*Santalum spicatum*). In Central Australia, the health of babies was enhanced by smoke from native cypress pine (*Callitris preissii*) (p. 208).

The Aboriginal medical paradigm has influenced European natural medicine practice in Australia and elsewhere, mainly through its use of plant medicines. However, the current growing interest in Aboriginal theory, philosophy and practice has the potential to produce further influences.

Food collection was generally controlled by custom. Isaacs (1987, p. 47) claims that for Aborigines, all relationships between people, plants and animals involve the spirit world, and are governed by customs, rules and traditional law. Isaacs (1987, pp. 44–45) says that the Aborigines used fire to alter and manage their land, thus controlling the sources of food. Many important plant foods appear in the regenerative phase after fire. Isaacs (1987, p. 22) also sates that analysis of wild bush foods by the University of Sydney revealed that they were sometimes richer in vitamins, trace elements and proteins than comparable cultivated plants. For example, grass and acacia seeds were found to be much higher in protein and fat than wheat and rice. Also, many wild fruits contain high levels of protein, fat, carbohydrates and vitamin C. Aborigines believe that all food has meaning, because of its creation by ancestral spirits. Isaacs (1987, p. 40) says that

throughout Australia, men generally hunted the larger animals and women collected other bush foods and medicine.

Isaacs (1987, p. 13) claims that the Aborigines have an encyclopaedic knowledge of plants, animals and seasonal changes, which they interpret for their benefit. For example in one area, women know that it is time to collect mud crabs when the orange blossoms of the bat-wing coral tree fall. The fat of the crabs will also be orange, and their flesh nutritious and filling. The presence of dangerous marine stingers in northern waters is indicated by the blooming of a particular flower. Similarly, the milky white "oyster flowers" indicate that the oysters are fat and white and ready for harvesting. These natural signs are crucial for survival. Time was measured by the seasons, and the details of the cycles of nature, such as the winds, the blooming of plants, and the seeding of grasses.

According to Low (1990) the Aborigines' most potent medicines were magic, involving witch doctors, spirits, chants and amulets, and practices such as bloodletting and blistering. Herbal medicine was less important. Low theorises that academic interest in chemical constituents of plant remedies and comparisons with other healing traditions have produced a distorted view of Aboriginal healing. Two centuries of European observation of Aboriginal healing, even on Europeans, overwhelmingly confirms its efficacy as a great healing power which can produce dramatic results. Low wonders, however, how it actually works. There was inconsistent usage of remedies, as different tribes adopted different theories for plant usage, and sometimes plants were used in ways that cannot be explained by chemistry. For example, in North Queensland, headaches were cured by placing leaves over the eyes, and diarrhoea and internal pain were treated by herbal baths. Low concluded that "much Aboriginal medicine worked through strength of belief. Probably only about half of the plant remedies were pharmaceutically effective; the rest were placebos. The same proportions may well hold true for Indian and other Third World pharmacopoeias" (p. 3). Low wonders whether European medicine, prior to the late 19th century, worked in the same way. For

example, Aboriginal and late 19th century European theory supported usage of bloodletting. Low concludes:

> The power of positive thinking is much stronger than most of us usually acknowledge. The will to survive can make the difference between life and death, between sickness and health. Even in our own scientifically oriented society, will-power is a potent force. New Age devotees swear by the power of crystal healing, Bach flower remedies and shamanism. Aborigines believed strongly in the power of magic and in the unseen. They swore their "witch doctors" could run up trees and fly to the skies. The proudest warrior would calmly lie down and die if a bone was pointed in his direction. Guided by such a powerful belief system, it is no wonder their medicine worked. (p. 3)

Low (1990, p. 3) details some Aboriginal healings of Europeans. A man whose rheumatism prevented him from walking was cured by massage with the young leaves and bark of the stinging tree (*Dendrocnide excelsa*), which had been pounded and boiled to the consistency of treacle. Dame Mary Gilmore, who later became a poet, socialist and activist for Aboriginal rights, became seriously ill in 1868 when she was 3 years old. Gilmore says that her parents entrusted her care to local Aboriginals, after they explained that she would die on the white man's diet. Each night she slept in the open in a grass nest, and was cured in 6 weeks. These Aborigines were later allegedly raided and killed. Low describes how in 1889 a European suffering from a severe catarrh and violent headache was cured by Aboriginal magic in less than half an hour:

> The blackfellow placed his patient near the fire. Warming his hands at the fire he would instantly clap them to his patient's ears, rubbing vigorously but not roughly. This he repeated without intermission. Presently he began to blow with his breath on the head and neck of his patient, still heating the palms of his hands and applying them to the ears; then he commenced to hum a sort of song or charm; a peculiar sensation came over my friend, he seemed to hear something "give way," or burst in his head. The cure was complete and no ill effects were felt afterwards (p. 3).

In 1905, an old Aboriginal "witch doctor", Bootha, was observed treating a white girl, Adelaide, by communing with spirits. After an eerie dialogue with the dead, Bootha was told that Adelaide had offended the spirit bees by bathing under a taboo tree. Adelaide agreed that she had so bathed, and also that she had "bee stings", in the form of pimples, on her back. After another dialogue with the dead spirit Guadgee, Bootha was told the

cure required that Adelaide should drink only cold water, and during the night Guadgee would come and remove the offending wax planted by the bees in her liver. Adelaide slept that night and recovered (Low, 1990, p. 3).

7.7.2 The European Physicians

When Britain established its penal settlement in Australia at the end of the 18th century, the medical market in Britain was open and unrestricted. Consequently, the medical market in Australia, post-settlement, was also open and unrestricted and, like other aspects of colonial life, tended to follow British trends (Martyr, 2002, p. 18). The First Fleet included male physicians and women who were nursemaids, midwives and hospital nurses (Oxley, 1996, pp. 118–121). Martyr (2002, pp. 27–43) claims that the medical competence and backgrounds of some early physicians were questionable, particularly as some had not even completed their education. Martyr further explains that the physicians were reliant mainly upon the European Heroic practices of cupping, bleeding, and the prescription of calomel, apparently to support their interpretations of classical Greek humoral theory. Bleeding involved cutting a part of the body; scarification of the skin, either with or without the application of suction cups; and/or the application of leeches. Other attempts to restore balance included "purging the bowels and the use of emetics to induce vomiting. Cupping also drained excess fluid by the application of heated glass vessels to exposed skin in order to create a vacuum and cause blood to be drawn to the surface" (p. 21).

The medical use of leeches is an ancient practice: from Egypt of 3000 years ago, India of 2000 years ago, to the Ancient Greeks and Romans (Root-Bernstein, 1999, p. 89). Leeches have been used medicinally in Australia from the 18th century. After a period of decline in usage they are currently in resurgence (Martyr, 2002, p.13). Root-Bernstein (1999) claims that the medicinal use of leeches and maggots is increasing (p. 94). Leeching is being used in major hospitals for delicate processes such as reconstructive scalp surgery, and transplanted or replanted tissues (p. 94). Also phlebotomy, or therapeutic bleeding "remains a primary treatment for conditions such as polycythemia vera and haemochromatosis" (Martyr, 2002, p. 13).

Martyr (2002, pp. 38–44) says that medical historians often suggest that doctors are philanthropically inclined, in that they would sacrifice personal financial gain to maintain the dignity of their profession. However, high fees, incompetence, and social and professional indiscretions frequently occurred in colonial Australia. The medical "Don Juan" was also a nuisance. Nineteenth century Australian medical consumers publicly expressed a great deal of anger, impatience and frustration towards all forms of practitioners. This related to safety and efficacy issues, costs and general reliability. From the 1840s, legislation began to discriminate in favour of British trained allopaths, purportedly to protect the public from quackery, but mainly to protect the economic interests of the allopaths. The government published lists of approved practitioners in 1842, but many who would qualify for listing did not bother applying (p. 58).

The cynicism of 19th century medical practice is revealed in an "Advice to Young Doctors" published in the *Perth Gazette and WA Times* in 1869:

> But if you really mean to try the medical dodge, you must choose your school. If you are to be an allopathic you need but three things: opium, calomel and antimony. Anything that cannot be reached by them ought not to be cured ... If you select the homoeopathic treatment, you only need to buy a manual and a box, about as large as a cigar box, of pilules or tinctures ... Always have an eye to the future. Whoever dies, see that the living like you. Dead men furnish no practice. (Feb. 5, 1869, p. 3, cited in Martyr, 2002, p. 119)

Ellen Clacy visited the goldfields in 1852 and reported that doctors were charging 10 shillings for a consultation in their own tent, and from one to 10 pounds for an out-call. Many of the practitioners were quacks "and these seem to flourish best". Clacy claimed that the dominant illnesses included "weakness of sight, from the hot winds and sandy soil, and dysentery, which is often caused by the badly-cooked food, bad water, and want of vegetables" (Clacy, 1852/1963, p. 92). One goldfields doctor charged one pound for each treatment, and the remedy, regardless of presenting symptoms, was consistently "one pill some salts and senna" (Cusack, 1973, p. 70).

As Australian Regular medical practice evolved from physick to allopathy, and then biomedicine, it generally followed the British and American trends. These included an apparent obsession about competition from other kinds of medicine and their practitioners. By the 1870s, Chinese medicine was gaining popularity. In 1877, Bruck (1876, p. 62) reported in the *Australian Medical Journal* that Tack Sin was prosecuted for practicing without a diploma and fined one pound, plus four pounds in costs. In 1886, a list of unregistered practitioners published in the *Australasian Medical Directory and Handbook* reported that Ah Bing and Tet Fong were practicing Chinese medicine in Armidale. Also, another Chinese doctor, James Lamsey, practiced in Victoria, and was reported "to have the most lucrative practice in Sandhurst. Drives about in a buggy" (p. 62).

The passing of laws to protect Regular medical practice from competition resulted in numerous 20th century prosecutions against natural medicine practitioners (Martyr, 2002, p. 265). Most of these prosecutions arose because the practitioners had used the words "doctor of" before their particular "non-medical" therapy. The British Medical Association (BMA) believed that all of these practitioners wanted to be identified as medical practitioners. Apparently the BMA could not comprehend that these practitioners were attempting to promote the opposite impression: that they were different from the Regulars.

7.7.3 The Settlers

Because of the great distances between Australian settlements, self-treatment was essential. Also, Dr Louis Smith offered diagnosis and treatment by post, for "one pound". Smith produced a useful medical almanac which, amongst other things, warned of the dangers of tobacco (Fraser, 1990, pp. 143–162). Successful settler families were generally self-reliant and, in health matters, were assisted by the many English and Australian self-treatment medical handbooks that were available. Martyr (2002, pp. 228–229) claims that these handbooks continued to proliferate into the 20th century. Some of these provided useful first-aid advice, some others contained orthodox medical views, and some others were oriented towards a particular therapy. Women were usually

responsible for home healing, including the prevention of disease, preparation of home remedies, and the delivery of babies.

Martyr (2002) describes how self-medication was also available through patent medicines, which could contain cocaine, opium, cannabis, alcohol, or merely vegetable products, and which were relatively inexpensive, and available at the local grocery (pp. 97–98). A substantial medicinal eucalyptus oil industry emerged, and five separate enterprises were producing and marketing Tasmanian eucalyptus oil, alone. The "chemist" shop was a source of tonics, one of which could comprise the stimulant herbal remedy gentian, possibly with iron. Also available were stomach remedies such as sodium bicarbonate or magnesium bicarbonate, which are still used in modern antacids.

Some settlers began recording new remedies that they had found to be safe and effective. An early settler in Van Diemen's Land, William Alison (cited in Hagger, 1979, p. 168), recorded some of his effective cures from 1812 to 1834. For pain in the head, he used a mixture of aloes, calomel, rhubarb, and castile soap. For rheumatism, he used a mixture of gum guiacum, nitre stone, brimstone, and turkey rhubarb. His recommended dosage was a teaspoonful every second night until the patient was cured. Tench (1789, p. 119) claims that diarrhoea was treated with thick red tree gum, dissolved in water. Selby (1994) explains that until the late 1950s, poultices mixed from soap, sugar and castor oil or kerosene were used. Also, a collection of early Tasmanian home cures included an entry, dated 27 August 1910, for liniment, composed of hog's lard or oil, oil of turpentine, camphor, and spirit of sal ammoniac. An undated entry for the preparation of a remedy for rheumatism, and kidney and bladder "troubles" reads: "tincture gentian compound, one ounce, syrup rhubarb one ounce, liquid barkola compound one ounce, syrup of ginger 5 ounces. Take a tea-spoonful after each meal or at bad time" (pp. 275–286). Selby also reports a 1919 record of a homemade sulphur cure for diphtheria which reads: "flowers of sulphur mixed with water, then gargled and swallowed" (pp. 275–286). Blakers (1986, p. 82) claims that rheumatic complaints could be relieved by merely sleeping under eucalyptus leaves. Cribb and Cribb (1990, pp. 52–53) say that whereas the Aborigines used wattle bark for coughs, colds and other ailments, the white

settlers expanded its usage to gastro-intestinal complaints. The wattle bark was prepared as either an infusion or a decoction, and could be used for dysentery and diarrhoea. It was also found to be useful for perspiring feet.

Cribb and Cribb (1990, p. 91) claim that the European herbal medicine tradition came to Australia through its theories, beliefs and practices, and the introduction of some of its plants. Further, Cribb and Cribb claim that medicinal plants from around the world have been introduced to Australia, and have expanded the range of available remedies (pp. 119–120).

According to Cribb and Cribb (1990, p. 202), leeches also, were used in European-based medicine and in the home in Australia. In the 1930s the local pharmacist would pay sixpence for a dozen leeches collected. The pharmacist would then keep the leeches in a bottle where they were available for sale or hire.

Macalman (1984, p. 209) states that by the end of the 1930s, health care professionals were discouraging the breast-feeding of babies. Many working class mothers who disagreed, responded by reduced attendance at government-run infant health clinics. These mothers believed that their personal experiences proved that breast-feeding was the safest and most healthy method, and saw the discouragement by the professionals as an attack on their innate wisdom and competence, and their traditional preferences. They were later proved to be correct.

7.7.4 Homeopathy

Because homeopathic remedies were often self-administered it is not possible to assess the full extent of their early usage in Australia. An English physician, Steven Simpson, studied directly under Hahnemann, and while in England in 1836 wrote *A Practical View of Homeopathy*, which was one of the first English homeopathic texts. Because of the attitude of the English establishment to homeopathy, he moved to Australia in 1840 to settle in the penal settlement of Moreton Bay (Bradford, 1897, p. 610).

The homeopathy debate, which had raged in the United Kingdom in the 1840s, commenced in Australia in 1855 when Dr Thienette Berigny addressed a public meeting in Melbourne. He claimed that homeopathy was "a revolutionary scientific movement, to put down the greatest evil that has prevailed for many centuries ... namely, that of the common administration of drugs" (Berigny, 1855, p. 1). Berigny proceeded to condemn organised medicine's profiteering and iatrogenesis, but acknowledged its effectiveness in setting broken bones and the discharge of swallowed poisons. He claimed that homeopathy was "real medicine", which invoked the *pneuma* or "fifth element" of vitalism — the vital principle of life and its self-adjusting power (pp. 3–18). In the following century, this healing power would come to be identified as homeostasis. "Whenever any disturbance takes place in the system, strong efforts are made by this vital power, vulgarly called nature, for the purpose of restoring functional equilibrium". It was the role of homeopathy to assist these processes (pp. 17–18).

The Melbourne Homeopathy Dispensary for the Sick Poor (1870–71, p. 37) opened on 22 November, 1869. Of the 511 clients treated by 30 July 1870, only 35 were regular users of homeopathy, and 227 were claimed to have been discharged as cured. Templeton (1969) says that in 1875, the Dispensary became known as the Homoeopathic Hospital and Dispensary. A similar dispensary was opened in Adelaide in the late 1860s. Martyr (2002, pp. 142–143) claims that homeopathic practice continued unimpeded in the late 19th century, which was a period of great success for the Melbourne Homeopathic Hospital and Dispensary as it experienced low mortality rates. Two new homeopathic hospitals were founded in Hobart and Launceston in 1899, and another in Sydney in 1902.

Templeton (1969, pp. 147–157) explains that homeopathy appears to have been in decline by the 1940s, as the Melbourne and Hobart homeopathic hospitals had been incorporated into allopathic institutions, and the last homeopathic medical practitioner had retired from the Sydney Homeopathic Hospital. However, Martyr (2002, p. 242) explains that the Australian Institute of Homeopathy was established in 1946 to promote

its professional interests, including the provision of education. Public interest in homeopathy appears to have increased from the 1970s (Powell, 2003, p. 5).

7.7.5 Medical Herbalism and Food as Medicine

In 19th century Australia, medical herbalism, employing native and exotic plants, was practiced informally in the home, and formally by professional consultation. Martyr (2002, pp. 89–93) claims that many 19th century cookbooks included recipes for the use of food as medicine: papaw for the treatment of cancer and other illnesses; pigweed as an antiscorbutic; and acid cures, or acetopathy, using vinegar internally and externally. Other books detailed the use of leeches, cupping, blistering and homemade pills. A mixture known as the "black draft", comprised senna leaves, bruised ginger, liquorice root, and Epsom salts. After gentle boiling in water for three hours, the mixture was strained and cooled, and then *sal volatile*, tinctures of senna and cardamom were added. The result was a potent, unpleasant-tasting, but "clearing" remedy. To assist menstruation, recommendations were made for the use of gamboges, asafoetida, aloes, ergot, and other well-known emmenagogues and abortifacients such as pennyroyal and apiol. Enemas were recommended for the unblocking of constipation, and as an alternative way of providing nourishment to those unable to swallow. Laxative or purgative enemas included Epsom salts and olive or castor oil. Worms were removed and flatulence relieved by turpentine mixtures, including egg yolk and gruel. Nutrition was provided by the perennial beef tea, thickened with arrowroot.

Martyr (2002, pp. 145–147) explains that domestic and professional herbal medicine, or "botanic medicine", thrived in the latter half of the 19th century, as the use of native plants, especially eucalyptus, increased, and various texts were published. Also, horehound tea was effectively used for barcoo rot, when drunk thrice daily.

The success of professional herbal medicine may be confirmed by attempts by the State to restrict its operation. O'Neill (1995, p. 105) claims that in the 1920s, the Australian Herbalists' Association actively lobbied against restrictive legislation, and for State-

regulation of the herbalism industry. The Australian Union of Herbalists was active in Victoria from about 1901 (Martyr, 2002, p. 245).

Using data from Post Office directories, Martyr (2002, p. 243) shows that between 1924 and 1940, the number of practicing herbalists in four States declined from 192 to 164. The figures for individual States are: in Queensland, from 38 to 39; in Western Australia, from 14 to 18; in New South Wales, from 79 to 57; and in Victoria, from 61 to 50. Of course, these figures represent only those herbalists who happened to be entered in the Post Office directories as herbalists.

O'Neill (1995) states that the occupational boundaries of natural medicine practitioners overlapped into flourishing "mixed method", or eclectic, practices which combined some, or possibly all, of osteopathy, chiropractic, herbalism, nutrition, massage, hydrotherapy, electricity and others (p. 253). Martyr (2002) claims that the practice of Western herbalism "is now more likely to be incorporated into a broader natural therapies practice" (p. 278). However, the National Herbalists Association of Australia, which evolved from the 1920s, is recognised as the oldest natural medicine professional association in Australia. Powell (2003) claims that the evolution of multi-disciplinary practices developed a need for multi-disciplinary professional associations. Powell claims that the need was originally met by the Australian Natural Therapists' Association (ANTA), but prolonged internal and external conflict caused the creation of the Australian Traditional Medicine Society (ATMS). ATMS, with about 9500 members, is now a dominant force and, because of its sheer size, is significant from a national and global perspective (p. 5).

7.7.6 Other Therapies

The Victorian Census of 1891 concluded that there were 777 Regular physicians and 110 Irregulars, which included 56 under the heading "medical botanist/clairvoyant" and 24 under "masseur or masseuse" (Martyr, 2002, p. 188). The national census of medical practitioners in 1921 revealed 3959 "regulars" and 412 "irregulars" (p. 98).

Healers came from diverse backgrounds. For example, Abraham Carter qualified as an Eclectic in Philadelphia in 1866, and was a non-registered practitioner in South Australia from 1870 (Martyr, 2002, p. 66). Johannes Gunst (1870) was a qualified physician who writes of coming to Australia in 1852 as ship's surgeon on the *San Francisco*, and becoming converted to homeopathy in Melbourne. He became a vocal defender of homeopathy against allopathic attacks, and described himself as an eclectic physician: "I have studied Allopathy, Homoeopathy, and hydropathy: have had considerable practice in each; and without being a slave to any One system, I employ such means as appear to me most likely to cure, or relieve" (p. 14).

Massage, which was a crucial part of the Aboriginal medical paradigm, also became popular in non-Aboriginal natural medicine during the late 19th century. Information about various techniques was made available to physicians, even though it was considered to be a radical therapy. Dr Louis Henry (1884) described the aims of massage in the *Australian Medical Journal* in that year:

> The principle of massage is entirely opposed to our traditions of rest to every inflamed part, and consists of a combination of procedures which are intended to rouse distorted and passive parts into a natural condition of activity and health, and largely by the removal of abnormal deposits by mechanical means. (pp. 337–338)

Martyr (2002) states that the Australian Post Office Directories of 1905 listed 88 massage practitioners: 2 in Queensland, 35 in New South Wales, 37 in Victoria, 1 in South Australia, 8 in Western Australia and 3 in Tasmania. The Australian Massage Association was formed in 1906. The massage therapists incorporated electrotherapy into their practice late in the 19th century, and it declined as a specialist practice (pp. 160–162). Martyr further states that in 1883, the Scholz family opened a small hospital in the Barossa Valley to provide massage and other services to treat fractures, sprains and rheumatic conditions — mainly of the local German community (p. 161). The hospital, known as "The Willows", grew to 30 beds, had a large outpatient department, and employed five nursing staff and additional service staff. As well as massage, treatments included homeopathy, hot and cold baths, electric baths, poultices and liniments. The in-patients department closed in 1954, and the remainder in 1962.

In Australia, massage has evolved into a multi-faceted profession with multi-national influences. Tuchtan, Tuchtan, Stelfox, Valkenburg, and Moran, (2002) say that because of the multiplicity of "techniques and approaches to soft tissue manipulation that it is difficult to classify them clearly under meaningful categories" (p. 2). However, they propose that the three major massage categories are *subtle energy*, *relaxation* and *remedial*. The components of these categories are diverse. For example, subtle energy massage is offered through reiki, therapeutic touch, polarity therapy, pranic healing, aura balancing, charka balancing, jin shin do and zero balancing. Relaxation massage is offered through Swedish massage and Esalen massage. Remedial massage is offered through 15 separate practices including Chinese tui na, Japanese shiatsu, American Rolfing, reflexology, sports massage, aromatherapy, manual lymphatic drainage and neuromuscular technique.

Whereas spiritualism appears to have been practiced by the Aborigines, others were also involved. Mary Eddy's Christian Science movement came to Australia from the US, and by 1910, there were 29 accredited practitioner/healers, of whom two-thirds were women (Roe, 1998, pp. 304–319). Martyr (2002) says that there are 62 specifically Spiritualist churches and healing groups publicised in Australia, and that the National Spiritualist Association of Churches in the US defines a spiritual healer as follows:

> A Spiritualist Healer is one who, either through his or her own inborn power or through mediumship, is able to transmit curative energies to physical conditions ... A Spiritualist Healer works with the spirit, mind, emotions, and the body of the recipient. A spiritualist healer is aware that once stress is removed from the mind and emotions, the body will respond naturally. This brings about holistic healing in the patient. (pp. 305–306)

Chris Cole (cited in Martyr, 2002) describes herself as an Australian-born psychic surgeon, who defines her theories and practice as follows:

> I don't believe that I heal anybody, what I do believe is that I act as a medium to channel energy or Universal Consciousness into my patients so that he or she can heal themselves. The human being is a multi dimensional being. We are made up of a physical, mental and emotional body. When we have suffered shocks and traumas, blocks occur in these energy bodies. The healing energy I am channeling helps my patient to

> remove these blocks and allow the life force or the Chi or what I call the KA to again move freely unencumbered around the body. The body has an innate wisdom – it knows how to heal itself. If you cut your finger I cannot heal that cut for you. I can give you extra energy which may speed up the process but it is you that is doing the healing. (p. 306)

Cole's beliefs appear to draw on global influences — from the Chinese concept of "chi" (now referred to in pin yin as qi), to the ancient Egyptian concept of "KA" (referred to earlier in this study as ka). Further, Martyr (2002) claims that the concept of "channelling" for healing also arose in 19th century spiritualism (pp. 306–307). Also, certain Christian churches hold healing services, which can involve the laying-on of hands. Martyr explains that from the 19th century, diagnosis and treatment through medical clairvoyance involved (a) the use of an object that is personal to the client, such as hair or clothing, or (b) communication with spirits (pp. 106–107).

Whereas Chinese medicine came to Australia with 19th century gold miners (Powell, 2003, p. 1), osteopathy and chiropractic arrived early in the 20th century (Martyr, 2002, pp. 247–250).

7.7.7 The Social Revolution of the 1960s

Martyr (2002, pp. 268–275) says that the 1960s social revolution, which increased the popularity of natural medicine in the US and the UK, also occurred in Australia. The "back to nature" philosophy of that era popularised rural resettlement, communal living, permaculture, environmentalism and natural healing. The increasing publicity of iatrogenesis diminished the public image of biomedicine, as the term "natural" came to mean "safe" and "healthy".

Powell (2003) states that from the 1960s, the rapidly increasing popularity of natural medicine saw the opening of many private colleges, of various levels of competence and stability. Many "not for profit", and other private colleges, were forced to close due to financial problems, partially caused by intense competition (p. 2). However, Powell claims that this intense competition produced a group of colleges with worldwide reputations for quality, and which are the largest natural medicine colleges in the world.

Martyr (2002) mentions that a London clinic advertises that its naturopaths are trained in Australia, which "has a more enlightened attitude towards complementary medicine than the UK" (p. 276). Powell (2003) emphasises that the Australian natural medicine industry has evolved mainly through the efforts of private sector entrepreneurs, and that government-funded institutions such as universities did not become interested until the private sector had developed all aspects of the market, and their "late" entry was guaranteed to succeed (p. 3). Further, Powell (2003) claims that the economic advantages of the universities, particularly the Higher Education Contribution Scheme (HECS) allow them to effectively "undercut market prices, placing some private sector colleges in jeopardy" (p. 3).

Powell (2003) claims that comparatively, the practice of Chinese medicine in Australia was limited until the general resurgence of natural medicine in the 1960s. Chinese medicine was popularised, mainly through the efforts of individuals from non-Chinese backgrounds. The pioneering work of these individuals, like those involved in other modalities, created quality colleges, professional associations, ethics and standards processes, Health Fund refund status, professional insurance, academic journals, government recognition of the profession, government funding for students through Austudy, government accreditation for full-time diploma and degree courses offered by the private sector, and post-graduate study opportunities in China. The much-later interest by universities and new immigrant Chinese practitioners has resulted in a shift of power and control in their direction. The level of public support for natural medicine has ensured minimal government restriction (p. 5).

The evolution of a college which commenced in 1969 from the ideas of one man is significant. Powell (2003, p. 3) claims that for academic and professional reasons, the Sydney and Melbourne campuses of Acupuncture Colleges (Australia), commenced by Russell Jewell in 1969, eventually became part of local universities, where government funding has allowed the development of full undergraduate and postgraduate opportunities for Chinese medicine students. Also, the University location had increased government acceptance of the main Chinese medicine modalities, acupuncture and

herbal medicine. The largest, and the first institution to gain simultaneous accreditation for its bachelor degrees in naturopathy, homeopathy and acupuncture is the Australian College of Natural Medicine (ACNM), which commenced in Brisbane in 1975 as the Brisbane campus of Acupuncture Colleges (Australia). In 2003, ACNM has more than 4000 students, about 250 staff, several government-accredited degree programmes, five campuses in three States, an extensive natural medicine library, and public clinics which treat up to 2000 clients each week. Other significant private sector colleges include the former Sydney and Melbourne campuses of Acupuncture Colleges (Australia), Melbourne's Southern School of Natural Therapies, Sydney's Naturecare College, the former New South Wales College of Natural Therapies, and Dorothy Hall's college of herbal medicine. Powell claims that Australia's major contributions to global natural medicine are the example of its most successful colleges and its leading natural medicine professional associations.

As in Britain and the US, the Australian biomedical profession continually attempts to publicly and politically discredit the Australian natural medicine profession (Powell, 2003, p. 6). Its lobbying in the 1970s advocated that as natural medicine had not been scientifically validated for safety and efficacy, it ought to be banned. However, as biomedical practitioners became interested in these potential new income streams, the advocacy evolved to the position that as natural medicine was potentially dangerous in the hands of non-biomedical practitioners, it ought to be practiced *only* by biomedical practitioners. This was regardless of the quality of the biomedical practitioners' knowledge, skill or training, or whether they had received any training at all; or whether they were capable of safe and effective practice. The advocacy has further evolved to the position that because natural medicine practitioners are not fully trained "doctors", they are incapable of making complete biomedical diagnoses, and therefore the health of patients may be endangered by the non-observance of vital symptoms — such as the early stages of treatable cancer. The biomedical lobby is also continually reminding the public that natural medicine is generally "unscientific", and therefore potentially dangerous. Powell also claims that these public relations campaigns have been ineffectual because first, the public has been conditioned by considerable media space

and time devoted to the impact of iatrogenesis and nosocomial illness on individuals and groups, and criminal charges laid against numerous biomedical practitioners for sexual and fraud offences; second, the public has been conditioned by considerable media space and time devoted to the successes of natural medicine on individuals and groups; and third, the public has generally lost confidence in science, the professions and politicians, and in particular their supportive advocacy of biomedicine (p. 6).

According to O'Neill (1995), government has accepted the argument that certain modalities are potentially dangerous, and has responded with their registration so that the public interest relating to safety may, at least, appear to be protected (pp. 497–507). This, along with the teaching of these modalities in universities, appears, *prima facie*, to have secured their futures.

Powell (2003, p. 7) claims that pharmaceutical corporations have recognised the financial opportunities offered by the continual growth of public usage of natural medicine in Australia. In 1999, Faulding purchased two leading Australian manufacturers of natural medicine remedies for about $150 million. This means that this part of the pharmaceutical industry now has a significant financial interest in natural medicine to protect.

Griggs's (1997) earlier references to dissention within natural medicine professional associations and the professions in the UK apply equally to Australia, where political struggles were endemic from the 1970s. Powell (2003, p. 7) claims that whereas internal dissention in naturopathy was resolved by the success and relative stability of ATMS, and in acupuncture by the amalgamation of the Australian Acupuncture Association and the Acupuncture Ethics and Standards Organization into the Australian Acupuncture and Chinese Medicine Association (AACMA), dissention in homeopathy continues. The relative organisational stability was followed, in 2002, by the granting by the Federal Department of Health of $100,000 to each of AACMA, ATMS, Australian Natural Therapists' Association (ANTA) and the National Herbalists' Association of Australia

(NHAA) to establish national registration systems and educational standards for acupuncturists, naturopaths and herbalists (AACMA, 2003, pp. 5-6).

Some university bureaucrats currently describe themselves as educational entrepreneurs, with a mission to compete aggressively with private providers to seize considerable market share in areas they have previously ignored. Powell (2003, p. 8) is concerned that the universities may eventually drive the private providers out of natural medicine education, and compromise traditional theoretical and philosophical underpinnings with new, questionable scientific paradigms, or merely through incompetence. As a member of several government private provider course accreditation processes, Powell claims to have observed an alleged misuse of power by certain government and university bureaucrats as they deliberately delayed processes for years, and frequently implied that even diplomas ought to be withheld from the private sector because it could not be trusted. The demands placed on private providers seeking degree accreditation appear to be greater than those placed on the university sector, apparently because the universities can be trusted to always "do the right thing". The costs to the private sector of degree accreditation processes are significant. For example, ACNM has invested about $2 million in government course accreditation processes to gain accreditation of its separate degree programmes in Naturopathy, Chinese Medicine, Homeopathy, Nutritional Medicine, Western Herbal Medicine, and Musculoskeletal Therapy.

Powell (2003) claims that the degree accreditation process (which he supports) is so rigorous that most private sector colleges, knowing that they could not meet the minimum requirements — such as staff numbers, staff qualifications, independent college council, library resources, teaching facilities, teaching resources, student amenities, research activities, and quality assurance — decide to avoid the process. Powell states that entry to the natural medicine profession ought to be the usual professional standard (an appropriate degree) so that those colleges incapable of meeting the minimum degree standard ought to be excluded so there will be no confusion about standards. Unfortunately for industry standards, several universities allow students from these colleges to enrol in some subjects at the conclusion of their diploma course, and

qualify for a degree in a natural medicine modality, from the university. Powell sees this as "blatant degree selling by struggling universities, with no regard for academic and professional implications, or their public duty of care" (p. 9). Powell claims that all parts of a natural medicine professional programme ought to be conducted in a degree-granting environment, so as to maximise educational outcomes. This would follow the usual university educational perspective. Whereas the universities originally involved in this "degree selling" process offered their services only to graduates from sometimes questionable government-accredited diploma courses, a Sydney university decided to enter this market and entrepreneurially offer the option to graduates of any, even unaccredited courses. This is regardless of academic standards or professional recognition of the courses, which could have been conducted in a household lounge room without examinations.

The pressure for a degree standard of entry for the natural medicine profession appears to be of concern to ATMS (2003). Following the decision of the Chinese Medicine Registration Board of Victoria to accept only degree status applicants from 2007, the federal government has established an Expert Committee on Complementary Medicines in the Health System "to examine the regulatory, health system and industry structures relating to complementary medicines" (p. 1). This committee will apparently focus on the "education, training and regulation requirements for healthcare practitioners" (p. 1). ATMS is concerned that as "the structure of the Expert Committee gives undue representation to degree-status university-based education", the natural medicine profession would "be damaged" if degrees become the minimum entry standard. ATMS bases this concern on the fact that the "bulk of its 70 accredited teaching institutions .... teach to advanced diploma level rather than degree status" (p. 1). Further, ATMS says that "requiring degree level education will result in undue pressure on complementary medicine to conform to scientific paradigms which would mean compromising complementary medicine practice" (p. 1).

The momentum for a degree standard of entry for the natural medicine profession may be increasing. The Victorian government's Department of Human Services is currently

conducting an "inquiry into the practices, benefits and risks of naturopathy and Western herbal medicine" (Stelfox, 2003, p. 2). Stelfox says:

Many of the same individuals who were involved in the inquiry into acupuncture and Chinese medicine safety and efficacy, which resulted in government registration of that profession, are key players in this investigation, and it is quite likely that registration of naturopathy and Western herbal medicine may again be the outcome. (p. 2)

This inquiry is due to submit its final report by 30 June, 2004. If these professions also achieve a minimum entry standard of an appropriate degree, the confusion of varying professional entry standards will be eliminated — to the benefit of the professions.

Powell (2003) states that there is apparently much disquiet within some Australian university natural medicine departments as academics grapple with the role and purpose of natural medicine within the university (p. 9). Powell also claims that the entry of universities into natural medicine education has not guaranteed quality. The universities' internal (and therefore potentially private) accreditation processes may ignore professional standards already imposed on their private sector competitors through the government-controlled "open" accreditation processes representing all stakeholders. For example, the design of the naturopathy programme originally offered by Southern Cross University caused much professional disquiet and derision, which was apparently ignored. However, following an "alleged revolt and rowdy demonstration" by students, the degree programme was apparently extended from 3 to 4 years and unnecessary and inappropriate content was replaced by more appropriate content (p. 9).

7.8 Conclusions

The natural medicine paradigm appears to support the adoption of a temperate lifestyle so that body, mind and spirit may be maintained in balance. As illness usually arises from imbalance, natural medicine treatments are designed to be safe and efficacious, and holistically restore balance to all aspects of an individual's life.

The European nature-cure medical practices such as botanical medicine, homeopathy, massage and hydropathy were enthusiastically adopted in the US, along with other international medical paradigms such as Chinese medicine. These practices evolved with local influences from Indian and settler medicine, and developments such as osteopathy, chiropractic, eclectism, Thomsonianism and spiritualism to form, from an American perspective, the eclectic profession of naturopathy. Whereas the term *naturopathy* appears to have a relatively narrow and specific application in Australia and Europe, the wider American perspective suggests that the term is interchangeable with the term *natural medicine*.

In Australia, natural medicine has been practised for millennia by Aboriginals. Following colonisation in the 18th century, imported European natural medicine was influenced by Aboriginal, settler and other international medical practices. As Australian natural medicine evolved to the present, it has enjoyed wide public support, particularly from the 1960s. Australia's most significant contributions to the global natural medicine paradigm are its leading colleges and their educational practices, and its professional associations and their procedures.

The evolutionary line from Regular physick to biomedicine has seen natural medicine as a competitor in the medical marketplace, and has continually sought to suppress its popularity and influence. However, public attitudes to science, biomedical theory and practice, and its practitioners, have limited the success of these attempted suppressions.

The next chapter will discuss aspects of the naturopathic paradigm, in order to assess whether the public interest would be well served by the exploitation of the potential of natural medicine through the evolution of a new, integrated medical model incorporating both natural medicine and biomedicine. Such a system will probably require the development of a new relationship between practitioners of these two systems of medicine, based on mutual respect, recognition and cooperation.

CHAPTER 8

INTEGRATED MEDICINE

8.1 Introduction

The previous chapters have described the evolution of the natural medicine and biomedical paradigms, various problems that have arisen from the biomedical paradigm, and the schism between their professions. That schism is represented, among other things, by differing paradigms, philosophies, theories, beliefs, practices, education, socio-political power, attitudes, and government and public support. This chapter will examine aspects of that schism in order to produce an integrated medical model based on mutual recognition and respect.

Seven aspects of this schism will be examined: (a) End of the Age of Biomedical Optimism, (b) Paradigms and Medicine, (c) Crucial Aspects of the Natural Medicine Paradigm, (d) Integrated Medicine, (e) Consumer and Marketplace Variables, (f) Australian Integrated Medicine, and (g) the Future Evolution of the Voluntary Integrated Model. The section on End of the Age of Biomedical Optimism will review key events that have contributed to a breakdown in the doctor–patient relationship, including discussions on the dearth of new drugs, biomedical ruthlessness and experimental medicine, biomedical professional dissatisfaction, the failure of the social theory and the "new genetics", and misuse of biomedical technology. The section on Paradigms and Medicine will examine the role of the paradigm as it obstructs change, progress and new ideas. The section dealing with Crucial Aspects of the Natural Medicine Paradigm will assess homeostasis, holism, vitalism, the mind–body connection, spirit, detoxification, digestion, immune system, and scientific influences on naturopathy. The section on Integrated Medicine will examine natural medicine usage, and WHO, UK and US models of integrated medicine. Consumer and Marketplace Variables will be considered from the point of view of their influence on the evolution of integrated medicine. The

section on Australian Integrated Medicine will examine four models already in existence: the Voluntary Integrated Model, the Client Controlled Model, the Third Party Model and the Complementary Biomedicine Model. The section on the Future Evolution of the Voluntary Integrated Model will explore the ways in which this model may expand its influence and incidence.

As mentioned in chapter 7, as this study is exploring new academic territory, resources available for examination and reference are sometimes limited. Consequently, Section 8.2 (End of the Age of Biomedical Optimism) relies heavily on Le Fanu (1999), who appears to provide the only contemporary source relating that history to the evolution of natural medicine. Powell (2003), also, is frequently cited as he appears to be the only relevant contemporary source of commentary on current Australian natural medicine political and organisational matters.

8.2 End of the Age of Biomedical Optimism

A new, integrated medical model incorporating both natural medicine and biomedicine practices may provide opportunities for both professions. However, according to Le Fanu (1999, p. xx) opportunities for the natural medicine profession to increase its market share have already been provided by the biomedicine system itself, through the professional dissatisfaction of its physicians; through a public neurosis about health; and through burgeoning biomedical service costs. These, along with a dearth of new drugs, the failure of The Social Theory and The New Genetics, and the inappropriate and overuse of technology, have marked the end of the Age of Biomedical Optimism.

The seemingly relentless progress of biomedical theory has been questioned in the United Kingdom by Colin Dollery (1978), Professor of Clinical Pharmacology at the Postgraduate Medical School:

> Problems seem larger, and solutions to them more elusive ... the morality and cost-effectiveness of scientific medicine has been challenged ... many people, including some of the most senior of the medical research hierarchy, are pessimistic about the claims of future advance. The age of optimism has ended. (p. 1)

8.2.1 Dearth of New Drugs

Dr Fred Steward of Birmingham's Aston University (Steward & Wibberley, 1980, pp. 118–20) observed that the rate of annual introduction of genuinely new drugs, or New Chemical Entities (NCEs), had decreased from 70 in the 1960s to less than 20 by the 1970s. Not only was it more difficult to discover genuinely new drugs, but also, only a third of the most recent NCEs seemed to offer even moderate therapeutic gain. In reviewing the previous 50 years of drug innovation, Richard Wurtman of the Massachusetts Institute of Technology observed (Wurtman & Bettiker, 1995) that "successes have been surprisingly infrequent during the past three decades. Few effective treatments have been discovered for the diseases that contribute most to mortality and morbidity" (p. 1122–5).

Le Fanu (1999, p. 247) explains that in the UK, due to government requirements, the development costs for a new drug have increased from 5 million pounds in the 1960s to 150 million pounds in the 1990s, and that the development time had increased to around 10 years. Also, apparently the efficacy of most recently introduced drugs is questionable, and of the 10 most-prescribed drugs — the ones that sustain industry profitability — all are, mainly, "new or expensive variants of the antibiotics, anti-inflammatories and anti-depressants that were originally introduced twenty or more years ago" (p. 249).

8.2.2 Biomedical Ruthlessness and Experimental Medicine

Recent developments in experimental medicine appear to be of questionable benefit, and are disturbing the earlier doctor–patient relationship. For example, Sir William Heneage Ogilvie (1952), senior surgeon at Guy's hospital has stated:

> The science of experimental medicine is something new and sinister, for it is capable of destroying in our minds the old faith, that we, the doctors, are the servants of the patients whom we have undertaken to care for and the complete trust that they can place their lives or the lives of their loved ones in our care. (p. 820)

Maurice Papworth (cited in Le Fanu, 1999), in his 1967 publication *Human Guinea Pigs*, explained that often, the knowledge gained from experimental medicine was of little value "other than providing the opportunity for those conducting the experiments to further their career by writing the results up in a scientific journal" (p. 205). For this publication, Papworth was ostracised by the medical establishment.

Le Fanu (1999) claims that medical ruthlessness has been an indispensable requirement for pushing forward the boundaries of biomedicine. The ideology of clinical science has encouraged a sort of emotional disconnectedness, without which the pioneers would never have persisted with their experimental therapies. This amounted to a "degenerate scientism that was the antithesis of ... a 'personal' relationship between doctor and patient" (p. 205).

8.2.3 Biomedical Professional Dissatisfaction

The professional dissatisfaction of physicians is remarkable, particularly in view of Le Fanu's (1999, p. xv) claim that the 50 years following the end of the Second World War was one of the most impressive epochs of human achievement. Developments in that half-century considerably nurtured the evolution of biomedical theory and practice, freed people from fears of illness and untimely death, and significantly improved the chronic disabilities of aging. Le Fanu says that, whereas such successes ought to make Biomedicine a particularly satisfying career, recent surveys conducted by the London Policy Studies Institute consistently reveal that increasing numbers of UK physicians — particularly younger physicians — are bored and disillusioned, and that the proportion of physicians with regrets about their chosen career has risen from 14% in 1966 to 58% in 1986. Le Fanu also claims that whereas, traditionally, virtually all medical graduates commenced careers in medicine, by 1996, one quarter of graduates had decided to seek other careers. The collective clinical image presented by so many "regretful" physicians could have further undermined public confidence in the doctor–patient relationship (p. xviii).

8.2.4 New Hopes: The Social Theory and The New Genetics

Le Fanu (1999) claims that the end of "The Age of Biomedical Optimism" in the early 1980s created an intellectual vacuum that was filled by two radical, but ultimately unsuccessful approaches. These were "The Social Theory" and "The New Genetics", in which "the causes of disease would be elucidated in the interplay between the external world — people's social habits and their environment — and their genes" (p. 372). It was theorised that social engineering and genetic manipulation would provide new answers to health challenges (p. 393).

During the last 30 years, paralleling the rise in the number of "regretful" physicians, community concerns for personal health have risen from 10% to 50% of the population. Further, "the most curious thing about this phenomenon of the 'worried well' who are 'well' but 'worried' ... [is] that it is medically inspired" (Le Fanu, 1999). Apparently the well are worried about their health because repeatedly and consistently they have been led to believe that their health, and possibly their lives, are threatened by hidden social hazards such as "food, alcohol, sunbathing and sex, [as well as] low-fat milk and margarine, computer screens, head-lice shampoo, [and] mobile phones". Le Fanu describes this process of The Social Theory as "healthism", which is "a medically inspired obsession with trivial or non-existent threats to health whose assertions would in the past, quite rightly, have been dismissed as quackery" (p. xix).

The establishment of the links between everyday life and disease has resulted in further scientific research and programmes "to get people to change their lives, to bring pressure to bear on industry to stop polluting the air and water and on governments to do something about poverty" (Le Fanu, 1999, pp. 372–373). Research revealed many more potential domestic hazards:

> Alcohol was linked with cancer of the breast, coffee with cancer of the pancreas, yoghurt with cancer of the ovary, vaginal douching with cancer of the cervix, regular use of alcohol mouthwash with cancer of the mouth and red meat with cancer of the colon. Even the most innocent seeming of inanimate objects, such as electricity pylons, mobile telephones and sewing machines, were all found to be full of menace. Thus by the mid-1990s it was fair to say that every human pleasure — tobacco, alcohol, sex, smoking and food — had been anathematised, the air and water had

> been found to be packed with carcinogenic chemicals and the poor were poorer and sicker than ever. (p. 373)

The inconsistencies of The Social Theory became more generally recognised in the mid-1990s, as evidenced when the editor of the *New England Journal of Medicine* (Angell, 1994) asked:

> What should the public believe? They substitute margarine for butter, only to learn that margarine may be worse for the arteries. They are told to eat oat bran to lower the cholesterol only to learn it is useless. They substitute saccharin for sugar only to hear that some research has found an association with bladder cancer, while others do not. (pp. 189–90)

The following year, in *Science,* Taubes (1995) observed that "the search for subtle links between diet, lifestyle or the environment and disease is an unending source of fear — but yields little certainty". The public debate had exposed the public to a "mind-numbing array of potential disease-causing agents from hairdryers to coffee ... the pendulum swings back and forth resulting in an 'epidemic of anxiety'" (pp. 164–166).

Further, McMichael (1997, pp. 805–809) published in the *British Medical Journal* environmentalists' concerns for the issues of global warming and the holes in the ozone layer, and Wilkinson (1992, pp. 165–168), also in the *British Medical Journal,* showed that the disparity of wealth between rich and poor was a cause of illness for the poor. However, as the budget for Britain's National Health Service has doubled from 23.5 billion pounds in 1988 to 45 billion pounds in 1998, the "almost universal belief that the problems of the health service would simply be solved by more generous funding, must be incorrect" (Le Fanu, 1999, p. xx).

Le Fanu (1999) says that "The Social Theory is synonymous with victim blaming because its logic requires that patients have only themselves to blame for persisting with their unhealthy habits and not heeding helpful advice" (p. 381). Further, by simultaneously overemphasising and trivialising the role of disease in people's lives, the Social Theory "generates the myth that the practice of medicine is futile, because the allegedly important factors in health are outside its control" (p. 381). Although hundreds

of millions of pounds has been spent on research and health-education programmes over the last two decades, the effect of Social Theory on UK health is miniscule. The Social Theory "has been invalidated by the mundane biological fact that the human organism is — as it has to be — impervious to minor changes in its external environment" (p. 382).

Le Fanu (1999) further claims that the "lure of The New Genetics lay in its reductionism, the explanation of the phenomena of disease at the most fundamental level of the gene and its products" (p. 382). However, as genes do not generally play an important role in disease, "when they do — as in the single-gene defect cystic fibrosis — the genome turns out to be so complex and elusive that there is not much that can be done about it" (p. 382).

The New Genetics and The Social Theory failed because "the causes of common disease are neither genetic nor social, but rather are either age-determined or biological and (for the most part) unknown" (Le Fanu, 1999, pp. 382–383). Apparently the post-war achievements of biomedical practice did not require an understanding of the nature or causation of disease, as the cause of only a fraction of diseases is currently known.

8.2.5 Misuse of Biomedical Technology

The apparent misuse of biomedical technology has further alienated parts of the community from biomedical practice. During the Copenhagen polio epidemic of 1952, according to Le Fanu (1999), new intensive-care procedures saved thousands of lives as they kept "children alive long enough for the strength of their respiratory muscles to recover". By the mid-1970s, however, the procedures had "become diverted into a means of prolonging — at enormous cost — the pain and misery of terminal illness" (pp. 258–259).

Life-support systems make it "relatively easy to keep many 'dead' people artificially alive" (Porter, 1997, p. 700). Because "repugnance grew for the 'cruelty' of this meaningless prolongation of life, particularly amongst those in a 'persistent vegetative

state' who entirely lack consciousness", euthanasia, or "mercy killing" was advocated as a possible solution (p. 701).

Le Fanu (1999) says that by 1976 half of the medical expenditure in the United States was incurred in the last 60 days of patients' lives (p. 259). Muriel Grillick (1994) of the Hebrew Rehabilitation Center for the Aged in Boston said that the:

> furore of the high economic costs of dying parallels concern over its high emotional cost ... a significant segment of the public believe that doctors cruelly and needlessly prolong the lives of the dying [for reasons] of avarice and a passion for technology, which leads them to use procedures to excess, unmindful of the suffering they may inflict on patients. (pp. 2134–2137).

However, Le Fanu (1999) claims that in these circumstances, physicians use all available technology, either because of pressure by relatives, or their fear of later accusations of negligence. Like the Church, biomedicine has its last rites — "the compulsory period on the ventilator without which a patient was not allowed to die in hospital" (p. 260). Of 150 Southern Florida patients — seriously ill with cancer — who received intensive care in one hospital during a 2-year period, "three-quarters of those who had survived to go home had died within three months" (Schapira, 1993, p. 783).

Even though the end of the Age of Biomedical Optimism appears to have arrived in developed Western societies at a time of a growing rift between biomedical practice and community expectations, relatively exclusive government-sponsored corporatisation has guaranteed the continued widespread public usage of biomedical systems. However, the continued corporatisation of biomedicine may be explained by paradigm theory.

8.3 Paradigms and Medicine

Through his pioneering work, *The Structure of Scientific Revolutions*, the philosopher Thomas Kuhn introduced the concept (and the problem) of the paradigm as it relates to the philosophy and scope of science. According to Kuhn (1970), the pursuit of science takes place within paradigms, which are subject to profound shifts, and which are "universally recognised scientific achievements that for a time provide model problems

and solutions to a community of practitioners" (p. viii). However, Kuhn saw the paradigm as the main and growing obstacle to change, progress and new ideas. The concepts, definitions and descriptions of the term "paradigm" are diverse: even Kuhn used it in 21 different ways (Masterson, 1970).

From the final quarter of the 20th century, discussion of the Cartesian–Newtonian paradigm of materialist science has become sufficiently commonplace for philosophers such as Wilber (1998) to produce critiques of the concept of paradigm and the way it has been used. This particularly relates to the discussion of the failings of Western science and the promotion of alternatives. However, the paradigm remains central to the philosophy of modern Natural Medicine, and to the critiques which its practitioners, advocates and users make of biomedical systems for their perceived failings of theory, understanding, vision, ethics and practice.

Capra's (1982) landmark work *The Turning Point: Science, Society and the Rising Culture* discussed the concept of "paradigm shift" in resolving problems and challenges of the current transition away from the Cartesian–Newtonian paradigm. Although the relatively new sciences of quantum mechanics, and the theories of "chaos" and "complexity" have decreased the stature of Cartesian–Newtonian concepts (Capra, 1997), biomedical practice still operates on the premises and tenets of 19th century Newtonian science (Nester, 1999, p. 162). Beliefs in established paradigms are notoriously difficult to shift or destroy, as Carter (1992) claims that "despite the unprecedented advances in modern research there exists a strong inertia to change, in science and medicine" (p. 3). Also, Popper (cited in Smith, 1989) was concerned that "there is much less accumulation of knowledge in science than there is revolutionary changing of scientific theory" (p. 46). However, Kuhn (cited in Smith, 1989) sees difficulties for science where frequently one paradigm appears merely to replace another through a "paradigm debate in which the proponents fail to make complete contact with each other's viewpoints and in which they see the world differently" (p. 46). This appears to describe much natural medicine–biomedicine practitioner discourse. A "paradigm shift" is said to occur when scientists' concepts of reality — their theories

and their world view — change. The present is a time of major paradigm shift as "some truly revolutionary changes are taking place ... in the way scientists view the world" (Davies & Gribbin, 1991, p. 1).

The "paradigm is a sociological concept and does not have to be thought of as a description of 'reality'" (Nester, 1999, p. 158). This is supported by Capra (1986, cited in Capra, 1997) who defines a social paradigm as "a constellation of concepts, values, perceptions, and practices shared by a community, which forms a particular vision that is the basis of the way the community organizes itself" (pp. 5–6). Guba (1990, p. 17) says that a paradigm can be understood as a basic set of beliefs that guide action. The Natural Medicine paradigm "could therefore be understood as consisting of a constellation of traditional ideas, theory, and philosophy that can guide clinical practice", a description applied by Nester (1999, p. 158) to Chinese medicine.

This study earlier described the evolution of "difference" between natural medicine and biomedical systems. This suggests that the natural medicine and biomedical systems would operate under different paradigms, particularly as the natural medicine system "can be understood to constitute a distinct health care paradigm in the sense of having its own cluster of philosophical, ontological, and theoretical understandings which are shared by members" of its profession, also a description by Nester (1999, p. 158) of Chinese medicine. However, although the many areas of difference would be represented by separate and distinct paradigms, there would also be an overlapping of paradigms in areas of convergence between the natural medicine and biomedical systems — such as general desires to provide care and relief for the ill, and common practices, philosophies, theories and beliefs. The recognition of paradigmatic convergence may be a starting point for discussions leading to a new integrated medical model. However, crucial aspects of the natural medicine paradigm first need to be identified, and their differences from biomedical theory explained.

8.4 Crucial Aspects of the Natural Medicine Paradigm

The UK House of Lords Select Committee on Complementary and Alternative Medicine (House of Lords, 2000, p. 5) reports that it is essential to consider the different paradigms of biomedicine and natural medicine because of their implications for research and integration. Also, the different practices of biomedicine and natural medicine appear to span the spectrum that exists between reductionism and holism.

The disparity between natural medicine and biomedicine systems arises from their different theoretical models. The biomedical systems focus on disease-causing agents, while the natural medicine systems are "based more in a philosophy that uses a comprehensive approach concerned with multidimensional factors". Natural medicine systems seek to improve the "wellness" of the client: "quality of life is emphasized by treating functional or somatic problems with ancillary and important psychological, social, emotional, and spiritual aspects" (Spencer & Jacobs, 1999, p. 18). Natural medicine practice is influenced by a wide range of theoretical concepts and beliefs including homeostasis, holism, the mind–body connection (Woodham & Peters, 2000, pp. 10–11), influences of the spiritual realm (Phalen, 1998, pp. 167–173), vitalism (Micozzi, 2001, pp. 10–11) and immunity, detoxification and digestion (Bratman, 1997, pp. 62–65).

8.4.1 Homeostasis

The concept of *homeostasis* provides an example of possible paradigmatic convergence between natural medicine and biomedicine. In biomedicine, homeostasis is fundamental to the physiological model of disease. Porter (1997, p. 562) claims that the term *homeostasis* was coined by Walter Cannon (1871–1945), in his *The Wisdom of the Body* (1932), to describe the capacity of the body for internal regulation to sustain life in times of health crises. Claude Bernard (1813–1878) (cited in Porter, 1997), however, had earlier observed:

> All functions have as their object the sustaining of life and tend constantly to restore the physiological condition when it is disturbed. The tendency persists in all morbid conditions, and it is this that already constituted for Hippocrates the healing power of nature ... Medicine is the science of

> sickness; physiology is the science of life; thus physiology must be the scientific basis of medicine. (pp. 340–341)

Woodham and Peters (1998, pp. 12–13; 2000, p.10) explain that the natural medicine paradigms of China, India and Europe have separately evolved the theory of homeostasis — that the body will naturally strive towards equilibrium — which is regarded as crucial to the maintenance of good health and the healing process. Hippocrates referred to homeostasis as the healing power of nature. Woodham and Peters (1998) claim that whereas homeostasis is assisted by "healthy diet, exercise, fresh air, rest and sleep, relaxation, manageable stress, clean environment, [and] positive coping style", the "breakdown of homeostasis and consequent illness" is caused by "unhealthy diet, lack of exercise, lack of fresh air, poor sleep, emotional conflicts, physical strain, pollution, [and] negative coping style" (p. 13). As demands on one part of the "whole" may affect other parts, natural medicine practice attends to all parts of the whole, by working intimately, in partnership with the client, to focus on all aspects of the client's life — including bodily, mental and emotional functioning — to promote self-healing.

8.4.2 Holism

As the theory of homeostasis requires balance of all parts of the whole person, natural medicine practice is consequently considered to be holistic. Woodham and Peters (1998) explain that the word "holism" is derived from the Greek *holos,* meaning "whole", and that its practice requires attending to all aspects of an individual's body, mind and spirit. As well as assessing the obvious physical symptoms, holism requires consideration of the psychological state, social and environmental factors, "and an indefinable dimension known as 'spirit'" (p. 12). Holism deems everything in the universe "to be greater than, and different from, the sum of its parts" (p. 12).

Since 1978, the World Health Organisation (1998) has described traditional natural medicine systems as holistic, meaning:

> viewing humans in totality within a wide ecological spectrum, and emphasizing the view that ill health or disease is brought about by imbalance or disequilibrium of humans in the total ecological system and not only by the causative agent and pathogenic mechanism. (p. 3)

Holism "is an ecological concept that the totality of biological phenomena in a living organism or system cannot be reduced, observed or measured at a level below that of the whole organism or system" (Smuts, 1926; cited in Micozzi 2001, pp. 10–11).

In 380 BCE, Plato (cited in Endacott, 1996) wrote in *The Republic*:

> The cure of the part should not be attempted without treatment of the whole. No attempt should be made to cure the body without the soul, and therefore, if the head and the body are to be healthy, you must begin by curing the mind. That is the first thing. Let no one persuade you to cure the head until he has first given you his soul to be cured. For this is the great error of our day in the treatment of the human body, that physicians first separate the soul from the body. (p. 10)

Although Plato appears to suggest a similarity between the concepts of "soul" and "mind", this may not be his intention.

Bratman (1997, pp. 11–13) claims that many patients are seeking holistic treatment, or single whole-person diagnosis, because of their desire to avoid extreme biomedical specialisation. Some view pharmaceutical drugs as a form of pollution, with similar toxicity to pesticides, artificial fertilizers, and other toxic pollutants. They believe that although pharmaceutical drugs fight illnesses, often by masking symptoms, because they are not holistic they cannot produce a state of robust vitality, or even good health.

8.4.3 Vitalism

The concept of the presence of a "vital energy" in whole living systems and organisms, but absent from non-living entities, arose in ancient human cultures, evolved with natural medicine systems, and is also reflected in European and US intellectual traditions (Micozzi, 2001, p. 10). However, Kaptchuk (2001) claims that "vitalism is the proposition that more is needed to explain life than just physical and mechanical laws" (p. 44). Kaptchuk also claims that rather than originating within Natural Medicine systems, vitalism arose within the elite universities of 18th and 19th century Europe "as a response to the mechanistic thesis and atomistic physiochemical reductionism of the scientific revolution" (p. 44). However, in chapter 3, this study discussed the ancient

Greek concept of the life source, or *thymos,* which was believed to be present in all parts of the living organism, and which was nourished by external factors such as food, fluids and air. *Thymos* was maintained by the actions of the internal environment, such as the movement of body fluids including blood, could escape the body through wounds and exhalation, and depart on death (Lyons & Petrucelli, 1987, p. 159). This concept evolved within the natural medicine paradigm to the modern theory of vitalism.

Kaptchuk (2001) states that vitalism is variously referred to in the natural medicine literature as, for example, in homeopathy it is called the "spiritual vital force"; chiropractic refers to "innate" or "universal intelligence"; psychic healing manipulates "auric", "psi" or "psionic powers"; Chinese medicine refers to "qi"; ayurvedic medicine and yoga work with "prana"; and naturopaths refer to "vis medicatrix naturae" (p. 43).

Natural medicine theories of vitalism, also described as "life energy" or "vital force", are points of difference from biomedical theory (Bratman, 1997, p. 17). Bratman claims that as scientific theory promoted the concept of the body as merely a complex machine, it "disproved" the ancient theory of vitalism. However, for natural medicine practitioners, theories of the existence of a vital force are crucial as "healing consists not in fighting diseases but in assisting the vital force to do its work. Wellness is essentially a state where the energy of life flourishes. Disease is a condition where vitality is blocked" (p. 17).

Micozzi (2001) acknowledges vitalism as a concept of "energy" which pervades natural medicine theory and belief, and that is believed to be involved in disease development and cure. Further, "energy has a dynamic quality and is not measured in the usual ways that conventional medicine is accustomed to describing on the basis of materialist, reductionist biomedical mechanisms" (p. 10). Natural medicine systems are usually considered to be vitalistic and holistic. Biomedical systems are considered to be materialistic and reductionistic.

Because natural medicine treatments enhance vital energies they promote feelings of health and well-being – sometimes for days or weeks (Bratman, 1997, p. 13). However, most biomedical interventions produce feelings of vague discomfort rather than of health. These include side effects such as "malaise, drowsiness, headache, stomach upset, insomnia, dry mouth, or sexual dysfunction" (p. 13). Also, although a biomedical treatment may solve one problem, it may create other, hopefully lesser ones.

Bratman (1997) refers to the use of tonic herbs as vitalistic wellness-promoting techniques in natural medicine. These include ginseng in Chinese medicine, suma from Brazil, and gentian from Europe. Tonic herbs function like exercise and good nutrition. Their purpose is to improve health even after the herbal treatment concludes. Apparently there are no equivalents in biomedicine. Whereas, for example, asthma medications reduce bronchial inflammation they do not enhance lung strength; when the medication is discontinued, "the symptom returns" (p. 15).

8.4.4 The Mind–Body Connection

Natural Medicine traditions from Europe, India and China have separately evolved philosophies, theories and beliefs about the mind–body connection: that each could influence the other, positively and negatively (Bratman, 1997, pp. 185–195).

This study has previously described the European evolution of the medical and religious separation of body from mind. Even in the early 1980s, biomedicine theory "tended to treat body and mind as separate entities and saw them as the concern of distinct medical specialities" (Woodham & Peters, 1998, p. 18). Natural medicine practitioners were often ridiculed for continuing to suggest the existence of a mind–body connection. However, there is now increasing scientific understanding of how mind and body are inextricably intertwined: "in the new scientific view, not only are mind and body one system, but it seems the body may influence the brain as much as the brain affects the body" (p. 11).

Woodham and Peters (1998, p. 26) state that the body consists of three independent realms — the biochemical, the structural and the psychological — and that an imbalance in one realm can cause health problems and affect the working of the other two. For example, psychological problems such as depression can diminish appetite, and therefore impair biochemical processes. Also, if essential biochemical processes such as diet or elimination of toxins are poor, psychological problems including fatigue and depression can result. The biochemical realm is concerned with the workings of cells, organs and body systems such as respiration, digestion and the lymphatic system. However, as these maintain the body's processes in balance, imbalance may be caused by poor diet. For example, hardening of the arteries may be caused by a high fat diet. Although the psychological realm is concerned with how thoughts, feelings, actions and relationships can influence the ability to cope with life, psychological stresses such as excessive anger or fear can result in muscular tension and poor posture, inhibiting structural function. Also, even though the structural realm is concerned with how structural elements, such as muscles, bones, nerves and blood vessels support systems such as the circulatory and digestive systems, structural upper body tension can increase anxiety and psychological stress. Also, cell biochemistry may be impaired if structurally narrow arteries restrict oxygen supply to the tissues.

Bratman (1997, pp. 185–195) states that natural medicine "mental" practices that are directly involved in the mind–body connection include meditation, yoga, guided visualisation, biofeedback, positive thinking, psychotherapy, and religious and New Age spiritual processes. All of these practices may reduce and/or eliminate stress, thus allowing healing to occur. However, as all natural medicine practices are theoretically involved in holistic healing, they may all be deemed to be involved in the mind–body connection, regardless of their initial application. The simplest example would be therapeutic relaxing massage, which "aids relaxation, directly affecting the body systems that govern heart-rate, blood pressure, respiration and digestion ... Psychologically, massage releases tension and reduces anxiety so that people feel more serene and better equipped to cope with the stresses of life" (Woodham & Peters, 1998, pp. 56–57).

It seems that concepts of mind–body connection may also provide opportunities for paradigmatic convergence between natural medicine and biomedicine. However, although some sections of modern science now appear capable of accepting the mind–body connection of massage, they may not be ready to accept that other naturopathic practices such as botanic medicine and "food as medicine" work in the same way.

8.4.5 Spirit

There are many superficial references in the natural medicine literature to the concepts of spirit and spirituality. The lack of depth in the explanations of these concepts suggests that either the authors are unsure of the detail of these concepts, or the concepts are so simple that they are universally understood. However, it is also possible that the concepts may be so complex, with numerous interpretations or traditions, possibly influenced by religion, that the literature has merely left it to the readers to place their own interpretations and beliefs on the minimalist presentations.

Woodham and Peters (1998, p. 13) claim that holism requires attention to spiritual concerns equally with those of the mind and body. They explain that humans are sometimes anxious and bewildered as they puzzle over the meaning of life, particularly relating to the life journey — where they have come from, to where they are bound. They observe that for many, the life journey may be painful, the present may appear to be insecure, and the future uncertain. In order to make sense of life, and feel connected to the "inner self", to others, and to the world, some individuals create supportive frameworks such as art, literature, music, community, family, worship and play. The importance of these frameworks is apparent when illness produces evidence of vulnerability, limitations and dependency. Woodham and Peters then say, anti-climactically, that "broadly speaking, this is the realm of spirituality" (p. 13).

Kathleen Phalen (1998) says that worldwide, in times of crisis, many people turn to prayer, while each year millions attend special healing shrines such as Lourdes in France. Some organised religions collect tales of unexplained healing, often proclaiming them to be "miracles". Biomedical practitioners who publicly recognise the phenomena

of the "miracle" healing face intense scrutiny from their peers. For example, a well respected American surgeon with a lucrative practice was avoided by colleagues he had known for years, once he began talking about miracles, prayer, and connecting with the patient. "They'd ... make certain he got the message that what he was doing wasn't acceptable" (pp. 167–168).

Claims of miracle healing are so commonplace in Western societies that "Christian" television programmes regularly show examples of what they claim to be the phenomenon. Although the "healing" claims of the organisers and the many "healed" are spectacular, in that all appear to claim to be suddenly pain-free, the long-term results may be questionable. Whereas Christian healing allegedly comes from a saint or from God, either as Father, Son or Holy Ghost, it is not unique. Spiritual, prayer-based healing is universal and appears to arise in all religions. "It occurs with regularity in Eastern and Western belief systems as well as in more nature or spirit-based practices. It appears that the unifying principles — love, compassion, a sense of oneness and empathy — transcend dogmas or religious boundaries" (Phalen, 1998, p. 168). A typical explanation of Christian healing is provided by Peter McCall and Maryanne Lacy (cited in Phalen, 1998), co-founders of the House of Peace in the Bronx:

> As Christians in a healing ministry for more than sixteen years, we know that it is the power of Jesus Christ working through us that heals. We do not claim that any power of our own heals, but we have seen and experienced too many healings in our ministry to doubt that the power is there. (p. 168)

Phalen claims that in the past few years, hundreds of clinical studies have detailed the therapeutic effects of prayerful distant healing. Psychologist William Braud (cited in Phalen, 1998) claims that the physiological functions of living organisms were influenced even when the receiver of the prayerfulness was unaware of the activity. Also, "all of the healing situations involved prayerfulness, or feelings of compassion, genuine caring, love, or empathy with the receiver" (p. 169).

Certain spiritual healing practices of Australian Aborigines were detailed in the previous chapter. The North American Indians were also involved in "spiritual" healing. Black Elk (cited in Phalen, 1998) of the Oglala Sioux claims:

> Of course it was not I who cured. It was power from the outer world, and the visions and ceremonies had only made me like a hole through which the power could come to the two-leggeds. If I thought that I was doing it myself, the hole would close up and no power would come through it. (p. 171)

In 1966, psychologist Larry Le Shan classified two types of spiritual healers. A Type 1 healer "seeks to become one with the patient, so that when the healer enters a prayerful state, the two become as one with God or the universe" (cited in Phalen, 1998, p.171). Type 1 healers do not try to bring about any change and do not require physical contact. Conversely, Type 2 healers work closely with the patient, and many patients and healers have reported experiencing warm healing energy flowing through the healer's hands. Whereas some Type 2 healers apparently believe that, like Chinese qi gong practitioners, they personally generate the healing power, others merely see themselves as vehicles for healing.

A *healer* is "one who works with sensitivity and craft to encourage a deep healing process" (Bratman, 1997, p. 23). Bratman continues to explain that biomedical practitioners rarely function in this way because, by applying standardised protocols and awaiting "the arrival of defined checkpoints, hope for the best. Modern medicine allows little leeway for craft, artistry, or intuition" (p. 23). Biomedical practitioners are primarily intelligent technicians who could, to some extent, be replaced by computers. One of Bratman's medical school instructors had stated that: "Our objective is to get the hunches out of medicine. We need to know exactly what we're doing, rather than rely on our feelings" (p. 23). Conversely, healers use "feel" and intuition in their work. "Subjective sensations and experiences are just as important to them as are objective facts" (p. 23). For example, advanced bodyworkers "learn to think with their fingers, understanding nuances of touch that could never be put into words. This type of skill is vanishing from scientific medicine" (p. 23). Further, the linear, scientific methods of biomedical practitioners cannot always create healing techniques to match the depth and

subtlety of natural medicine. Consequently, biomedical practitioners could scarcely comprehend services provided by mature practitioners of, for example, acupuncture, cranial osteopathy, or the Feldenkrais method.

Christine Northrup, MD (cited in Phalen, 1998), further describes the healing process: "Healing is the filling-in of the hidden areas of a person's life that are leading that person away from their full experience of health. So healing involves bringing these areas into consciousness and transforming them" (p. 173).

Micozzi (2001, p. 315) states that in Traditional Chinese Medicine (TCM) spirit is involved with qi and essence to produce the *three treasures.* Whereas essence is considered to be a gift from the parents, spirit is the gift from heaven. Spirit is represented by the alert and radiant aspect of human life, and is observed in the lustre of the eyes and face and in the capacity to think and respond appropriately to the world. Spirit, or *shen* is linked to the health of the body and the mind, which are connected, and encompasses consciousness and mental and physical function. If spirit is found to be diminished, it may be promoted by Chinese medicine treatments such as acupuncture, herbs, tai qi and qi gong.

8.4.6 Detoxification

In chapter 3, this study discussed ancient Egyptian concerns about internal putrefaction, and regular cleansing treatments which included emetics and enemas. These concerns evolved to beliefs that much illness was caused by toxic pollution from unhealthy lifestyle habits and the environment. These theories were "far ahead of their time, anticipating many of the concerns of the modern environmental sciences" (Bratman, 1997, p. 62). Worries about toxicity influenced the evolution of a global philosophy of illness. Illnesses were seen to be caused by toxins stored in body fat, which could be released by fat reduction. As well as direct environmental toxicity, internal putrefaction and poisoning were caused by substances including meat, fermented food and coffee. John Harvey Kellogg (cited in Bratman, 1997) theorised that constipation caused "auto-intoxication" and many illnesses (p. 62).

Concerns about toxicity were such that it was regarded almost as the physical equivalent of evil. Purgative practices to detoxify the body emerged, including:

> flushing the kidneys by drinking copious amounts of water, inducing the liver to release toxic buildup by means of the 'liver flush' and coffee enemas, causing the skin to sweat poisons by means of juice fasts and saunas, and emptying the colon through high enemas and lower-bowel tonics. (Bratman 1997, pp. 62–63)

Woodham and Peters (1998) detail some of the natural medicine processes involved in detoxification. These include polarity therapy (pp. 102–103) which uses dietary prescription, special yoga exercises, and its liver flush and tea which cleanse the liver, kidneys and intestine; naturopathy (pp. 120–121, 152) which uses catabolic processes that may include fasting, lymphatic pumping to assist the expulsion of toxins, cold compresses to promote sweating, and nutritional approaches including diets of fruit, raw vegetables, water and yoghurt to eliminate toxins caused by poor excretion of waste products, poor digestion, or environmental toxicity; and ayurveda (pp. 144–147) which uses diet, herbal remedies, yoga, massage and meditation to purge *ama* through sweat, urine and faeces.

Liver detoxification, like gastrointestinal detoxification, requires removal of "sources of allogens, chemicals, and toxins (including toxic fats) from the diet, and to adopt the Immune Empowering Diet, including plenty of fibre to help escort toxins out of the gut" (Bock & Sabin, 1997, p. 286). Also, some individuals benefit from elimination diets and, in extreme cases, a nutrient-rich liquid diet. Bock and Sabin further state that liver function may be enhanced by botanicals such as dandelion root, tumeric, artichoke leaves, catechin, barberry, yarrow flower and milk thistle (p. 287).

Because natural nedicine treatments are holistic and vitalistic they may all assist processes of detoxification, digestion and immunity.

8.4.7 Digestion

Effective digestive processes are crucial to the natural medicine paradigmatic concept of good health, including the maintenance of general physical and emotional well-being. Digestion is "the process that breaks down food into a form that can be absorbed into the bloodstream, so that the body can use it for energy and to build and repair tissues" (Woodham & Peters, 1998, p. 230). Digestion begins with the action of saliva on food in the mouth, and continues in the stomach and the small intestine where most activity occurs. Further, disorders of the digestive system may arise from several causes including inappropriate food, emotional disturbances, inherited problems, allergies and infections.

Many diseases are believed to be caused by inadequate digestion or by incomplete nutrient absorption (Bratman, 1997, p. 64). In response, natural medicine practitioners may use "large" doses of vitamins and minerals; "proper" food combining; and supplements such as bromelain, betaine hydrochloride, apple cider vinegar, pancreatic enzymes, and herbal bitters. Although some biomedical interventions involving drugs and surgery can be life-saving for some advanced gut problems, they are less effective for problems caused by stress (Woodham & Peters, 1998, p. 230). However, natural medicine treatment seeks to identify and eliminate foods that irritate the digestive tract, to enhance the elimination of waste products, to support the liver, to cleanse the colon and to restore natural levels of the gut's beneficial bacteria.

The overuse of antibiotics as anti-microbial therapy has resulted in antibiotic-associated diarrhoea occurring in 29% of all hospital admissions, and a 300% increased risk of mortality (Elmer, 1996, p. 871). Consequently, Bock and Sabin (1997, pp. 279–282) adopt an integrated medicine approach to their prescription of antibiotics. To offset the dysregulating effects of antibiotics, they prescribe probiotics, prebiotics, herbs, *S. boulardii, Lactobaccillus acidophilus,* and bifidobacteria.

Woodham and Peters (1998, pp. 230–239) detail a wide range of digestive diseases that may be effectively treated by natural medicine practices. Further, the natural medicine

practices that may be used to treat these diseases include naturopathy, herbal medicine, nutritional therapies, aromatherapy, hypnotherapy, relaxation and breathing, psychotherapy and counselling, orthomolecular therapy, stress management, massage, homeopathy, autogenic training, biofeedback, osteopathy, chiropractic, yoga, other Indian ayurvedic systems, and the TCM systems (particularly acupuncture, acupressure, herbal medicine, qi gong and massage). Clearly the practices are too numerous and diverse to be fully detailed in this study.

8.4.8 Immune System

The immune system is a "collection of systems by which the body defends itself from infection" (Bratman, 1997, p. 65), and is little understood by modern science. Naturopathic methods to increase immunity and prevent colds and other infections, or reduce their symptoms, include herbs such as Echinacea, ginseng and astragalus, supplements such as vitamin C and whole thymus extract.

Woodham and Peters (1998, p. 308) claim that natural medicine practitioners generally believe that a correctly functioning immune system requires the harmonious interaction of the brain, the nervous system and the endocrine glands. Also, the effectiveness of the immune system may be enhanced by a healthy lifestyle, including a well-balanced diet, adequate sleep and exercise, and positive thinking; by touch and movement therapies which improve the flow of lymph, vital to healthy immune function; by herbal remedies and nutritional supplements; and (as thoughts and feelings influence immune processes), by mind therapies, which may be beneficial for long-standing conditions.

The 6000 synthetic chemicals "officially condoned for use in the processed-food industry, including some that are known to have carcinogenic properties ... are putting great stress on the immune system" (Reid, 1993, p. 123) as it fights to remove them from the body. Eventually the immune system may break down, "leaving the body vulnerable to attack by microbes, toxins and cancerous cells" (p. 124).

The overuse and misuse of antibiotics are also having a detrimental effect on the immune system (Bock & Sabin, 1997, p. 279–283). These authors also prescribe nutritional supplements and sometimes intravenous vitamin C to provide a "boost" to the immune system.

Natural medicine practices may be effective in treating immune system diseases such as "depleted immune system", glandular fever, chronic fatigue system and AIDS (Woodham & Peters, 1998, pp. 308–313). Natural Medicine practices that may be used include naturopathy, homeopathy, herbalism, nutritional therapies, massage, clinical ecology, psychotherapy and counselling, meditation, acupuncture, qi gong, hydrotherapy, ozone therapy, mind and emotional therapies, relaxation and breathing, diaphragmatic breathing, visualisation, hypnotherapy, autogenic training, yoga, hydrotherapy, ayurveda, Bach flower remedies, relaxation exercises, biofeedback, aromatherapy, the Feldenkrais method, the Alexander technique and tai qi.

Reid (1994) explains how the TCM concept of the emotions can affect physiological functioning. Emotional responses move from the mind to the body's meridian system as a form of energy, and like "all forms of human energy, emotions exert profound physiological effects on the internal organs, glands, and other tissues to which they travel through the energy channels" (p. 77). Once moving, that energy takes on a life of its own. In the Chinese tradition, extreme emotional responses are one of the primary internal causes of disease, and emotional and metabolic disorders can form a dangerous cycle of self-sustaining disease. For example, frequent extreme anger will damage the function of its associated organ, the *gan* (the Chinese liver meridian system). The damaged liver function will produce various symptoms including "irritability and short temper, which in turn predisposes a person to even more frequent outbursts of anger, thereby further damaging the liver and establishing an increasingly pernicious psycho-physiological cycle of disease and debility" (p. 78). The damaged liver function would also diminish immunity. From the Chinese perspective, whereas pharmaceutical drugs will probably not totally solve the immunity problem, acupuncture, herbs and massage

will restore harmony to energy flow, the anger will dissipate, and immunity may be restored.

As mentioned earlier, because Natural Medicine treatments are holistic and vitalistic they may all enhance immunity. It is the effectiveness of the immunity that protects against disease.

8.4.9 Naturopathy and Scientific Influences

This study has shown that natural medicine has been practiced from prehistory, and that the movement that spawned naturopathy influenced European and US practices. This movement probably commenced with Jean Jacques Rousseau (1712–1778), who popularised "back-to-nature" ideals, as he compared the filth of newly industrialised cities with the ideals of nature. Many early advocates of this "nature cure" lived in Germany:

> At a time when medical doctors were poisoning their patients with mercury and bleeding them to death, doctors such as Vincent Preissnitz (1799–1851) advocated curing patients by taking them on walks into the woods, meadows and along wild rivers. Other German "nature doctors" emphasized fasting, simple diet, and the healing powers of fresh air and sunlight. Father Sebastian Knight (1821–1897) recommended "taking the water-cure" in natural hot springs. (Bratman, 1997, p. 60)

Bratman (1997, p. 67) states that naturopathy originally evolved more as a spiritual philosophy than as a scientific endeavour. Its major belief was that true healing required a return to balanced natural ways of living; that is, nature cure. Porter (1997, pp. 393–396) claims that naturopathic beliefs were also influenced by Americans such as Thompson, with his Thompsonian system of herbalism; Sylvester Graham (of "Graham cracker" fame) who co-founded the Hygienic movement, which advocated vegetarianism and the use of whole grains; and John Harvey Kellogg (the brother of Kellogg's cereal founder) who stressed the dangers of constipation. These practitioners "regarded conventional medicine as the enemy of health" because it sought to "improve on nature" by artificial means — processes which they saw as "fundamentally wrongheaded" (Bratman, 1997, p. 61). Biomedical science sought to improve on nature through science and technology, and regarded chemicals and the developing science of

biochemistry as crucial to its evolution. However, naturopaths opposed the use of chemicals and even proposed the radical concept that the use of chemicals in agriculture could cause cancer in humans (p. 61).

Bratman (1997) states that in the US in the 1950s, as the social and political powers of science increased, those of naturopathy declined. The AMA bullied naturopathy out of the public arena in a systematic McCarthyist, anti-Communist-type campaign of persecution. Being "unscientific" was condemned as being "un-American" (pp. 61–66).

The tide, however, would eventually turn, and naturopathy, in the US at least, was to be re-born as a more scientific nutritional medicine (Bratman, 1997, pp. 66–69). An explosion of public interest and usage of vitamins and other food supplements followed publications such as Adelle Davis's nutritional contributions and Linus Pauling's *Vitamin C and the Common Cold* (1970). Such publications would change the landscape of naturopathy: diet, vitamin and herbal therapy and biochemical research became dominant influences. As fasting and dietary advice on raw foods have declined, naturopaths continue to promote low-fat, high-fibre, semi-vegetarian diets, as do many biomedical practitioners. Naturopathy has become increasingly involved in "biochemistry, scientific research, and treatments that come in pills" (Bratman, 1997, p. 60), and next to biomedicine, "modern naturopathic medicine is the most scientific of all approaches to healing" (p. 60). However, even though the scientific transformation of naturopathy has eliminated its "nature cure" influences, the transformation is not yet complete because "the science acceptable to naturopathic practitioners tends to be less solid than what conventional practitioners require" (p. 68). Bratman says:

> For good or ill, naturopathy is increasingly becoming yet another branch of the Western scientific tradition. It remains to be discovered where naturopathy will go in the future. It may become absorbed into conventional medicine, as that department dedicated to the study of food and plant-based methods of treatments. Or perhaps the tide will turn again, in yet another surge of the back-to-nature impulse (p. 69).

The move by naturopathy towards science has not pleased older practitioners "whose interest in naturopathy developed under the influence of the 1960s, a time when the

original principles of naturopathy were being rediscovered and further expanded into the ecology movement" (Bratman, 1997, p. 69). With the growth of vitamin therapy these practitioners recoiled, as they believed that people did not need more pills, or new scientifically approved diets, but a way of life that was closer to nature. He claims that some naturopathic practitioners consider the "scientificization" of naturopathy as a kind of sell-out (p. 60).

As the naturopathy professions in Australia and the UK did not suffer the 1950s US-style repressions, it appears that there was no need for US-style paradigm shifts that adopted biomedical scientific theories and reshaped practices. Most naturopaths in Australia and the UK appear to have continued to believe in the healing power of nature and the benefits of "nature cure". They continued to offer holistic, vitalistic services. However, as mentioned earlier, some practitioners have followed the US path towards science. Powell (2003) claims that sections of the Australian natural medicine movement are concerned that the "imposition" of government natural medicine practitioner registration, or a new integrated model of medicine, may force changes on natural medicine practice, particularly if natural medicine practitioners are required to work under the direction of biomedical practitioners. Powell is also concerned that the relatively recent interest in natural medicine by Australian universities may lead to this education eventually being offered only in biomedical faculties, and dominated by that influence (p. 10).

8.5 Integrated Medicine

The purpose of this part of the study is to seek to produce a new Medical Integration Theory which will determine ways to bridge the divide between the natural medicine and biomedicine paradigms, and provide for a truly integrated healthcare model based on mutual recognition and respect. This will involve an examination of global natural medicine usage, examples of existing integrated medical models, and the importance of the consumer in the medical market.

Diamond (2001) states that:

> integrated medicine is the holistic practice of medicine in which the patient, not the disease, is placed at the centre of the healing process; the disease is defined by both the patient and the doctor; the patient is assessed as a spiritual, emotional-mental, and physical being; and all modalities of healing are appropriately integrated to produce, not just a medical cure, but a deeper healing of the patient on his or her own terms. (p. 5)

8.5.1 Natural Medicine Usage

The sheer volume of usage of natural medicine services and remedies, with its implicit widespread support in democratic societies, has influenced politicians, and therefore governments, to reconsider their attitudes to these practices. For example, C. Everett Koop (1996), former surgeon general of the US, claims that 80% of the world's population rely on natural medicine for their primary medical care (p. xi). Also, the UK House of Lords Select Committee on CAM (House of Lords, 2000) investigated the usage of CAM and integrated medicine in the UK, the US and elsewhere. The House of Lords (2000, pp. 3–4) found that in the UK in 1999, there were 50,000 natural medicine practitioners; there were 10,000 registered biomedical practitioners who practiced some form of natural medicine; 5 million people used natural medicine; 1.6 billion pounds was spent on natural medicine; and 23.8% of survey respondents claimed to have used natural medicine services or remedies in the previous 12 months.

MacLennan, Wilson and Taylor (2002, pp. 166–171) state that in Australia, 52.1% of those surveyed in the year 2000 used non-physician-prescribed natural medicine remedies; female usage of natural medicine remedies increased from 54.8% in 1993 to 60% in 2000; of those surveyed, 23.3%, including 20.1% of men and 26.4% of women, had consulted a natural medicine practitioner; female consultations with natural medicine practitioners increased from 20.9% in 1993 to 26.4% in 2000; from 1993 to 2000, consultations with all forms of natural medicine practice increased; in 2000, natural medicine consultations were used significantly more by middle aged (35–54 years) women who were Australian born, higher educated, employed and married; from 1993 to 2000, the annual median cost for natural medicine remedies rose from $A120 to $A228, and for natural medicine consultations from $A120 to $A175; from 1993 to

2000, total expenditure for natural medicine remedies rose from $A621 million to $A1671 million, and for natural medicine consultations from $A309 million to $A616 million. After adjusting for inflation, since 1993, expenditure for natural medicine remedies has increased by 120%, and for Natural Medicine consultations by 62%. Total expenditure on natural medicine consultations and remedies more than doubled from 1993 to 2000 to $A2.3 billion. This may be compared with $A3.45 billion expended by government in 2001 for the Australian Pharmaceutical Benefits Scheme, and $A688 million which was paid in patient contributions for pharmaceuticals. Although in 1993 almost twice as much was spent on natural medicine as was spent on patient contributions to pharmaceutical drugs, by 2000 the ratio had increased to four times. Similar increases in natural medicine usage and expenditure have occurred in the US and the UK.

Eisenberg, Davis and Utter (1999, cited in House of Lords, 2000, pp. 5–6) conducted two national telephone surveys in the US in 1990 and 1997 which found that natural medicine was used mainly for chronic conditions such as back pain, allergies, anxiety, depression and headaches; visits to natural medicine practitioners increased from 427 million in 1990 to 629 million in 1997, or by 47.3%; that there were more visits to natural medicine practitioners than to biomedicine practitioners; out of pocket expenses for natural medicine treatments were estimated at $US27 billion in 1997; and 42.1% of survey respondents claimed to have used natural medicine services in the previous 12 months.

Astin (cited in House of Lords, 2000) conducted a postal survey in the US in 1998 to determine why people use natural medicine, and concluded that the most significant predictor of natural medicine usage was higher education status; the next most significant predictor was overall health status; chronic health problems such as back problems, anxiety, urinary tract problems and chronic pain were also significant predictors; other significant predictors included being "culturally creative", having a holistic philosophical approach to life, and having had a "transformational experience". Austin concluded that dissatisfaction with biomedicine was not a major factor leading to

natural medicine use, and that users found natural medicine to be "more congruent with their own values, beliefs and philosophical orientations towards health and life" (p. 6).

Ernst and White (cited in House of Lords, 2000, p. 6) conducted the British Broadcasting Commission (BBC) survey which found that the reasons presented for usage of natural medicine in the UK were: helps to relieve injury/condition; just like it; find it relaxing; good health/well-being generally; preventive measure; do not believe conventional medicine works; doctor's recommendations/referral; to find out about other ways of life/new things; way of life/part of lifestyle; and cannot get treatment on NHS/ under conventional medicine.

The House of Lords (2000) also found evidence which suggested that reasons for natural medicine use have to do neither with patient satisfaction with natural medicine, nor with patient dissatisfaction with biomedicine. Current popularity is dictated by fashion, influenced by media exposure; cultural change, with a renewed interest in the paranormal, such as astrology; an increased number of the "worried well", caused by societal anxiety about health; and society's flight from science (pp. 6–7).

The use of natural medicine internationally is also notable. The World Health Organization (WHO, 2002, p. 1) states that natural medicine is used in Africa by 80% of the population; in China it accounts for 40% of all health care delivered; and it is also popular in Asia and Latin America. Natural medicine is becoming increasingly popular in developed countries (pp. 1–2). Those who have used natural medicine at least once represent 48% of the population in Australia, 70% in Canada, 42% in the US, 38% in Belgium, and 75% in France. Estimated expenditure on natural medicine in Malaysia is US$500 million compared with about US$300 million on biomedicine. In the US, the total 1997 out-of-pocket natural medicine expenditure was estimated at US$2700 million. In Canada and the UK, annual natural medicine expenditure is estimated at US$2400 million and US$2300 million respectively.

In developing countries, natural medicine usage is influenced by the availability of practitioners (WHO, 2002, p. 2). For example in Uganda, whereas there is one biomedical practitioner for each 20,000 citizens, there is one natural medicine practitioner for from 200 to 400 citizens. Also, costs of biomedicine remedies are usually prohibitive in many developing countries.

8.5.2 Integrated Medicine – WHO and the UK

One of the roles of the World Health Organization (WHO, 2002, p. 5) is to facilitate the integration of Natural Medicine into national health care systems, by assisting Member States to develop their own national natural medicine policies and programmes. This role has led the WHO (2002, pp. 8–9) to define three types of health systems, which describe the degree to which natural medicine is an officially recognised element of health care. First is the integrative system where natural medicine is officially recognised by the government and incorporated into all areas of health care provision, meaning that natural medicine is included in the national drug policy, natural medicine providers and products are registered and regulated, natural medicine therapies are available at public and private hospitals and clinics, natural medicine treatment costs are reimbursed by health insurance, relevant natural medicine research is undertaken and university level natural medicine education is available. From this definition, only China, Viet Nam, and North and South Korea appear to have integrated systems. Second, the inclusive system is one where the government recognises natural medicine, but it is not yet fully integrated into the health care system in all areas (as mentioned immediately above). The WHO expects that countries operating an inclusive system will eventually attain an integrative system. Third, the tolerant system is one based on corporatised biomedicine, but some natural medicine practices are tolerated by law.

The WHO (2002, p. 10) lists, amongst others, Australia, the US, the UK, Canada, India and Japan as examples of countries with inclusive approaches to natural medicine. To become "integrative", Australia apparently needs to develop a national policy on natural medicine, create more natural medicine units within health bureaucracies, fully integrate natural medicine practices in clinics and hospitals, increase health insurance coverage

for natural medicine treatment and products and incorporate university level natural medicine education into biomedicine education for biomedical practitioners, pharmacists and nurses.

In the UK, the House of Lords (2000) reports that the Foundation for Integrated Medicine was formed at the personal initiative of its current president, HRH The Prince of Wales. It aims to encourage greater collaboration between all forms of healthcare, and promote the development and integrated delivery of safe, effective and efficient practices. Its objective is to "enable individuals to promote, restore and maintain health and well-being through integrating the approaches of orthodox, complementary and alternative therapies" (p. 9).

The House of Lords (2000, pp. 2–3) reported that Dr David Peters of the Marlebone Health Centre recommended six stages of integrating natural medicine into "general practice". First, that biomedicine practice be reviewed to identify needs that are being poorly met; second, that available natural medicine resources be assessed for their relevance, their evidence base and the feasibility of integration; third, that the design of the service include information as to how biomedical practitioners will use the service, its aims, and how the natural medicine practitioners will be integrated into the primary care team; fourth, that service delivery be supported by the development of referral procedures and resource monitoring; fifth, that management services include quality assurance procedures and the evaluation of outcomes; and sixth, that the service be modified in response to experience.

It was also reported that the design of an NHS-funded integrated healthcare service required the crucial decision as to when biomedical practitioners should consider a natural medicine referral (House of Lords, 2000, p. 3). At the Marlebone Health Centre, biomedical practitioners refer to natural medicine practitioners under three circumstances: for conditions where evidence of treatment efficacy exists, if the GP wants to refer, and if the natural medicine practitioners believe they can help. The Marlebone Health Centre has developed a list of conditions that they commonly

consider for natural medicine referral, including complex chronic illnesses such as chronic fatigue syndrome, stress-related conditions, asthma, irritable bowel syndrome, eczema and non-specific allergies, back pain and migraine. The biomedical practitioners consider a referral only following the diagnosis of one of their predetermined "listed" diseases, and if one of the following criteria applies: (a) biomedical treatment has failed, (b) the patient is suffering side-effects from the biomedical treatment, (c) the patient requests natural medicine treatment because of (a) or (b), and (d) the biomedical practitioner determines that the case is complex and that natural medicine may help — a determination that must be confirmed by the natural medicine practitioner.

The House of Lords (2000, p. 3) also commented on the integrated practices at the Southampton Centre for the Study of Complementary Medicine, which offers an NHS-funded contract with the Dorset Area Health Authority. The integrated medicine unit operates for 1 day each month at a private biomedicine clinic in Dorset. Local biomedical practitioners may refer patients for up to six natural medicine treatments providing they have one of six specific conditions: chronic fatigue syndrome, irritable bowel syndrome, migraine, child behavioural problems, eczema and non-specific allergy. Approximately 600 consultations occurred in the previous year. The service is popular with biomedical practitioners "especially as a way of dealing with patients who are 'difficult' and whom they have been unable to help" (p. 3). This Southampton referral system is easy to administer: the six natural medicine treatments for the specific condition require a referral letter from the biomedical practitioner, who in turn receives a letter of progress; the six treatments may be extended by the Health Authority if the referring biomedical practitioner seeks permission. The Southampton Centre fully informs referring biomedical practitioners about progress and treatment.

It was also concluded that the Marlebone and Southampton integrated healthcare projects are of benefit to biomedical practitioners and patients, and "provide evidence that there is a place for CAM in primary care, especially in the treatment of chronic conditions with which GP's often struggle to help their patients" (pp. 3–4). Another recommendation was that natural medicine practitioners should also work towards

integration with biomedicine practice, and encourage their patients to consult biomedical practitioners for all conditions.

The UK experiences of integration at Marlebone and Southampton appear to be controlled by biomedical practitioners who exercise most of the power in the relationships. The role of the natural medicine practitioner appears to be one of subservience to the whim of the biomedical practitioner. To ensure future referrals, the natural medicine practitioner would be conscious of the need not to alienate the biomedical practitioner in any way. Also, these examples of integration appear to be minimalist. For example, the 600 NHS-funded annual consultations at the Southampton Centre represent only 50 treatments each month. This may be compared with the 2000 price-discounted natural medicine treatments each week at the ACNM Australian campuses. Also, it is unusual in Australian natural medicine practice to see clients only monthly, and for only six treatments — especially for chronic conditions, perhaps decades old. Some practices may require up to three or more treatments each week for the first few weeks, reducing to twice weekly, then weekly, fortnightly and monthly. Further, the above recommendation of the House of Lords (2000, p. 4) that natural medicine practitioners should work towards integration with biomedicine practice, and encourage their patients to consult biomedical practitioners for all conditions, continues the biomedical dominance theme.

The aim of this study is to produce a model of an integrated healthcare system that is based on mutual recognition and respect. As this will require the inclusion of power sharing arrangements acceptable to all participants, the examples of the UK model described above appear to fail that requirement.

The WHO requirement of incorporating natural medicine education into biomedical education appears to be supported by the UK model. The House of Lords (2000) reports that Biomedicine "allows any therapy proven to be effective to be subsumed into the medical curriculum" (p. 6) regardless of philosophy. Spencer (1999, pp. 29–32) states that 63 medical schools in the US now offer elective courses in natural medicine, and

that one benefit could be that on entering practice the recipients may refer patients for natural medicine treatment while continuing biomedicine treatment. Spencer suggests that because of restrictions on time and funding, most CAM education in biomedical courses will probably remain elective. However, natural medicine purists such as Powell (2003) claim that because of restrictions of time in biomedical courses and professional practice, such education "could repackage natural medicine practice as adjunct biomedical symptomatic treatment — the 'cook-book' approach despised by natural medicine practitioners for decades" (p. 11). Obviously, the content and experiences of a 4-year full-time natural medicine degree programme cannot be compressed into a week, a month or even a semester of a biomedical degree. Also, there would probably be no time for full, or possibly any, comprehension of natural medicine concepts such as homeostasis, holism, vitalism, the mind–body connection, spirit, or the immune system. Such education would therefore not be "natural medicine".

As previously mentioned, the objective of the Foundation for Integrated Medicine is to "enable individuals to promote, restore and maintain health and well-being through integrating the approaches of orthodox, complementary and alternative therapies" (House of Lords, 2000, p. 9). If the word "individuals" is meant to apply to members of the general public, rather than practitioners or medical bureaucrats, then the power of integration processes appears to be meant to rest with the "individual" who may choose to use any available medical system or combination of systems — not unlike the general reality in most societies where individuals have the right to choose. Even in China's integrated medical system, on arriving at a major hospital for most treatments an individual has the right to choose either the TCM or the biomedicine system for primary treatment (Powell, 2003, p. 7). If required, both systems are available in combination through an integrated operational model.

From this perspective, the objective of the Foundation for Integrated Medicine appears to be at variance with the reality of the examples of UK medical integration at Marlebone and Southampton, where all power appears to be exercised by biomedical practitioners. It could even be argued that whereas the perceived object of integrated

medicine is to maximise access to best medical practice through individual choice, the reality at Marlebone and Southampton appears to produce an opposite effect. Natural medicine options appear to be limited to the whim or knowledge of the biomedical practitioners — options that would probably be far less than those available in general society. In this way, in relation to clients of these UK examples of integrated medicine, it appears that the power of biomedical practitioners is enhanced, the power and choice of clients is reduced, the power of natural medicine practitioners is reduced, the availability of natural medicine services is reduced and the quality of the natural medicine services offered within the integrated systems may be compromised. It appears to be a modern example of the "doctor knows best mantra of corporatised medicine" (Powell, 2003, p.11), which, if applied nationwide would generate a "Flexner-type" effect of reduction of practice opportunities for natural medicine practitioners.

8.5.3 US Postmodern Integrated Medicine – the Dacher Model

Elliott Dacher (2001) claims that the present is a time of "a gap in history between two sets of values" (p. 57). The gap is represented by declining beliefs in modernism, which may be represented by "disillusionment with the limitations and excesses of biomedicine", and the new postmodern world view which may be seen in "efforts to revitalize our approach to health and healing" (p. 57).

Dacher (2001) explains that the physician–patient relationship ought to emphasise "mutuality, empathy, compassion, caring, authenticity, integrity, and trust" (p. 62) rather than merely focusing on standard diagnostic and therapeutic activity. This requires a shift in emphasis from data collection to a partnership of human interaction, from disease centred practice to person centred practice, which could enhance the potential healing force of the quality "healer–healee" relationship. However, this would require practitioners to expand their world view to incorporate "both a reductionistic and integrated view of the individual, a perspective that is both analytic and synthetic at the same time" (p. 62). Although reductionist thought may require the physician to view the body as a closed mechanical system, the integrated perspective "affirms an individual's

wholeness, integrity, uniqueness, complexity, and sense of coherence, allowing for empathetic understanding" (pp. 62–63).

Because the homeostatic system is often maladapted to the changing lifestyles, practices and environments of modern humans, Dacher (2001, pp. 65–66) believes that "treatment" models — such as provided by biomedicine and natural medicine practices — have been designed to be used when homeostasis has failed to restore normal function.

Dacher (2001) proposes that four healing systems — homeostasis, treatment, mind–body healing and spiritual healing — may be viewed as a new integrated comprehensive system. By the application of systems theory, Dacher claims, the adversarial distinction between biomedicine and natural medicine therapies is eliminated as their intent, usefulness and mechanisms are assigned to one of those four healing systems. Consequently, reductionist and holistic thinking and biomedicine and natural medicine practices "are each seen as essential components of a comprehensive intellectual process and a unified approach to health and healing" (p. 68). This raises the question as to whether healing may be solely an intellectual process.

Biomedical practice usually involves an interview with a patient about a presenting symptom, and a reductionist focus on a particular associated system. Dacher (2001, p. 68) proposes a new initial level of triage to determine which one or more of the healing systems — homeostatic, treatment, mind–body, or spiritual — may be applicable. Further, the triage decision is followed by an interview related to the particular healing system(s) that has been selected. If the practitioner determines that treatment offers the best approach through biomedicine practice, the usual biomedical review of systems ensues. If other approaches are selected, their specific approach-based interviews and inquiries proceed — presumably with the same practitioner.

Dacher (2001, pp. 68–69) explains that the interview results in a comprehensive plan, agreed to by the patient, which will apply the appropriate range of resources from each

of the selected healing systems. For example, the initial triage for an individual presenting with symptoms of atherosclerotic heart disease may suggest that, at least, consideration be given to the homeostatic, treatment, and mind–body healing systems. Later, possibly over weeks, it will be determined whether the individual is amenable to considering the spiritual perspectives of this disease. The comprehensive plan would include a mixture of approaches: the homeostatic system would aim to support its normal operations; the treatment system would involve the use of appropriate diagnostic and therapeutic interventions to restore function; the mind–body system would involve attitudinal and lifestyle changes in the areas of stress management, nutrition, exercise, and insight-based psychological counselling; and the spiritual system would involve ongoing consideration of the impact of the illness on previously held values, beliefs, and priorities in order to attain a more whole and balanced life.

Dacher further claims that as this proposed model has profound implications for practitioners and patients, primary care practitioners must be provided with knowledge and perspectives that are largely absent from current biomedical education, but appear to be present in quality natural medicine education. The success of the Dacher model apparently relies on the re-education and then the clinical success of primary care practitioners as they adopt opposing biomedical reductionist and natural medicine holistic–vitalist perspectives of their patients. Dacher describes broad educational outcomes for this re-education: to provide knowledge of the dynamics of each of the four healing systems; to provide "an understanding of the principles, concepts, and structural issues that underlie a comprehensive approach to healing ... [to develop] an understanding of each of the essential aspects of healing complemented by a strong emphasis on integrative studies" (p. 69); to emphasise principles of structure and organisation, and promote "a value system that emphasizes synthesis and wholeness" (p. 69). These educational outcomes suggest that graduates of the re-education will have a working knowledge of all natural medicine practices; comprehend most natural medicine philosophy, theory and belief; be able to apply concepts of holism and vitalism; and be committed to "a lifetime process of personal development that parallels the process of professional development" (p. 70).

There appear to be a number of problems with the Dacher model. Contrary to natural medicine theory and practice Dacher (2001) proposes that mind-body healing and spiritual healing are somehow differentiated from "treatment" (pp. 67–68), thus possibly ignoring principles of holism and vitalism. However, this could be explained by Dacher's stated involvements with "mind" sciences. Further, the model appears to give little attention to the difficulties practitioners will experience as they adopt both reductionist and holistic–vitalist perspectives of the individual. Also, Dacher's proposal that "dialogue can be initiated, which is directed toward seeking an understanding of the meaning, purpose, significance, and implications of this disease for the individual's life" (p. 69), implies practitioner knowledge, skill and intuition that are usually acquired over years, and consolidated over decades.

Experience in Australian natural medicine education suggests that it is possible to attain a superficial, theoretical, non-clinical understanding of the educational outcomes mentioned above with about 40 hours of face-to-face contact. However, clinical application requires detailed working knowledge and skill that can be achieved only by a variety of activities and experiences involving thousands, rather than hundreds of hours, accumulated over years. Without such comprehensive training even biomedical practitioners will be incapable of consistent safe and efficacious natural medicine practice. Also, the use of the term "complementary medicine" by Dacher and some other US writers suggests that natural medicine comprises a range of therapies that may easily be learned and practiced by biomedical practitioners to complement their medical practice and to meet community demand. Also, contrary to quality natural medicine educational practice, the process of learning appears to be solely intellectual.

The Dacher theoretical model of integrated medicine, although its intentions may be otherwise, seems to be designed for specific use by biomedical practitioners in the US. It is unclear whether it is intended that all of the natural medicine practices that may be used are to be provided by those practitioners. However, it appears that biomedical practitioners will be empowered to decide which natural medicine practices are to be

used, and when. For that reason, all of the criticisms of the UK and WHO models in relation to the power and choice apply equally here.

The suggestion by Dacher – that rigorous system-based research methodology will determine whether a particular medical practice may be used in this model — could further limit the availability of safe and efficacious natural medicine practices through use of inappropriate research methodology. Also, as "only 30 per cent of what biomedicine achieves has been tested adequately [it appears] that a great deal of the argument over which systems are modal or alternative is really an argument over cultural turf [and therefore] are political, not scientific acts" (Cassidy, 2001, pp. 38–39).

8.6 Consumer and Marketplace Variables

Jacobs (1999) states that the emergence of natural medicine as a social phenomenon is a paradigm shift in medicine, and is indicative of a changing medical market. Also, health consumers are "armed with unprecedented access to information from numerous venues — self-help books, the Internet, seminars, and word of mouth — and are being more 'empowered' to take control of their health care destinies" (p. 411). Further, the divide in the doctor–patient relationship is widened by uninformed criticisms of natural medicine practices by biomedicine practitioners, particularly when informed clients find those practices interesting and believe in their safety and efficacy. This widening of the division in the doctor–patient relationship causes the client to come "out of the transactional relationship feeling relatively powerless to have any control over his or her own delivery of care" (p. 411). Therefore, the decision to turn to natural medicine practice "is a predictable and overt expression of empowerment — the ability to choose one's own healing paradigm despite what the physician might suggest" (p. 412). Consequently, most individuals who use natural medicine do so because of a "congruence with their own values, beliefs, and philosophical orientations towards health and life" (Austin, 1998, p. 1548).

Empowerment in health care decision making accords with the US Dietary Supplement Health and Education Act of 1994 which states that "consumers should be empowered to

make informed choices about preventative health care programs based on scientific studies relating to dietary supplements" (Jacobs, 1999, p. 412). Jacobs also says that as a vital component of empowerment is access, free markets allow all participants to have equal access to all information. Therefore, in the medical marketplace consumers must be supplied with information that allows them to make informed, rational medical choices.

Jacobs (1999, p. 411) states that consumer and marketplace variables will ultimately shape 21st century health care policy, including medical integration. As this post-modern era is one influenced by consumer rights, it is probably appropriate that a new Integrated Medical Model ought to be client-based, rather than practitioner- or modality-based as in the UK, WHO and US models described earlier. Concepts of access and equity are therefore of primary importance.

Spencer and Jacobs (1999, p. 32) and Woodham and Peters (2000, p. 19) state that the notion of *integration* is important to the future of natural medicine, and that a blending of natural medicine and biomedicine practices will optimise medical treatment interventions and results. However, they also say, at least from a US perspective, that the acceptance of natural medicine will depend in part on how well it is able to demonstrate its safety and efficacy, presumably to the biomedical profession. Although full and supportive cooperation between the biomedicine and natural medicine professions may *prima facie*, appear to be in the public interest, such considerations may be less crucial in Australia because of positive government attitudes to natural medicine. The relevant US literature, as represented by Woodham and Peters (2000, p. 19), appears to conclude that the concept of integrated medicine is inseparable from changes to education and training and new controls through government regulation. These comments appear to be based on the false premise, at least from an Australian perspective, that natural medicine practice needs to be reshaped and repackaged to the satisfaction of the biomedicine profession before integration may be seriously considered.

It appears that the process of medical integration may involve concepts of corporatisation. Phalen (1998, pp. 176–177) and Powell (2003, p. 14) warn that if natural medicine practice is absorbed into the current hierarchy of the medical model so as to become eligible for government subsidies or expanded medical insurance benefits, natural medicine practitioners could eventually find themselves subservient to biomedicine practitioners. This could arise through the processes of increased accountability that must, almost of necessity, follow the allocation of government funding. From the perspective of the government, accountability needs could be satisfied through practice supervision by its corporatised biomedical practitioners and the usual financial audits. Consequently, Phalen (1998) and Powell (2003) are separately concerned that the price of corporatisation of natural medicine through integration could include government or insurer restrictions on matters such as consultation times and practices. Phalen (1998, p. 177) says that natural medicine practitioners could be forced into a para-professional role, with access to patients, and treatment models determined by biomedicine practitioners. For example, in Virginia, access to non-biomedical acupuncture is available only through referral from a biomedical practitioner, and without funding assistance. Powell (2003, p. 14) states that the worst-case scenario for natural medicine practitioners involves natural medicine practice being eventually incorporated into biomedicine practice, to their exclusion.

Powell (2003, p. 16) believes that the corporatisation of the Australian natural medicine industry has possibly already commenced. Currently in Australia, the government subsidises all aspects of biomedicine practice, research and professional and public education. It also subsidises natural medicine education and research conducted in universities and TAFE centres. Whereas natural medicine practice offered by students in university and TAFE clinics is subsidised by government, the major part of natural medicine practice is offered in the private sector without government subsidy. Powell cites the registration of chiropractors, osteopaths and Chinese medicine practitioners as further evidence of corporatist trends.

8.7 Australian Integrated Medicine

The objective of this part of the study is to determine ways to bridge the schism that has evolved between natural medicine and biomedicine practice, in order to produce an integrated healthcare system based on mutual recognition and respect. As anecdotal evidence of this schism, Powell (2003, p. 20) cites the experience of a female client who claimed that her biomedical practitioner had screamed at her and ordered her out of his clinic when she mentioned her attendance at an acupuncture clinic. It appears that this schism is so great that its associated lack of mutual recognition and respect could not be dissolved by legislation or professional directive. As qualities of "respect" and "mutual respect" are usually the result of personal experience, it appears that an integrated medicine model underpinned by these qualities would require voluntary cooperation of all participants — practitioners and clients. In this context, voluntary cooperation relies on the concept of freedom of choice for practitioners and clients. Further, the conclusion by Powell (2003, p. 16) that in the short term, significant government funding of natural medicine practice will not occur, is accepted.

Powell (2003, p. 16) observes that in Australia, most biomedicine practice occurs in privately operated clinics and in government and privately operated hospitals. Although most natural medicine practice also occurs in privately operated clinics, services are increasingly being offered in hospitals. It appears that any new integrated medical model underpinned by voluntary cooperation between natural medicine and biomedicine practitioners and clients would be offered in some of these locations.

In considering the design of a new Australian integrated medical model, or models, it may be helpful to first consider the four models of integrated medicine already in operation. As the first model to be examined — the Voluntary Integrated Model — appears to meet all the requirements of "voluntary cooperation" and "mutual respect", the creation of a superior model, underpinned by these requirements, may be neither necessary, nor possible, nor timely.

8.7.1 The Voluntary Integrated Model

As concerns for adverse biomedical events evolve, there are two important changes taking place in society in relation to natural medicine. First, the attitudes of Australian biomedical practitioners are changing. A recent study reveals that more than 80% of these practitioners have referred patients to various natural medicine modalities (Pirotta et al., 2000, p. 105). Second, the annual Australian usage of natural medicine has increased to about 50% of the population (Begbie et al., 1996, pp. 545–548).

The increasing inter-discipline practitioner contact arising from these referrals has assisted the evolution of unprecedented cooperation and informal cross-referral practices between individual biomedicine and natural medicine practitioners. These informal practices are a form of medical integration which is referred to here as the *Voluntary Integrated Model.*

The Voluntary Integrated Model involves voluntary cooperation between natural medicine and biomedicine practitioners and their clients, and appears to maximise opportunities for clients. These practitioners cross-refer and keep each other, and their clients, fully informed about options and outcomes (Powell, 2003, p. 20). In this scenario, clients are informed of the potential of the referral and decide themselves whether they want to be referred. For such cooperation to be successful, the practitioners must always act in good faith, be mutually supportive, be respectful of each other's practice and, by treating each other as equals, engage in frank and open communication with each other and with the client. Powell believes that these kinds of professional arrangements appear to follow the development of social friendships in which the practitioners are often surprised to discover that professionally, they have much in common. These biomedicine practitioners are usually concerned about iatrogenesis, cautious with drug prescription, and willing to discuss all aspects of their treatment openly with the natural medicine practitioner and the client (p. 20). The natural medicine practitioner is similarly inclined.

Whereas most natural medicine clients appear to have minimal knowledge of medical theory, some "informed" clients appear to be particularly well suited to the Voluntary Integrated Model. The incidence of "informed" clients could arise from the higher education status of users of natural medicine services (Astin, 1998, cited in House of Lords, 2000, p. 6; MacLennan et al. 2002, p. 168). The informed client is "the new patient" who is "an activist health consumer who demands and seeks out timely and accurate health information". Also, they are health care consumers who are "prepared to seek, lobby for, and be critical of health information and medical care practice in general. These patients no longer accept with blind faith their doctors' pronouncements or recommendations" (Jacobs, 1999, p. 411). Some of these clients conduct extensive research and test their practitioners with searching questions and argument. They treat their health seriously, appear to take full responsibility for their health choices, and continue to use practitioners and treatments in which they have most confidence. Powell (2003, p. 20) claims that informed clients feel particularly empowered by their involvement in this open process, where their practitioners avoid unnecessary professional language and professional distance; rather, they encourage discussion with clients, and respect their comments, questions and suggestions. Powell also claims that these practitioners experience increased job satisfaction and welcome and encourage client research, as they do not see it as a threat. Also, they are usually more willing to admit when they do not know the answer to a question. Some of these practitioners believe that there is a mystical, magical, psychological or spiritual dimension to healing, and that some clients need to feel that they are an integral part of the planning and review process before healing may ensue (Powell, 2003, p. 20). In any event, belief in a healing regimen would surely maximise its potential efficacy.

Due to its informal nature, the Voluntary Integrated Model exists in a multiplicity of forms. Without being aware of the UK House of Lords (2000, p. 4) recommendation that natural medicine practitioners encourage clients to consult their biomedical practitioners for all conditions, some Australian natural medicine practitioners have been so doing for years and for legal reasons, noting the suggestions in their patient records (Powell, 2003, p. 19). Powell also claims that many natural medicine practitioners report that if on

referring to a biomedical practitioner, that practitioner diagnoses a new health problem of which the natural medicine practitioner is unaware, clients often give credit to the natural medicine practitioner for insight, and confidence in the natural medicine practitioner also seems to increase — even when total credit is given to the biomedical practitioner. Similarly, clients referred for natural medicine treatment which proves to be effective also give credit to that referrer for special insight. Powell also claims that for this and other reasons, some natural medicine and biomedicine practitioners appear very willing to develop appropriate cross-referral relationships (p. 19). As well as being beneficial to the client, cross referral increases the income of both practices, and enhances their image to the client (p. 20).

It appears that this model is satisfactory to government and the respective professions for a number of reasons. As the model is voluntary and informal it may proceed without any additional government involvement in special activities such as the creation of legislation, regulation, practice direction, referral protocols, assessment and audit processes, inspectoral regimes and other bureaucratic activity. The model is therefore almost cost-neutral to health budgets — the only additional costs being government subsidy of the additional biomedicine consultations resulting from the referrals. Politically, this is a desirable situation for the government: as it is not expected to be involved, it cannot be blamed for anything. Also, the biomedicine profession would be pleased that some of its practitioners were receiving additional incomes, and that natural medicine clients were assessed by their profession. Whereas the Australian Medical Association (AMA) has traditionally opposed referral to natural medicine practitioners — with threats of severe punishment to those who did refer — the changing times probably guarantee silence on this issue (Powell, 2003, p. 17). The natural medicine professions would be supportive of the model because their members would also be receiving additional incomes from these referrals and because their natural medicine practice would not be compromised. All participating practitioners would be pleased that the model requires no additional reporting or bureaucratic involvement.

As MacLennan et al. (2002, p. 170) have detailed the increasing demand for all natural medicine modalities, it is prudent to consider whether any change in the Voluntary Integrated Model is necessary. The success of the Voluntary Integrated Model could be influenced by its volunteerism and informality, and it could feel special to its participants because of its minority status and because of lack of controls by the government and professional bodies (Powell, 2003, p. 17).

If no change occurs to this model, natural medicine usage rates and the incidence of voluntary cooperation between natural medicine and biomedicine practitioners will probably continue to increase. However, there are deficiencies in this model relating to access and equity. Because it is a minority service, the Voluntary Integrated Model is not evenly geographically distributed and the poor cannot usually afford to pay for the natural medicine treatments. Although users of natural medicine services tend to have higher educational qualifications and receive higher incomes (MacLennan et al., 2002, p. 168), they personally pay for their natural medicine treatments. Some clients may claim part or all of their fees from their private medical insurer. There is a belief within the natural medicine industry that by actually paying for a treatment, a client becomes further involved in the process and the efficacy of a treatment may be enhanced (Powell, 2003, p. 17). As this is a model of freedom of choice for the client and the practitioners, it is likely to continue to grow in importance. It is probable that if research concludes that this model maximises safety and efficacy and increases the status, income and job satisfaction of involved practitioners, a rapid increase in incidence could occur.

8.7.2 The Client Controlled Model

The Client Controlled Model involves clients who appear to integrate their medical options by seeking the best available treatments from natural medicine and biomedicine sources, without their practitioners being in professional contact. Some of these clients are similar to the "informed client" described in the Voluntary Integrated Model, in that their higher education status probably assists them to be well researched and well prepared for their medical encounters. Some of these individuals may inform their practitioners of their treatment regimes, whereas others decide to keep it as a secret to

themselves, possibly feeling more powerful and more in control, or merely using it as a form of "game or role playing" (Powell 2003, p. 20). Some may share details of their full treatment regime with their natural medicine practitioner but not with their biomedicine practitioner — possibly to preserve that relationship.

MacLennan et al. (2002, pp. 170–171) are concerned that as more than half of Australian, UK and US users of natural medicine remedies — including those involved in self-treatment — did not inform their biomedicine practitioner of that use, possibly because they believed them to be harmless, they may face potential adverse reactions if they are also receiving pharmaceutical medication. However, as natural medicine graduates of quality degree programmes are trained in pharmacognosy there is little chance of their clients being so affected. Powell (2003) claims that the "game or role playing" (p. 20) secrecy and duplicity of a minority of these clients are just further presenting symptoms that need to be observed and understood, particularly if deceptive game playing has potentially serious psychological implications. Also, the game playing can sometimes be frustrating for practitioners. Powell believes that client game playing can arise for social reasons, particularly when clients are stressed from attending the clinic against the wishes of their family or friends. On one occasion a female client refused to provide her family name or address because as a "doctor's wife" she had come for natural medicine treatment without "his knowledge or his permission". She did not want a record of her full name and address for a variety of confusing reasons and was initially reluctant to even reveal full details of her medical history. She eventually became "converted" to natural medicine practice and claims to have never told her husband of her experiences (p. 21).

8.7.3 The Third Party Model

The Third Party Model arises because natural medicine practitioners are trained not to interfere with the relationships between clients and their biomedicine practitioners, nor to approach these practitioners professionally (Powell, 2003, p. 20). Also, biomedicine practitioners are not trained to refer to, or engage in, professional discussion with natural medicine practitioners. Some natural medicine practitioners believe that as well as

masking disease symptoms, some pharmaceutical drugs impede healing activity. Consequently, natural medicine practitioners often recommend that clients raise certain matters with their biomedicine practitioner — such as the possibility of a reduction in the dosage of a prescribed drug, a possible change of medication, whether a particular test may be helpful, or a presenting sign or symptom. In these circumstances it is rare for the practitioners to communicate directly, but cooperation often evolves indirectly through the messages conveyed by the client (p. 20). Such relaying of messages is not always straightforward, as the reactions of biomedical practitioners are unpredictable. Powell recounts experiences from the 1990s when some patients were told by their biomedical practitioners that they would not treat them while they continued to visit a natural medicine practitioner. Most of these clients either found another biomedical practitioner or lied to their existing biomedical practitioner (p. 20).

8.7.4 The Complementary Biomedicine Model

The Complementary Biomedicine Model involves some biomedicine practitioners who receive training in natural medicine in order to offer both biomedicine and natural medicine services to their clients — thus integrating treatment opportunities within their practice. Powell (2003, p. 20) claims that some clients prefer this opportunity as they believe it allows them to receive all required treatments at a single clinic from a single practitioner, and receive generous government subsidies. However, for reasons expressed earlier about natural medicine training of biomedicine practitioners, the outcomes may be questionable.

8.8 Future Evolution of the Voluntary Integrated Model

An important aspect of these four examples of integration is that the client appears to be in control of treatment choices. However, this freedom of choice is influenced by economic circumstances and the reality that the medical market is not truly free. An imbalance results from generous government subsidies for biomedicine services which are not available for natural medicine services offered by natural medicine practitioners. For this reason, access and equity issues are crucial to the consideration of the

development of an integrated medical model. However, in a democracy like Australia it is probable that these four models of medical integration will continue to exist.

From all perspectives, it appears that the Voluntary Integrated Model meets the primary requirements of this study. The schism between natural medicine and biomedicine practitioners is closed by voluntary cooperation of practitioners and clients – underpinned by mutual recognition and respect. The Voluntary Integrated Model may therefore be seen as a model of empowerment for practitioners and clients.

However, comprehensive medical empowerment appears to require the resolution of other issues of access and equity which affect both clients and practitioners. They include the funding of health services, professional and public medical education and medical research; the geographical distribution of practitioners and medical education centres; the taxing of medical services and remedies; and the availability of data and information relating to the relative safety and efficacy of medical practices.

Marketplace concerns for access and equity issues would *prima facie* be largely overcome by government funding of all the above issues — particularly natural medicine education, research and practice — comparable to that for the biomedicine industry. In Australia, this would require that free access to the public health system, including hospitals, be extended to natural medicine practitioners and their clients, and that the Medicare subsidies for biomedical practices be extended to natural medicine practices. However, the government would be concerned that such funding could precipitate an exponential increase in natural medicine usage rates, thus threatening its health budgets. Two relevant examples of increased usage of natural medicine were described in chapter 7. First, Porter (1997, p. 353) explains that following the deregulation of the Prussian medical market in 1869, through the establishment of the principle of "freedom of healing", progressives were surprised that natural medicine practices flourished. Second, Griggs (1997, pp. 296–299) explains how the French medical budget was threatened in the 1980s by the rapid growth in popularity of natural medicine *Magistrale* prescriptions. However, funding of natural medicine services

would threaten Australian health budgets if usage rates merely followed the US example where there are more visits to natural medicine practitioners than to biomedicine practitioners (Eisenberg, Davis & Utter, 1999, cited in House of Lords, 2000, pp. 5–6). Powell (2003, p. 16) explains that because of the conservative nature of Australian parliamentary politics, Australian governments would introduce such funding only if they had conclusive proof that there would be a corresponding decrease in biomedicine services and costs, thus rendering the natural medicine funding costs close to budget-neutral. For the government, conclusive proof of these economies would require scores of supporting quality research studies from a variety of university and other sources over more than a decade, with minimal publicly expressed contrary views, which is highly unlikely. Powell (2003, p. 16) concludes that in the short term, significant government funding for natural medicine services will not occur.

However, managed-care organisations and medical insurers may be more easily influenced than the government, particularly by consistent quality research which shows them how to increase their market share and decrease their costs. To increase market share, managed-care organisations "must offer a broad range of health care products and services that add clinical value" (Jacobs, 1999, pp. 416–417). Jacobs says that, for example, acupuncture would add clinical value to a low back pain management programme, by providing a more cost-effective, yet safe and effective treatment. Also, managed-care organisations may increasingly see value in the development of wellness centres involving natural medicine practice to prevent the onset of serious illness. As well as providing increased revenue to managed-care organisations, such centres would provide increased patient referrals to natural medicine practitioners. Jacobs says that as consumers of natural medicine services increasingly determine their treatment regimes, managed-care organisations could play a major role in providing information on the safety and efficacy of natural medicine, and by declaring themselves to be patient advocates, attract potential clients to their programmes (p. 417). This could all occur within an evolved Voluntary Integrated Model.

To assess whether funded natural medicine treatments actually decrease total medical costs will require a comparative analysis of natural medicine and biomedicine treatment approaches to specific conditions (Jacobs, 1999). This will allow for the identification of the most cost-effective treatment option for the patient over the long term. The Mutual of Omaha medical insurance company evaluated the costs and effectiveness of a programme developed to reverse the progression of cardiac disease through fat reduction, exercise, stress reduction and mutual support. As these natural medicine approaches had by then been adopted by the biomedical profession and were therefore within mainstream medical opinion, the comparative analysis was completed "with minimal controversy" (p. 417).

Since most patients do not wish to abandon biomedical care, a team approach involving collaboration between natural medicine and biomedicine practitioners "must occur in a clinical setting and through the process of clinical evaluation for efficacy" (Jacobs, 1999, pp. 417–418). In expanding their natural medicine options, managed-care organisations would maintain a network of high-quality natural medicine practitioners so that biomedicine practitioners would have confidence in referral. With quality control in place, the managed-care organisations would then be able to develop reimbursement schemes for natural medicine treatment costs. Jacobs claims that such processes have recently resulted in the State of Washington's mandate for reimbursement of natural medicine treatment costs. Although this evolution of the Voluntary Integrated Model would still involve voluntary cooperation between biomedicine and natural medicine practitioners and clients, rather than cross-referral arising from social friendships, they would arise through mutual professional "respect", to meet immediate clinical needs. In this scenario, rather than natural medicine and biomedicine practitioners continuing to compete for market share in a crowded market, they may share new opportunities. "A vertically integrated provider/payer system may easily integrate CAM practitioners into a complementary system of care" (p. 416).

One objective of this study is to assess how the schism between natural medicine and biomedicine may be closed, so that a cross-professional cooperative form of medical

integration may occur. Like many others, Jacobs (1999) suggests that the answer lies in research approved by the biomedical profession. However, he also believes in the power of marketplace demands arising through continued consumer pressure. He suggests that the process may be hastened by the introduction of partnerships "between industry, third party payers, private foundations, and the federal government directed at funding treatment outcome studies, innovative diagnostic procedures, and novel treatment interventions" (p. 419). The evaluation of natural medicine services could occur within the Voluntary Integrated Model through appropriate clinical practice audits, and potentially result in increased cooperation between the various professions to the benefit of the medical consumer.

8.9 Conclusions

The end of the Age of Biomedical Optimism has created growth opportunities for the natural medicine profession. The sheer volume of usage of natural medicine services and remedies has influenced governments to reconsider their attitudes to these practices, particularly as they are now used by 80% of the world's population. Also, as sections of the biomedicine profession and others have sought to incorporate natural medicine practice into new complementary medical models in concert with biomedicine, the unique theories, beliefs and practices of natural medicine have become clearer. These concepts, including homeostasis, holism, vitalism, the mind–body connection, spirit, detoxification, digestion and immune system became obstacles to intrusion by scientific influences, and need to be incorporated in any complete, integrated medical model. WHO, UK and US experiences with integrated medicine appear to have focused on models of integration of natural medicine practice into complementary models with biomedicine, reshaped to suit biomedical practice. The resulting dominance of biomedical practitioners appears to compromise natural medicine practice. However, Australia provides a different perspective, which is focused on clients' rights and voluntary cooperation of practitioners and clients without the compromising of natural medicine practice. The Australian Voluntary Integrated Model provides opportunities for the process to be enhanced by the introduction of partnerships between industry, third party payers, private foundations, and the Federal Government. The evaluation of

natural medicine services could occur within the Voluntary Integrated Model through appropriate clinical practice audits, and potentially result in increased cooperation between the various professions to the benefit of the medical consumer.

CHAPTER 9

SUMMARY AND CONCLUSIONS

9.1 Summary of Research

This dissertation has examined the historical, cultural and political origins of biomedicine and natural medicine in order to understand the schism that developed between their practices, and to produce an integrated healthcare model based on mutual respect, recognition and cooperation. This has involved an examination of the evolution of the paradigms, philosophical underpinnings, practice and societal roles of natural medicine and biomedicine, with particular emphasis on those that evolved through European culture. This examination took the form of a substantive narrative history that drew primarily on a critical evaluation of a diverse range of secondary source material. The differences between biomedicine and natural medicine, which are represented, among other things, by education, socio-political power, attitudes and public support were placed in their historical, philosophical, theoretical and political perspectives.

The prehistoric evolution of medicine was assessed in chapter 2. The biological and cultural evolution of humans in prehistory allowed them to create magnificent arts and crafts, and impressive monumental architecture, such as stone temples in which they practiced their religion. The development of religion was probably influenced by advances in medicine, as the body and soul were cared for, before and after death. The last Ice Age provided opportunities for humans to learn the value of cooperation, as they organised to hunt larger animals prior to the move to settled agriculture. The Agricultural Revolution yielded many cultural changes such as settlement, new diets and new work practices, but agricultural work was harder, and more time consuming than that required of the hunter-gatherer. Dietary changes, including the consumption of domesticated animals, coupled with working and living close to domesticated animals, transferred many new diseases from animals to humans, and life expectancy was

reduced. Humans therefore entered history, which appears to be marked by the development of writing and recording in Mesopotamia and Egypt, in a depleted physical state.

The evolution of natural medicine in Ancient Mesopotamia, Egypt, Greece and Rome was assessed in chapter 3. The cultural evolution of Mesopotamia and Egypt yielded imposing political regimes in which corporatised medicine thrived, probably alongside informal medical practices. The new corporatised medical paradigms were a combination of religious, spiritual, magical and medical theories and beliefs. In Mesopotamia parts of formal medical practice were regulated by government, and physicians could be financially and physically punished for iatrogenesis. The *materia medica* of both regions was extensive.

As Greek and Roman medicine consolidated over more than 700 years through its religious, spiritual, Hippocratic, and other appropriate traditions, it provided a sound theoretical basis for natural medicine practice that has existed to the present, and which claims to have generally maintained the Hippocratic requirement to "do no harm". The other major influence, Galenic medicine, which purported to refine Hippocratic medicine, influenced the European antecedents of biomedicine. Although Galenic medicine remained virtually unchallenged for 1500 years, it proved to be too dangerous to be used in the 19th century. The iatrogenic and nosocomial illnesses of those two millennia have possibly contributed to a philosophical and psychological climate relating to the value of life that still pervades biomedicine. The importance of the Graeco–Roman period is that it invented rational medicine, which was free from religious elements, and recognised the naturalistic notion of disease as part of a cosmic order. Further, it developed concepts of human anatomy and physiology, including the idea that the function of the body could be better understood by investigation and the application of logic. The development of an empathetic bedside manner, which was assisted by the union of science, philosophy and practical medicine, elevated the power of the client in the healing environment, especially when compared with previous relationships with priest-healers, who had interceded on behalf of gods or the

government. Modern natural medicine practice appears to be influenced by some of the theories and practices of the Hippocratics and the Asclepiadeans.

Because Galen dominated Roman medicine, and Christianity came to dominate Roman religion, that medicine and that religion became dominant throughout the Roman Empire. As the Roman influence in Europe receded during the 3rd to the 5th centuries CE, some of the cultural changes introduced by the Romans, including Galenic medicine and Christianity, although diminished, remained. However, the Church eventually proscribed the study of medicine, encouraged the care of the sick in monasteries, and gained a monopoly on formal medical practice, albeit on a simple basis, for 500 years.

Chapter 4 assessed the influences of the Middle Ages. From early in the Middle Ages, formal medical practice and education were controlled by the Church, initially through its monasteries, and later through Church-supervised education in medieval schools and universities. The 14th century European plague, known as the Black Death, caused so much misery and death that survivors questioned its purpose, and as satisfactory answers were not forthcoming, the traditional roles of Church and government were challenged.

The Church's response included new campaigns of Inquisitional persecution, usually involving torture and death, against alleged heretics, healers, witches, Jews and others. This wholesale slaughter over 300 years occurred with the full cooperation of the profession of medieval physick, who were rewarded with corporatism of their questionable and problematic Galenic medical paradigm. The resultant class repression of women, many of whom were involved in healing, drove the practice of natural medicine underground, allowing the newly corporatised physick to increase its market share. However, the informal European natural medicine paradigm continued to be preserved, predominantly by female healers.

Whereas the European peasantry had previously been united in cooperative pursuits, the divide-and-rule strategy of the power holders turned peasants against each other, and as they became distracted, repressed and then disempowered, they grew increasingly

dependent upon the power holders. Also, as the post-plague free market developed a cash economy, which further eroded the feudal order of mutual obligations, the peasantry became even more individualistic than collective, and the stage was set for the later development of capitalism.

The evolution of medicine, from corporatised physick to corporatised biomedicine is assessed in chapter 5. As medieval physick evolved to biomedicine, it further separated from natural medicine as it developed new paradigms, and made significant gains in knowledge, skill, techniques, processes, procedures and products. With these also came the identification and treatment of new diseases, new psychiatric paradigms, and advances in clinical science and surgery. Although many diseases may be successfully treated, the major terminal diseases remain largely incurable and in many cases increasing in incidence. Scientific medical progress involved the cooperation of basic research, clinical science and technology.

Chapter 6 deals with the concepts of medical science and medical myth. The incidence of adverse medical events is of such magnitude to suggest major deficiencies in biomedical theory and practice. There is evidence that biomedical practice is not always based on sound scientific theory — and, in some circumstances, any scientific theory at all. It is also acknowledged that Western scientific thought itself contains deficiencies. This has led to the concept of the division of the totality of existence into separate entities; that is, a fragmentary world view in which the fragments are deemed to be essentially static. In biomedicine, this is marked by increasing specialisation, which ensures that biomedical science became limited to the hard, analytical disciplines known as the natural sciences, ignoring other, traditional, approaches to disease. Also, because concepts of Western science such as the gaining of certainty by induction are being increasingly questioned, it is more difficult to separate science from myth. Further, it appears that capitalist and corporatist influences have compromised and corrupted biomedical practice: selective funding of research, aggressive marketing, abuses of power, retention of information, maximising of prices — all support corporate goals for maximising profits. Also, the professionalising of biomedicine has created a

communication barrier between clients and practitioners; the language of the professional is incomprehensible to patients, and the overuse of technology has placed an emotional, psychological, and possibly a healing distance, between practitioner and client. The incidence of adverse medical events suggests that biomedicine is in crisis wherever it is practiced.

The evolution of modern naturopathy is assessed in chapter 7. The European nature-cure medical practices such as botanical medicine, homeopathy, massage and hydropathy were enthusiastically adopted in the US, along with other international medical paradigms such as Chinese medicine. These practices evolved with local influences from Indian and settler medicine, and developments such as osteopathy, chiropractic, eclecticism, Thomsonianism and spiritualism to form, from an American perspective, the eclectic profession of naturopathy. Whereas the term *naturopathy* appears to have a relatively narrow and specific application in Australia and Europe, the wider American perspective suggests that the term is interchangeable with the term *natural medicine*.

The natural medicine paradigm requires the adoption of a temperate lifestyle so that body, mind and spirit may be maintained in balance. As illness usually arises from imbalance, natural medicine treatments are designed to be safe and efficacious, and holistically restore balance to all aspects of an individual's life.

In Australia, natural medicine has been practiced for millennia by Aboriginals. Following colonisation in the 18th century, imported European natural medicine was influenced by Aboriginal, settler and other international medical practices. As Australian natural medicine evolved, it has enjoyed wide public support, particularly from the 1960s. Australia's most significant contributions to global natural medicine are its leading colleges and their educational practices, and its professional associations and their procedures.

The evolutionary line from Regular physick to biomedicine has viewed natural medicine practice as a competitor in the marketplace, and has continually sought to suppress its

popularity and influence. However, public attitudes to science, biomedical theory and practice, and its practitioners, have limited the success of these attempted suppressions.

Chapter 8 assesses the evolution of integrated medicine. The end of the Age of Biomedical Optimism has created growth opportunities for the natural medicine profession. Further, the sheer volume of usage of natural medicine services and remedies has influenced governments to reconsider their attitudes to these practices, particularly as they are now used by 80% of the world's population. Also, as sections of the biomedicine profession and others sought to incorporate natural medicine practice into new complementary medical models controlled by them, the unique theories, beliefs and practices of natural medicine became clarified. These concepts, including homeostasis, holism, vitalism, the mind–body connection, spirit, detoxification, digestion and immune system became obstacles to intrusion by scientific influences, and need to be incorporated in any complete integrated medical model. Formal WHO, UK and US experiences of integrated medicine appear to have focused on models of integration of natural medicine practice into complementary models with biomedicine, reshaped to suit biomedical practice. The resulting dominance of biomedical practitioners appears to compromise natural medicine practice within the models. Australia's perspective, however, is focused on client's rights and voluntary cooperation of practitioners and clients without compromising natural medicine practice. The Australian Voluntary Integrated Model provides opportunities for the process to be further enhanced by the introduction of partnerships between industry, third party payers, private foundations, and government. The evaluation of natural medicine services could occur within the Voluntary Integrated Model through appropriate research, clinical practice audits, and potentially result in increased cooperation between the various professions to the benefit of the medical consumer. Eventually the model could further evolve and government funding could possibly be made available.

9.2 Research Opportunities

By its very existence, the Voluntary Integrated Model shows that biomedicine and natural medicine practitioners can work together for the mutual benefit of clients and

their professional practices, within an integrated healthcare model underpinned by mutual respect, recognition and cooperation. However, as there does not appear to be any research studies involving this model, claims of its safety, efficacy and economies must be considered to be merely the beliefs of its participants, regardless of their conviction. Clearly, this model will flourish only if appropriate studies confirm its safety, efficacy and economies, so that new entrants will be attracted and the government encourages its expansion through funding.

As practitioners involved in the Voluntary Integrated Model apparently exhibit qualities of cooperation, sharing and openness, the model provides numerous research opportunities. An observation by Nester (1999) in relation to Chinese medicine appears to be applicable: "both quantitative and qualitative research methods should be utilised to develop [natural medicine] knowledge, with the selection being determined by the particular type of research question to be addressed" (p. 406). As natural medicine philosophy, belief and practice are underpinned by concepts of holism, vitalism, mind–body connection, spirit, detoxification, digestion and immunity, Nester — commenting on Chinese medicine — suggests that balanced research is more likely to be conducted by those who clearly understand these concepts (p. 405). "A knowledge of naturalistic inquiry is essential because it is required to be able to utilise dialectical and hermeneutical methodologies" (p. 407). Further, the efficacy of natural medicine therapy may be evaluated by quantitative research methods.

A better understanding of the Voluntary Integrated Model would result from research designed to examine its operation — particularly case studies and interviews with practitioners and clients. These could elucidate such matters as the roles of participants, modes of communication, expectations, beliefs, observations, personalities and other personal qualities; the economics of the clinics, the incomes of practitioners, the socio-economic status of the clients, clinic management and the safety and efficacy of treatment.

Government, health insurers, managed care providers, the various professions and the public would be interested in research which tested the safety and efficacy of natural medicine treatments, whether within or without the Voluntary Integrated Model. This could also include qualitative research — as Nester (1999) suggests in relation to Chinese medicine — "to further the understanding of the nature of [natural medicine] therapy and the factors that contribute to its effectiveness" (p. 409). This could test the degree of holism in contemporary natural medicine practice, and determine whether the consciousness, empathy, knowledge and skills of the natural medicine practitioner affect the therapeutic outcome.

This study has shown that for millennia, many differing medical systems have evolved and provided treatments, deemed by some participants to be effective. The diverse range of these treatments suggests that the healing process is complex, so research designed to better understand the healing process would be useful. Kleijnen and de Graen (1996) state that "considering the role of placebo effects in daily practice and in clinical research, we conclude that this topic should clearly be investigated further" (p. 36). Comprehension of the role of the placebo effect in natural medicine healing could allow for the further evolution of natural medicine theory.

Another area of potential research involves an assessment of the "real" attitudes of major political parties, the Government, the Opposition and Members of Parliament to the role of natural medicine in Australian society. Since the early 1990s there have been confusing political messages. In 1991, the creation by the Australian Labor government of the Traditional Medicines Evaluation Committee (TMEC) to advise it on the safety and efficacy of natural medicine remedies was supported by the Coalition Opposition, even though the power of TMEC rested with its majority natural medicine practitioner members. Also, bipartisan support was given to traditional safe usage of natural medicine remedies being accepted as contemporary evidence of safety and efficacy. By the end of the 1990s, the Coalition government replaced TMEC with the Complementary Medicines Evaluation Committee, and diminished the power of practitioner interests. Tobler (2003) reports that in September, 2003, the federal

Coalition government forced private health insurers "to scrap 'lifestyle' benefits on products such as running shoes, bikes, gym fees and golf clubs from next year" (p. 3). Also, the government has now "asked the Australian Health Insurance Association to investigate the $1.5 million payouts for alternative therapies last financial year" (p. 3). The Association has been asked to establish whether therapies such as homeopathy, reflexology, iridology, reiki, shiatsu and aromatherapy "are backed by medical evidence, whether they are regulated and whether they are performed by a [sic] qualified practitioners" (p. 3). The attitude of the Labor Opposition would concern the natural medicine industry: "But Labor believes the minister is not being tough enough. Opposition health spokeswoman Julia Gillard said Senator Patterson was merely 'glancing' at the problem of taxpayers' money being wasted on alternative therapies" (p. 3). The Consumers' Association said that "taxpayers' health money should never have been used ... to subsidise services 'which have no demonstrated health benefit'" (p. 3).

With such political pronouncements as these, it would be timely to assess also the effectiveness of natural medicine political lobbying. This could follow the suggestion of Della Porta and Diani (1999) that an analysis of the policies of political parties and governments provides a measure of the effectiveness of social movements which "are formed to express dissatisfaction with existing policy ... all movements make demands on the political system" (p. 233). They also say that "it is possible to identify four currently dominant perspectives in the analysis of collective movements: collective behaviour; resource mobilization; political process; and new social movements" (p. 3).

9.3 Conclusions

The natural medicine paradigm is used by 80% of the world population, and demand for its usage in Western societies is increasing. Consequently, states and international bodies appear to be seeking to control its influence and usage, and natural medicine is currently being promoted as a mere *complement* to biomedical practice and so, appropriately under its control – as exampled in WHO, US and UK complementary medical models. As these models of control over natural medicine compromise its holistic practice, they are unsuitable. However, the Australian Voluntary Integrated Model allows biomedicine

and natural medicine practitioners and their clients to voluntarily decide to cooperate within a model underpinned by mutual recognition and respect.

If future research initiatives show that natural medicine practices are safe and effective, and that practitioners involved in the Voluntary Integrated Model enjoy high job satisfaction and, possibly, higher incomes, then the incidence of the model will surely increase. If further research can show that the expansion of natural medicine practice within a community actually decreases overall health costs, then government may eventually provide funding for those practices, so ensuring their further expansion.

REFERENCES

AACMA. (2003). Australian Acupuncture and Chinese Medicine Association: Commonwealth Complementary Therapies funding: Newsletter. Brisbane: AACMA. August 2003.

ACNT. (1988). Aboriginal Communities of the Northern Territory: Traditional Bush Medicines: An Aboriginal Pharmacopoeia. Richmond, Vic: Greenhouse Publications.

Adams, F. (1849). *The Genuine Works of Hippocrates*. London: Sydenham Society. (Rpr. 1985). Birmingham, Alabama: The Classics of Medicine Library.

Allday, R.K. (1969). *The Story of Medicine.* Bath: Pitman Press.

American Iatrogenic Association. (2002). *Promoting Accountability for Medical Professionals and Institutions.* Washington: Retrieved 24 September, 2002 from http://www.iatrogenic.org/index.html

Angell, M. (1994). What Should the Public Believe? *New England Journal of Medicine*, vol. 331, pp. 189–90.

Anon., (2002). 'Study Finds'. Brisbane: *The Courier Mail.* 14 July 2002.

Anon. of LCP, (A Member of the London College of Physicians). (1794). *Thesaurus Medicaminum: A New Collection of Medical Prescriptions.* London: R. Baldwin.

Antonovsky, A. (1991). *Health, Stress and Coping.* San Francisco: Jossey-Bass Arendt.

Armstrong, K. (1986). *The Gospel According to Woman.* New York: Anchor.

Austin, J. (1998). Why Patients use Alternative Medicine. Results of a National Survey. *The Journal of the American Medical Association*, vol. 279 (19) pp. 1548–1553.

ATMS. (2003). Australian Traditional Medicine Society. Memorandum to Members. Sydney: ATMS. (Undated).

Backhouse, J. (1843). *A Narrative of a Visit to the Australian Colonies.* London: Hamilton, Adams and Co.

Bacon, F. (1861). *The Advancement of Learning.* London: Heron Books.

Barraclough, B. (2002). Australian Council for Safety and Quality in Health Care. Second National Report on Patient Safety – Improving Medication Safety – July 2002. Retrieved 20 September 2002, from http://www..safetyandquality.org

Begbie, S.D., Kerestes. Z.L., & Bell. D.R. (1996). Patterns of alternative medicine use by cancer patients. *Medical Journal of Australia,* 165, 545–548.

Behringer, A. (1996). Witchcraft Studies in Austria, Germany and Switzerland. In J. Barry, M. Hester, & G. Roberts. *Witchcraft in Early Modern Europe: Studies in Culture and Belief.* Cambridge: Cambridge University Press.

Benson, H., & Stark, M. (1996). *Timeless Healing: The Power and Biology of Belief.* Sydney: Hodder & Stoughton.

Berigny, T. (1855). *Medical Philosophy: An appeal to the people of Australia for the candid investigation of practical medicine.* Lectures on homoeopathy delivered in the Protestant Hall, Melbourne. Melbourne: Slater, Williams and Hodgson.

Berliner, H. (1977). *Philanthropic Foundations and Scientific Medicine.* Doctor of Science Thesis, John Hopkins University.

Blakers, G. (1986). A Useless Young Man? An autobiography of life in Australia, 1849-64. Ringwood, Vic.: Penguin.

Bock, K. & Sabin, N. (1997). The Road to Immunity: How to survive and thrive in a toxic world. New York: Pocket Books.

Bodeker, G. (2001). Global Context. In Micozzi, M.S. (Ed.). (2001). 2nd Edn. *Fundamentals of Complementary and Alternative Medicine.* Philadelphia: Churchill Livingstone. pp. 72-83.

Bodeker, G. (1998). Complementary Healthcare Policy. *Journal of Alternative and Complementary Medicine*, vol. 4 (2), pp. 127-129.

Bohm, D. (1980). *Wholeness and the Implicate Order.* London: Routledge and Kegan Paul.

Bradford, T. (1897). *Pioneers of Homeopathy.* Philadelphia: Boericke & Tafel.

Bratman, S. (1997). The Alternative Medicine Sourcebook: A Realistic Evaluation of Alternative Healing Methods. Lincolnwood, IL: Lowell House.

Briggs, R. (1996). Witches and Neighbours: The Social and Cultural Context of European Witchcraft. London: HarperCollins.

Bronowski, J. (1973). *The Ascent of Man.* London: British Broadcasting Corporation.

Bruck, L. (1876). List of Unregistered Practitioners: Appendix to the *Australasian Medical Directory and Handbook.* Sydney: Australasian Medical Publishing Company.

Burns, N. & Grove. S.K. (2001). *The Practice of Nursing Research: Conduct, Critique and Utilization.* 4th ed., Philadelphia: W. B. Saunders Co., Harcourt Brace Jovanovich.

Cahn, S. (1990). *Classics of Western Philosophy.* Indianapolis: Hackett Publishing Company.

Capra, F. (1982). *The Turning Point: Science, Society and the Rising Culture.* New York: Simon and Schuster; London: Wildwood House 1982; Flamingo (HarperCollins) 1983.

Capra, F. (1986). The Concept of Paradigm and Paradigm Shift. *Re-Vision*, vol. 9. (1), 3.

Capra, F. (1997). The Web of Life: A New Synthesis of Mind and Matter. London: Flamingo.

Carter, J.P, (1992). *Racketeering in Medicine: The Suppression of Alternatives.* Norfolk, Virginia: Hampton Roads Publishing.

Cartwright, L., Low. T., Rudd. T. & Beresford. R. (Eds). (1994). *Magic and Medicine of Plants.* Sydney: Reader's Digest Australia.

Cassidy, C. (2001). Social and Cultural Context of Complementary and Alternative Medicine Systems. In Micozzi, M.S. (Ed.). (2001). 2nd ed. *Fundamentals of Complementary and Alternative Medicine.* Philadelphia: Churchill Livingstone. pp.18-42.

Cassirer, E. (1951). *The Philosophy of the Enlightenment.* Princeton N.J.: Princeton University Press.

Chappell, V.C. (Ed.) (1966). *Hume.* London: Macmillan.

Chevallier, A. (1996). *Encyclopedia of Medicinal Plants.* Sydney: Dorling Kindersley, Revised edition 2001.

Clacy, E. (1852/1963). *A Lady's Visit to the Gold Diggings in Australia in 1852-53.* P. Thomson (Ed.), (1963). Melbourne: Landsdowne Press.

Coates, A. (2002). 'The Greatest Show in this World'. Brisbane: *The Courier Mail,* 5 April 2002, p. 9.

Coates, J.R. & Jobst. K.A. (Eds.) (1998). Integrated Healthcare: A Way Forward for the Next Five Years? A Discussion Document from the Prince of Wales's Initiative on Integrated Medicine. London: The Foundation for Integrated Medicine 1997, repr. 1998; also *Journal of Alternative and Complementary Medicine,* vol. 4 (2), Larchmont, NY: Mary Ann Liebert Inc., 1998.

Cochrane, J.C. (1996). *An Illustrated History of Medicine.* Christchurch, Dorset: Graham Beehag Books; Twickenham, Middlesex: Tiger Books International, 1996.

Cohen, J. (2001). OverDose: The Case Against the Drug Companies: Prescription Drugs, Side Effects, and Your Health. New York: Tarcher/Putnam.

Cohn, N. (1975). *Europe's Inner Demons.* London: Chatto, Heinemann.

Colby, B. (1846). A Guide to Health: Being an Exposition of the Principles of the Thomsonian System of Practice. New Hampshire: Milford and Burns.

Conrad, L.I. (1992). Epidemic disease in formal and popular thought in early Islamic society. In T. Ranger & P. Slack (Eds). *Epidemics and Ideas: Essays on the historical perception of pestilence.* (pp. 77-99). Cambridge: Cambridge University Press.

Conrad, L.I., Neve, M., Nutton, V., Porter R. & Wear, A. (1995). *The Western Medical Tradition, 800 BC to AD 1800.* London: Cambridge University Press (Rpr 1998).

Copeland, J. & McQueen, A. (1998). *Prospectus: Australian College of Natural Medicine.* Brisbane: ACNM.

Corkill, M. (2003). 'We've been swallowing a big lie'. Brisbane: *The Courier Mail.* 13 December 2003.

Cribb, A.B., & Cribb, J.W., (1990). *Wild Medicine in Australia* (6th ed.). Sydney: Collins/Angus & Robertson.

Cusack, F. (1973). *Bendigo: A History.* Melbourne: Heinemann.

Dacher, E. (2001). The Development of an Integrated Medical Model: Toward a Postmodern Medicine. In Micozzi, M.S. (Ed.). (2001). 2nd ed. *Fundamentals of Complementary and Alternative Medicine.* Philadelphia: Churchill Livingstone. pp. 57-71.

Dale, A., Arber, S. & Procter, M. (1988). *Doing Secondary Analysis.* London: Unwin Hyman.

Daly, M. (1978). Gyn/Ecology: The Metaethics of Radical Feminism. Boston: Beacon Press.

Davies, P. & Gribbin, J. (1991). *The Matter Myth – Beyond Chaos and Complexity.* London: Penguin Books.

De Ville, K.A. (1990). Medical Malpractice in Nineteenth Century America – Origins and Legacy. New York & London: New York Uni. Press.

Della Porta, D. & Diani, M. (1999). *Social Movements: An Introduction.* Oxford: Blackwell.

Diamond, J. (2001). The Clinical Practice of Complementary, Alternative, and Western Medicine. Boca Raton, Florida: CRL Press.

Diamond, J.D. (1997). Guns, Germs and Steel: A Short History of Everybody for the last 13,000 years. London: Jonathan Cape.

Digby, A. (1997). The Patient's View. In Loudon I. (Ed.) (1997). *Western Medicine: An Illustrated History.* Oxford: Oxford University Press. pp. 291-305.

Dollery, C. (1978). The End of an Age of Optimism. Nuffield Provincial Hospitals Trust. Cited in Le Fanu. J., (1999). *The Rise and Fall of Modern Medicine.* London: Abacus.

Ehrenreich, B. & English, D. (1973). *Witches, Midwives and Nurses: A History of Women Healers.* Old Westbury, New York: The Feminist Press; London: Writers and Readers Publishing Co-operative.

Elmer, G. (1996). Biotherapeutic Agents: A Neglected Modality for the Treatment and Prevention of Selected Intestinal and Vaginal Infections. *The Journal of the American Medical Association*, vol. 275, (11).

Endacott. M. (Ed.). (1996). *The Encyclopedia of Complementary Medicine.* London: Carlton Books.

Engel, G.L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, vol. 196, pp. 129-136.

Ergil, K.V., Ergil, M.C., Furst, P.T., Gordon, N., Janzen, J.M., Sobo, E.J. & Sparrowe, L. (Eds). (1997). *Ancient Healing – Unlocking the Mysteries of Health and Healing through the Ages.* Lincolnwood, Illinois: Publications International.

Ernst, E. & White, A. (2000). The BBC Survey of Complementary Medicine Use in the UK. *Complementary Therapies in Medicine*, vol. 8, pp. 32-36.

Fabrega, H. (1997). *Evolution of Sickness and Healing.* Los Angeles: Uni. of California Press.

Fanon, F., & Noire, P. (1952). *Black Skin White Masks*, trans. Charles Lam Markmann. New York: Grove Press 1967.

Farnsworth, N. (1980). *Rational Approaches to the Search for and Discovery of New Drugs from Plants*. The first Latin-American and Caribbean Symposium on Naturally Occurring Pharmaceutical Agents, Havana, Cuba, 23-28 June, 1980, pp 7-8.

Fels, A. (2003). 'Healthy competition a cure for medicine'. Sydney: *The Australian*. 3 November 2003.

Forman, A. (1947). The Worthington School and Thomsonianism. *BHM*, vol. xxi, p. 775.

Fraser, K. (1990). Dr. L. L. Smith's entrepreneurial medical practice in Victorian Melbourne. In: Australian Society of the History of Medicine (Ed.), *New perspectives on the history of medicine: first national conference of the Australian Society of the History of Medicine*. Parkville, Vic: University of Melbourne, 1990, pp. 143-62.

Fulder, S. (1994). How to Survive Medical Treatment – An Holistic Guide to Avoiding the Risks and Side-effects of Conventional Medicine. Essex: The C.W. Daniel Company Limited.

Fulder, S. (1998). The Basic Concepts of Alternative Medicine and Their Impact on Our Views of Health. *Journal of Alternative and Complementary Medicine*, vol 4 (2) pp. 147-158.

Gage, M. (1893). *Woman, Church and State*. New York: The Truth Seeker Company 1893; repr. Arno Press, 1972.

Garrick, P; & Jeffrey, C. (1987). *Fremantle Hospital: A social history to 1987*. Perth: Fremantle Hospital/UWA Press.

Gay, P. (1973). *The Enlightenment: A Comprehensive Anthology*. New York: Simon and Schuster.

Goldberg, B. (1993). *Alternative Medicine: The Definitive Guide*. Washington: Future Medicine Publishing.

Gould, S.J. (1996). Life's Grandeur: The Spread of Excellence from Plato to Darwin. London: Jonathan Cape.

Grbich, C. (1999). Qualitative Research in Health: An Introduction. Sydney: Allen & Unwin.

Gribbin, J. (2002). Science - A History - 1543-2001. London: Allen Lane, The Penguin Press.

Griggs, B. (1997). *New Green Pharmacy: The Story of Western Herbal Medicine*. London: Jill Norman and Hobhouse 1981; 2nd ed. Vermillion, an imprint of Ebury Press, Random House 1997.

Grillick, M. (1994).The High Cost of Dying. *Archives of Internal Medicine*, vol. 154, pp. 2134-7

Grun, B. (1982). *The Timetables of History: A Horizontal Linkage of People and Events.* From Werner Stein, Kulturfahrplan, Germany: F. A. Herbig Verlagsbuchhandlung 1946, 1963; New York: Simon & Schuster 1975, 1979; Touchstone 1982.

Guba, E.G. (1990). The alternative paradigm dialog. In E.G. Guba (Ed.) (1990). *The Paradigm Dialog.* Newbury Park, California: Sage Publications, pp. 17-27.

Guiley, E. (1989). *The Encyclopaedia of Witches and Witchcraft.* New York: Facts on File.

Habermas, J. (1971). *Knowledge and Human Interests.* Boston: Beacon.

Hagger, J. (1979). *Australian Colonial Medicine.* Adelaide: Rigby.

Hakim, C. (1982). *Secondary Analysis in Social Research.* London: Allen and Unwin.

Haller, J.S. (1994). *Medical Protestants: The Eclectics in American Medicine — 1825 – 1939.* Springfield, Il: Southern Illinois University.

Harris, M. (1975). Cows, Pigs, Wars and Witches: The Riddles of Culture. London: Hutchinson.

Held, D. (1980). *Introduction to Critical Theory: Horkheimer to Habermas.* Berkeley, Los Angeles: University of California Press.

Heller, A. (1978). *Renaissance Man.* London: Routledge & Kegan Paul.

Henry, L. (1884). Massage. *Australian Medical Journal*, 1884, pp. 337-338.

Herlihy, D. (1997). *The Black Death and the Transformation of the West.* Cambridge, Mass.: Harvard University Press.

Hester, M. (1992). *Lewd Women and Wicked Witches.* London: Routledge.

Hinde, A. (1991). Secondary Analysis, in *Handbook for Research Students in the Social Sciences.* Allan G. and Skinner C. (Eds.). London: The Falmer Press.

Hirono, I., Mori, H. & Haga, M. (1978). Carcinogenic Activity of Symphytum Officinale. *Journal of the National Cancer Institute*, vol. 61 (5), pp. 865-868.

Hodder, I. (2000). The Interpretation of Documents and Material Culture. In *Handbook of Qualitative Research,* 2nd ed. Denzin N.K. & Lincoln Y.S. (Eds). California: Sage Publications.

Hoffmann, D. (1990). *The New Holistic Herbal.* Shaftesbury, Dorset: Element Books 1983, 2nd ed. 1986, 3rd ed. 1990; Rockport, MA: Element Inc. 1991.

Horkheimer, M., & Adorno, T., (1979). *Dialectic of the Enlightenment.* New York: Herder and Herder.

House of Lords. (2000). *Select Committee on Science and Technology, Sixth Report – Complementary and Alternative Medicine* – 21 November, 2000. Retrieved August 7, 2002 from www.publications.parliament.uk/pa/ld199900/ldselect/ldsctech/123/12302.htm .

Hughes, P. (1952). *Witchcraft.* London: Longmans. Green 1952. Harmondsworth: Penguin 1965 reprinted 1970.

Hyman, H.H. (1972). Secondary Analysis of Sample Surveys: Principles, Procedures and Potentialities. London: Wiley.

Icke, D. (1994). The Robots' Rebellion: The Story of the Spiritual Renaissance. Bath: Gateway Books.

Illich, I, (1976/1990). *Limits to Medicine: Medical Nemesis: The Expropriation of Health.* London: Calder and Boyars. London: Penguin, 1990.

Inglis, B. (1979). *Natural Medicine.* Glasgow, Collins.

Inlander, C.B., Levin, L.S., & Weiner, E. (1988). Medicine on Trial – The Appalling Story of Ineptitude, Malfeasance, Neglect, and Arrogance. New York: Prentice Hall.

Isaacs, J. (1987). *Bush Food: Aboriginal Food and Herbal Medicine.* Sydney: Lansdowne Publishing.

Jacobs, J. (1999). Complementary/Alternative Medicine in the twenty-first century. In Spencer, J. & Jacobs, J. (Eds). (1999). *Complementary Alternative Medicine: An Evidence-Based Approach.* St. Louis, Missouri: Mosby.

Jobst, K.A. (1998). Toward Integrated Healthcare: Practical and Philosophical Issues at the Heart of the Integration of Biomedical, Complementary, and Alternative Medicines. *The Journal of Alternative and Complementary Medicine: Research on Paradigm, Practice, and Policy.* Larchmont, NY: Mary Ann Liebert Inc.

Johns, T. (1990). With Bitter Herbs They Shall Eat It: Chemical Ecology and the Origins of Human Diet and Medicine. Tucson: University of Arizona Press.

Jonas, W.B. & Ernst, E. (1999). Introduction: Evaluating the safety of Complementary and Alternative Products and Practices. In Jonas, W.B. & Levin, J.S. (Eds). (1999). *Essentials of Complementary and Alternative Medicine.* Philadelphia: Lippincott, Williams & Wilkins.

Kaplan, B. (1994). Foreword, in P. Chappell, *Emotional Healing with Homeopathy: A self-help manual.* Brisbane: Element Books (Jacaranda Wiley).

Kaptchuk, T. (2001). History of Vitalism. In Micozzi M.S. (Ed). (2001): 2nd ed. *Fundamentals of Complementary and Alternative Medicine.* Philadelphia: Churchill Livingstone. pp. 43-56.

Knight, C. (1991). Blood Relations: Menstruation and the Origins of Culture. New Haven: Yale Uni. Press.

Kohler, W. (1925). *The Mentality of Apes.* London: Routledge and Kegan Paul

Kohn, A. (1986). False Prophets: Fraud and Error in Science and Medicine. New York: Barnes and Noble.

Koop, C. (1996): Foreword. In Micozzi M.S. (Ed.). (1996): *Fundamentals of Complementary and Alternative Medicine.* Philadelphia: Churchill Livingstone.

Kramer, H. (a.k.a Institorit, H.), & Sprenger, J. (1486). *Malleus Maleficarum.* In Alan C. Kors & Edward Peters, (Eds.), Witchcraft in Europe 1100-1700: A Documentary History. Philadelphia: University of Pennsylvania Press 1972, repr. 1992.

Kuhn, T. (1970): *The Structure of Scientific Revolutions*, International Encyclopaedia of Unified Science, Vol. 2, No.2. Chicago: University of Chicago Press. 1962, 2nd ed. 1970.

Laing, R., & Esterson, A. (1968). *Sanity, Madness and the Family.* Harmondsworth: Pelican.

Laura, R. & Heaney, S. (1990). *Philosophical Foundations of Health Education.* New York: Routledge.

Lazarou, J., Pomeraqnz, B.H., & Corey, P.N (1998). Incidence of adverse drug reactions in hospitalized patients: a meta-analysis of prospective studies. *JAMA*, 15 April, 1998, vol. 279 (15), pp. 1200-5.

Le Fanu, J. (1999). *The Rise and Fall of Modern Medicine.* London: Abacus.

Lea, H.C. (1954). *The Inquisition of the Middle Ages.* New York: Barnes and Noble.

Lea, H.C. (1956). *A History of the Inquisition of Spain*, 4 vols. New York: Macmillan.

Lincoln, Y.S. & Guba. E.G. (2000). *Naturalistic Inquiry.* California: Sage.

Little, M. (1995). *Humane Medicine.* Cambridge U.K.: Cambridge University Press.

Lloyd, J.U. (1909). Life and Medical Discoveries of Samuel Thomson, and a History of the Thomson Materia Medica, as Shown in *The New Guide to Health.* (1835). Cincinnati: Bulletin of the Lloyd Library of Botany, Pharmacy and Materia Medica, Bulletin No. 11, Reproduction Series, No. 7.Retrieved 15 September, 2003 from http://www.swsbm.com/homepage

Lock, S. (1991). Introduction. In *The Future of Medical Journals* [article], British Medical Journal, 1991.

Lock, S. (1997). Medicine in the Second Half of the Twentieth Century. In Loudon I. (1997). *Western Medicine: An Illustrated History*, Oxford: Oxford University Press, pp. 123-144.

Loudon, I. (1997). *Western Medicine: An Illustrated History*, Oxford: Oxford University Press.

Low, T. (1990). Bush Medicine: A Pharmacopoeia of Natural Remedies. Sydney: HarperCollins.

Lyons, A.S., & Petrucelli, R.J. (1987). *Medicine: An Illustrated History.* New York: Abradale Press.

Macalman, J. (1984). *Struggletown: Public and private life in Richmond*, 1900-1965. Carlton: Melbourne University Press.

Maciocia, G. (1989). The Foundations of Chinese Medicine: A Comprehensive Text for Acupuncturists and Herbalists. Edinburgh: Churchill Livingstone.

MacLennan, A.H., Wilson, D.H. & Taylor, A.W. (2002). The Escalating Cost and Prevalence of Alternative Medicine. *Preventive Medicine,* vol. 35, pp. 166-173.

Martyr, P. (2002). Paradise of Quacks: An Alternative History of Medicine in Australia. Sydney: Macleay.

McCall, T.B. (1996). Examining your Doctor – A Patient's Guide to Avoiding Harmful Medical Care. Secaucus N. J.: Citadel Press.

McMichael, A. (1997). Global Climate Change: Potential Effects on Health. *BMJ*, vol. 315, pp. 805-9.

McTaggart, L. (1996). What Doctors don't tell you: The truth about the dangers of modern medicine. London: Thorsons.

McVaugh, M. R. (1997). Medicine in the Latin Middle Ages. In Loudon, I. (1997). *Western Medicine: An Illustrated History*, Oxford: Oxford University Press. pp. 54-65.

Micozzi, M.S. (Ed.). (2001). 2nd ed. *Fundamentals of Complementary and Alternative Medicine.* Philadelphia: Churchill Livingstone.

Moser, R. (1969). Diseases of medical progress: a study of iatrogenic disease. Springfield, Illinois: C.C. Thomas.

Moynihan, R. (1998). Too Much Medicine? The Business of Health - and its risks for you. Sydney: ABC Books.

Murray, M., & Pizzorno, J. (1990). *An Encyclopaedia of Natural Medicine*. London: Little, Brown and Company.

Nester, B. (1999). *An Examination of Critical Issues in Traditional Chinese Acupuncture Research*. Doctoral dissertation. Victoria University of Technology, School of Health Sciences.

Newman, O. (1981). *The Challenge of Corporatism.* London: The Macmillan Press.

Nunn, J.F. (1996). *Ancient Egyptian Medicine.* London: British Museum Press.

O'Neill. A. (1995). Danger and Safety in Medicines. *Social Science in Medicine*, vol. 38(4), pp. 497-507.

Ogilvie, W., (1952). Whither Medicine? *The Lancet,* vol. 2, p. 820.

Oxley, D. (1996). *Convict Maids: the forced migration of women to Australia.* Melbourne: Cambridge University Press.

Pagels, E. (1995). *The Origin of Satan.* New York: Random House 1995. London: Penguin 1996.

Park, K. (1997). Medicine and the Renaissance. In Loudon, I. (Ed.). (1997). *Western Medicine: An Illustrated History*. Oxford: Oxford University Press.

Parnall, S. & AAP. (1999). 'Study finds people with cancer fear to complain'. Brisbane: *Courier-Mail*, 8 April, 1999, p.5.

Pembery, J.A. (1982). *The Safety of Comfrey.* Essex: Henry Doubleday Research Association.

Phalen, K. (1998). *Integrative Medicine*. Boston: Journey Editions.

Pinker, S. (2002). *The Blank Slate – The Modern Denial of Human Nature*. London: Allen Lane, The Penguin Press.

Pirotta, M.V., Cohen. M.M., Kotsirilos. V. & Farish. S. J. (2000). Complementary therapies: have they become accepted in general practice? *Medical Journal of Australia*, vol. 172. pp. 105-109.

Pittet, D., Hugonnet, S., Harbarth, S., Mourouga, P., Sauvan, V., Touveneau, S., & Perneger, T. (2000). Effectiveness of a hospital-wide programme to improve compliance with hand hygiene. *The Lancet*, vol. 356, 14 October, 2000.

Pollak, K. (1968). *The Healers, Doctors then and now*. London: Thomas Nelson and Sons Ltd.

Porter, R. (1988). Before the Fringe: 'Quackery' and the Eighteenth-Century Medical Market. In Cooter, R. (Ed.). *Studies in the History of Alternative Medicine*, Basingstoke: Macmillan in assn. with St. Antony's College, Oxford

Porter, R. (1997). The Greatest Benefit to Mankind – A Medical History of Humanity from Antiquity to the Present. London: HarperCollins.

Porter, R., Brook, C., Yacopetti, J., & Stokes, B. (1998). Commitment to Quality Enhancement: The Interim Report of the National Expert Advisory Group on Safety and Quality in Australian Health Care. Canberra: Secretariat, National Expert Advisory Group on Safety and Quality in Australian Health Care.

Powell, C. (2003). *Anatomy of the Australian Natural Medicine Industry: Future Opportunities*. Report prepared for the Australian College of Natural Medicine. Brisbane.

Ragg, M. (1999). 'Bad Medicine'. Sydney: *The Australian*, 15 March, 1999, p.17.

Reid, D. (1993). Guarding the Three Treasures: The Chinese Way of Health. London: Simon & Schuster.

Reid, D. (1994): The Complete Book of Chinese health and Healing. New York: Barnes & Noble.

Reynolds, H. (1994). *Fate of a Free People*. Ringwood, Victoria: Penguin.

Rice, S. (1988). *Some Doctors Make You Sick*. Sydney: Angus & Robertson.

Robbins, J. (1996). Reclaiming our Health – Exploding the Medical Myth and Embracing the Source of True Healing. Tiburon, California: H.J. Kramer.

Robbins, R.H. (1959). The Encyclopaedia of Witchcraft and Demonology. New York: Crown.

Root-Bernstein, R. & M. (1999). Honey, Mud, Maggots and other medical marvels, The Science Behind Folk Remedies and Old Wives' Tales. London: Macmillan.

Rudgley, R. (2000). *Secrets of the Stone Age*. London: Century.

Ruether, R. (1975). New Woman, New Earth: Sexist Ideologies and Human Liberation. New York: The Seabury Press.

Sahlins, M. (1972). *Stone Age Economics*. London: Random House.

Saloojee, H. & Steenhoff, A. (2001). The health professional's role in preventing nosocomial infections. *Postgraduate Medical Journal*, vol. 77, pp. 16-19. Johannesburg: University of the Witwatersrand.

Saul, J.R. (1992). *Voltaire's Bastards: The Dictatorship of Reason in the West.* New York: Macmillan The Free Press: London: Sinclair Stevenson.

Saul, J.R. (1997). *The Unconscious Civilization.* Toronto: House of Anansi Press 1995; Melbourne: Penguin Books 1997.

Schapira, D. (1993). Intensive Care: Survival and Expense of Treating Critically Ill Cancer Patients. *JAMA*, vol. 269, pp. 783-6.

Schmitter, P.C. (1974). Still the century of corporatism? *Review of Politics*, vol. 36(1). Notre Dame, Indiana: University of Notre Dame.

Schneck, J.M. (1960). *A History of Psychiatry.* Springfield, Illinois: Charles C. Thomas.

Selby, W. (1994). Making do. In Pearn, J. (Ed.). *Outback Medicine: some vignettes of pioneering medicine*. Brisbane: Amphion Press. .

Sergeant, P.W. (1996). *Witches & Warlocks*. London: Hutchinson 1936; Senate (Random House) 1996.

Shorto, R. (1997). Gospel Truth: The New Picture of Jesus Emerging from Science and History and Why it Matters. London: Hodder and Stoughton.

Shreeve, J. (1995). The Neandertal Enigma – Solving the mystery of Modern Human Origins. New York: William Morrow.

Shylock, R. (1963). Medicine and Public Health in the Nineteenth Century World. New York: Mentor.

Singer, C. (1928). *A Short History of Medicine*. Oxford: Clarendon Press.

Smith, J.M. (1989). Did Darwin Get It Right? Essays on Games, Sex and Evolution. London: Penguin Books.

Spencer, J. & Jacobs, J. (1999). Complementary Alternative Medicine: An Evidence-Based Approach. St. Louis, Missouri: Mosby.

Starhawk. (1982). *Dreaming the Dark: Magic, Sex and Politics*. Boston, Mass.: Beacon Press 1982, 15th anniv. ed. 1997.

Stelfox, D. (2003). Victorian Government Explores Need for Regulation of Naturopathy and Western Herbal Medicine. *Australian College of Natural Medicine: Campus Chat.* October 2003. Brisbane: ACNM. p. 2.

Steward. F., & Wibberley. G. (1980). Drug innovation: What's slowing it down? *Nature,* vol. 284, pp. 118-20.

Stewart, F. (1999). 'Well, well ... without the Doctor'. Sydney: *The Sun-Herald,* Tempo section, 25 August, 1999, pp. 10-13.

Stock, S. (2001). 'Medical Meddling'. Sydney: *The Australian*, 1 September, 2001.

Szasz, T. (1973). *The Manufacture of Madness: a Comparative Study of the Inquisition and the Mental Health Movement.* New York: Dell, 1970; London: Routledge and Kegan Paul, 1971; St. Albans: Granada Paladin, 1973, repr. 1977.

Taubes, G. (1995). Epidemiology Faces Its Limits. *Science*, vol. 269, pp. 164-6.

Taylor, G.R. (1965). Historical and Mythological Aspects of Homosexuality. In Judd Marmor (Ed.). *Sexual Inversion: The Multiple Roots of Homosexuality*. New York: Basic Books.

Templeton, J. (1969). *Prince Henry's: The evolution of a Melbourne hospital.* Melbourne: Robertson and Mullins.

Tench, W. (1789). A Narrative of the Expedition to Botany Bay; with an Account of New South Wales, its Productions, Inhabitants, etc. To which is subjoined, A List of the Civil and Military Establishments at Port Jackson. London: J. Debrett.

The Melbourne Homeopathy Dispensary for the Sick Poor. (1870). Melbourne: *Homoeopathic Progress in Australia: A monthly journal of record and domestic practice*, vol. 1, pp.1870-1.

Tobler, H. (2003). 'Alternative therapy benefit faces chop'. *Weekend Australian*, September 20-21, 2003, p. 3.

Tuchman, B. (1978). A Distant Mirror: The Calamitous Fourteenth Century. New York: Alfred Knopf.

Tuchtan, V., Tuchtan, C., Stelfox, D., Valkenburg, C., & Moran, D. (Eds.). (2002). *The Principles and Philosophies of Massage*. Brisbane: ACNM.

Ullman, W. (1966). *The Individual and Society in the Middle Ages*. Baltimore: Johns Hopkins Press.

Usher, R. (1998). 'The Unkindest Cut: When you go into hospital do you - and they - really know what you're in for?' *Time Magazine*, 14.

Von Wright, G.H. (1983). *Philosophical Papers*. Oxford: Basil Blackwell.

Walker, G. (1988). *The Rule of Law: Foundation of Constitutional Democracy*. Melbourne: Melbourne University Press.

Walton, M. (1998). The Trouble with Medicine: Preserving the trust between patients and doctors. Sydney: Allen and Unwin.

Warner, M. (1976). *Alone of All Her Sex*. New York: Knopf.

Weitz, M. (1980). Health Shock – A Guide to Ineffective and Hazardous Medical Treatment. Sydney: Reed.

White, A. D. (1896). A History of the Warfare of Science with Theology in Christendom, abridged with a preface and epilogue by Bruce Mazlish. New York: Free Press 1965.

Wilber, K. (1998). *The Marriage of Sense and Soul: Integrating Science and Religion*. Dublin: Newleaf; Melbourne: Hill of Content.

Wilkinson, R. (1992). Income Distribution and Life Expectancy. *British Medical Journal*, vol. 304, pp. 165-8.

Williams, G.C. (1966). Adaptation and Natural Selection: A Critique of Some Current Evolutionary Thought. Princeton: Princeton University Press.

Williams, R. (1998). 'Life Support'. The Australian's Review of Books, Sydney: April 1998.

Williamson, P.J. (1985). *Varieties of Corporatism*. Cambridge: Cambridge University Press.

Willis, E. (1989). Medical Dominance: The division of labour in Australian health care. 2nd ed. Sydney: Allen and Unwin.

Wilson, E.O. (1975). *Sociobiology: The New Synthesis*. Cambridge, Mass: Harvard Uni. Press.

Wilson, R., William, B.R., Gibberd, R.W., Harrison, B.T., Newby, L. & Hamilton, J.D. (1995). The Quality in Australian Health Care Study. *The Medical Journal of Australia*, vol. 163, 6 November, 1995.

Wood, A.J. (1999). The safety of new medicines: the importance of asking the right questions. [editorial], *JAMA*, 12 May, 1999, vol. 281(18), pp. 1753-4.

Woodham, A. & Peters, D. (1998). *Encyclopedia of Natural Healing*. St. Leonards, NSW: Dorling Kindersley.

Woodham, A. & Peters, D. (2000). *The Complete Guide: Integrated Medicine*. St. Leonards, NSW: Dorling Kindersley.

Woodman, M. & Dickson, E. (1996). *Dancing in the Flames: The Dark Goddess and the New Mythology*. Boston: Shambhala; Sydney: Allen and Unwin.

WHO, (1978). World Health Organization. Traditional Medicine. Geneva: WHO Publications.

WHO, (1998). World Health Organization. Traditional Medicine. Geneva: WHO Publications.

WHO, (2002). World Health Organization. WHO Traditional Medicine Strategy 2002-2005. Geneva: WHO Publications

Wright, R. (1996). *The Moral Animal*. London: Abacus.

Wurtman, R. & Bettiker. R. (1995). The Slowing of Treatment Discovery, 1965 – 95. *Nature* Medicine, vol. 1. pp. 1122-5.

Youngson, R.M. & Schott, I. (1996). *Medical Blunders*. London: Robinson.