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SOCIOCULTURAL DETERMINANTS OF ILLNESS BEHAVIOR: THE TREATMENT STRATEGIES OF ARTHRITIS SUFFERERS

University of Hawaii

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Ph.D. 1982
SOCIOCULTURAL DETERMINANTS OF ILLNESS BEHAVIOR:
THE TREATMENT STRATEGIES OF ARTHRITIS SUFFERERS

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN ANTHROPOLOGY
DECEMBER 1982

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ACKNOWLEDGEMENTS

The research upon which this dissertation is based was funded by grants from the East-West Center and from the National Science Foundation. Institutional co-sponsorship of the project was provided by the Department of Community Practice and the Department of Anthropology at the University of Western Australia. For part of the period over which the research was conducted, I was employed by the Community and Child Health Services Branch of the Western Australian Public Health Department which provided me with study leave and time to undertake part of the research. Dr Evan Owen kindly provided me with the opportunity to interview arthritis patients at the Queen Elizabeth II Medical Centre. As well as to all the people who participated in the study, I wish to extend particular thanks to Dr Peter Underwood, Professor Max Kamien, and Mrs Wendy Townshend of the Department of Community Practice and to Dr Chuck Waddell of the Department of Anthropology at the University of Western Australia. Most importantly, I want to express my appreciation for the support and assistance provided by my wife, Sherry Saggers. She has given much to this project and I am deeply indebted to her.

Dennis Gray

December 1982
ABSTRACT

The study describes the treatment strategies used by arthritis sufferers and examines the factors responsible for variation in those strategies. The research population was comprised of 103 people from the Australian city of Perth. Qualitative data was obtained from a clinical sample of 27 and, on the basis of that, an interview schedule was constructed and administered to a population of 76 self-reported arthritis sufferers. Data collected included; comprehensive case-histories, knowledge and beliefs about arthritis, types of practitioners consulted and treatments used, and a range of demographic and socioeconomic variables. These data were subjected to statistical analyses. Four basic treatment strategies were discerned. Named after their most salient characteristics and ranging from the least to the most inclusive these were; "general practitioner and self-care," "medical and paramedical care," "medical and alternative care," and use of "all sources of care." The most important determinants of treatment strategy were characteristics of the disease--severity, mode of onset, and period since onset. The longer the period since onset, the wider the range of treatments utilized. When onset occurred at a relatively young age and when progression was rapid, the more frequently unorthodox treatments were employed. Disease characteristics were
closely followed in importance by socioeconomic factors. Use of the first two, more orthodox, strategies was related to social class; with working class people relying on the first strategy. However, when onset and progression were rapid, the disease was severe, and the person young, socioeconomic factors were of lesser importance and people from all classes made resort to the latter two strategies. The relationship between people's knowledge and beliefs about arthritis and the strategies was not as strong as those between treatment strategies and disease characteristics and socioeconomic factors. In part these were built up in the course of seeking treatment rather than determining its choice. The results of the study suggest the need to be wary of those anthropological views which assume a congruence between beliefs and illness behavior. Further, they emphasize the importance of material factors--including disease characteristics--in shaping people's response to illness.
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CHAPTER I

INTRODUCTION:

A THEORETICAL CONTROVERSY

The term "anthropology" is derived from the Greek words *anthropos*, meaning "man," and *logos*, meaning "reason" or "divine wisdom." The term is usually glossed to mean "the study of man" or the "study of humankind." Anthropology's roots go back at least as far as the Enlightenment. However, it was not until the latter part of the nineteenth century, in the wake of the Darwinian revolution, that it became established as a formal discipline. Although within anthropology there are major sub-disciplines and a multiplicity of specialized fields of study, it is distinguished from other disciplines dealing with the study of human beings by its holistic approach. That is, at least ideally, it is concerned to present, in temporal perspective, a broad integrated picture of human life, including biology, language, and culture. Thus, for example, anthropology can be contrasted with disciplines such as human biology and political science which tend to concentrate on specific aspects of the human condition.

When attention is focussed on the sub-discipline of cultural, or social, anthropology one finds that there is a great deal of disputation amongst its practitioners at two
separate but interrelated levels; the epistemological and the macro-theoretical. Thus, in contrast to biology, for example, there is no over-riding scientific paradigm similar to the synthetic theory of evolution to which the community of scholars subscribes. At the highest level, this disputation involves the status of cultural anthropology itself and is a dispute which is nearly as old as the discipline. On the one hand, there are those who hold that anthropology is an art or a humanistic discipline. On the other, are those who hold that human culture can be legitimately studied according to the canons of scientific investigation and, thus, that anthropology is a social science. Those who have taken the former approach tend towards the view that the discipline's role is an interpretive one, concerned with the "meanings" that human beings attach to their behavior. By and large these people have regarded cultures as symbolic systems or systems of meanings. Those who have taken the second approach have attempted to provide causal and/or functional explanations of human behavior. This epistemological dispute is of fundamental importance because depending upon the stance that an anthropologist takes, so is determined what are regarded as legitimate areas of enquiry and the methods and techniques that are to be employed in pursuit of those enquiries.
At the macro-theoretical level (that is, the level at which an attempt is made to formulate a unified system of explanation for a diversity of phenomena) there exist a number of competing approaches. Some of the most important of these are phenomenology (Psathas 1973), cognitive anthropology (Tyler 1969), French structuralism (Levi-Strauss 1963), British structuralism (Lewis 1976), and cultural materialism (Harris 1979). At this macro-theoretical level there is a continuing debate amongst anthropologists about the relative importance of ideational and material factors in explaining human behavior (Sahlins 1976, Harris 1979). Ideational factors are such items as belief systems, values, and the shared inter-subjective perceptions people have of the world in which they live. Material factors include aspects of the environment in which people are situated, the technology by which they exploit that environment, and the inter-relationships between these. One way of conceptualizing the difference between the various macro-theoretical positions is to envisage them as being spaced along a continuum, their positions being dependent upon the relative emphasis they place upon ideational and material factors as elements in their explanatory frameworks.

As indicated above, there is a close inter-relationship between the epistemological and theoretical positions espoused by various anthropologists. There is a tendency
for those who hold that anthropology is an interpretive discipline to maintain that the distinctive element in human behavior is that it is motivated and meaningful and, therefore, that ideational factors are of primary import. On the other hand, those anthropologists who hold that anthropology is a science have tended to emphasize the importance of material factors in their explanations of human behavior. However, this is by no means a one-to-one relationship. Psychological anthropologists, for example, give primacy to ideational factors but generally subscribe to the view that these elements are susceptible to scientific investigation.

It is the purpose of this dissertation to make a contribution to the theoretical, rather than the epistemological debate. For reasons to be outlined later it is accepted that human behavior can be explained in a scientific manner. Taking this position, one particular aspect of human behavior, the treatment strategies used by people suffering from various forms of joint disease, is examined in an attempt to assess the relative importance of ideational and material factors as determinants of that behavior.

In the period since World War II, and especially in the past two decades, increasing numbers of investigators have undertaken studies in the field that has become known as medical anthropology. Foster and Anderson (1978:4)
attribute the relatively recent development of the field to the confluence of four areas of interest. These areas are: physical anthropology with its emphasis on human biology and evolution and the way in which disease bears upon these; a traditional ethnographic interest in primitive medicine; the concerns of anthropologists of the "culture and personality" school and their overlapping interests with psychiatry; and the growth of public health programs after World War II. To these Lieban (1973:1032), summarizing the writing of Galdston, has added the changing character of some of the more prevalent diseases in Western industrialized societies. That is, there has been a decline in importance of the infectious diseases and an increase in the prevalence of diseases such as various malignant neoplasms and coronary disease in which a range of sociocultural factors appear to be implicated in the etiology.

Medical anthropology has been defined in numerous ways, most of which emphasize the content of the field (Colson & Selby 1974:254). One of the better definitions is that by Fabrega who has written that medical anthropology,

... (a) elucidates factors and processes that play a role in or influence the way in which individuals and groups are affected by and respond to illness and disease, and (b) examines these problems with an emphasis on patterns of behavior (1972:167).

The advantage of this definition is that, like that of Foster and Anderson (1978:2-3), it is broad enough to encompass biological and ecological as well as sociocultural
concerns; and, like that of Lieban (1973:1034), it allows for the reciprocal interaction between medical and sociocultural phenomena.

There are large areas of convergence between the field of medical anthropology and that of medical sociology; just as there are between the disciplines as a whole. Relevant to this Foster quotes Wax to the effect that,

In terms of a logical and systematic division of social-scientific labor, much of sociology and anthropology should be grouped together. For example, social psychology, ethnopsychology, and psychological sociology are actually one field, and the attempts to justify their distinctiveness are almost comical (1974:1).

Similarities between anthropology and sociology can be seen with respect to their areas of interest, the research methods and techniques employed, and the theories constructed to explain human social behavior. Until recently, one difference that tended to obscure some of these similarities was the anthropological emphasis on field work in other societies. However, with declining opportunities for research in ex-colonies or third world countries, increasing numbers of anthropologists have undertaken research in their own societies. This has served to highlight similarities between the disciplines. Also, the fact that medical anthropology and medical sociology had different origins (Foster 1974:1) should not be allowed to obscure present day similarities. Despite the similarities, though, there are real differences. These stem mainly from
anthropological concern with human evolution and the evolution of culture. Especially in their applied aspects, medical anthropology and medical sociology have a great deal in common with the fields of public health and social medicine. However, whereas the latter fields are primarily concerned with the application of sociocultural knowledge to the solution of specific health problems, medical anthropology and medical sociology like their parent disciplines seek to obtain knowledge which will explain human behavior in general.

Within the field of medical anthropology there are two broad approaches to the study of medical phenomena. On the one hand is found ethnomedical studies and on the other epidemiological and ecological studies. As Fabrega (1972) indicates, the first of these approaches emphasizes disease or illness as it is defined and acted upon by members of a particular social group. The second approach defines disease in biomedical terms and seeks to explain its etiology and consequences. However, as Foster and Anderson (1978:2) note, these approaches with their respective sociocultural and biological emphases are not mutually exclusive. Rather, they should be viewed as the end points of a continuum with most studies employing some combination of them.

One of the major concerns of medical anthropology has been with medical systems. Studies of medical systems have
sought to elicit their components (Kleinman 1978a), to describe their functioning (Janzen 1978), and to relate them to wider social systems (Elling 1978). According to Foster and Anderson their are two major components of all medical systems. These components are a "disease theory system" and a "health care system."

A disease theory system embraces beliefs about the nature of health, the causes of illness, and the remedies and other curing techniques used by doctors. In contrast, a health care system is concerned with the ways in which societies organize to care for the sick and to utilize disease "knowledge" to aid the patient (1978:37).

An aspect of health care systems that has received considerable attention from anthropologists and sociologists has been the patterned behavior exhibited by sick individuals. Following upon the work of Parsons (1951) sociologists and anthropologists have sought to describe in detail the patterned behavioral responses of individuals to illness episodes. Parsons' concern was with what he called "sick role" behavior. He sought to explicate the rights and obligations that a person claiming to be sick could expect from and had to those in his social group. As Coe (1970:107) indicates, for Parsons the inability of a sick person to meet normal expectations is a special case of deviant behavior. Parsons' formulation of the sick role has been subjected to much criticism and revision (Kassebaum & Baumann 1965, Kasl & Cobb 1966, and Segall 1976). In addition several other concepts have been formulated to help
explain human response to illness. The most general and one of the most important of these is that of illness behavior. This was defined by Mechanic and Volkhart as,

... the way in which symptoms are perceived, evaluated, and acted upon by a person who recognizes some pain, discomfort, or other sign of malfunction (1961:52).

Another of these concepts is that of the patient role (Foster & Anderson 1978:146). This is a more restricted concept than that of either illness behavior or the sick role and is used to describe the behavior of an individual who is following the treatment prescribed by some kind of medical practitioner.

Research has indicated that there is often a great deal of variation in behavior in response to illness or disease. Foster and Anderson (1978:147) attribute much of this variation to either socioeconomic or cultural differences, and place emphasis upon the latter set of factors. Other writers (Coe 1970:112-4, Fabrega 1972:210) have made finer distinctions within these categories than did Foster and Anderson and they have also included psychological or psychosocial factors. Thus McKinley (quoted in Denton 1978) invokes economic, sociodemographic, geographical, psychosocial, sociocultural, and organizational factors to explain variation in the usage of health services.

Either explicitly or implicitly, much research in medical anthropology has emphasized the role of
sociocultural factors in the explanation of variation in aspects of illness behavior. In this regard a criticism of ethnomedical studies made a decade ago by Fabrega is still of some relevance. Fabrega (1972:186,188) wrote that anthropologists have treated illness as if it was a psychiatric phenomenon. In doing so they have underemphasized the biological elements of illness and ignored such important factors as the type and mode of onset of disease.

In the late 1960's, a sociologist named Ruth Elder carried out research into the relationship between social class and illness behavior in response to symptoms of osteoarthritis. The major hypothesis of her doctoral dissertation, and one confirmed by her research findings, was that illness behavior varied with social class position. The differences that she found were described in a paper co-authored by Acheson (1970). In a subsequent paper, Elder claimed that variations in beliefs about the etiology of arthritis, which were associated with social class position, supported Berger and Luckmann's theory that,

reality is socially constructed and that position in the social structure influences the explanations developed to account for symptoms (1973:37).

In doing so, she implicitly stresses the importance of shared beliefs as factors explaining variation in illness behavior. Berger and Luckmann are phenomenological sociologists and, in respect to the disputations outlined
above, hold that human behavior cannot be adequately understood using the methods of science and that ideational factors are central to an explanation of human action. Their work focusses upon the way in which knowledge in everyday life comes to be shared and in turn comes to constrain human behavior (Berger & Luckmann 1967).

Elder's study raises some difficulties. Firstly, she clearly demonstrated that beliefs about etiology varied with social class position. However, the phenomenological approach involves more than the mere assertion that people in the same social situation share common beliefs. Social theorists of a variety of persuasions can agree upon that whilst holding radically different views about the causes and consequences. Entailed in the phenomenological position is the view that shared, or inter-subjective, beliefs are crucial elements in the explanation of behavior. It is here that Elder's analysis runs into problems, for she states that,

... with one exception, etiological beliefs had little effect on patterns of physician use when social class was controlled. The exception was when the respondents were fearful that their symptoms represented a serious condition ... (1973:36)

That is, on one important dimension of behavior, when comparing people of the same social class, differences in belief made no significant difference to patterns of physician use. Thus, although from a phenomenological
perspective the respondents' perceptions of reality (that is, the beliefs about the cause of their disease) were different, these perceptions did not generally lead them to act in different ways.

In fact, Elder's data revealing that social class positions, . . . provide different empirical experiences that prompt different thought associations to joint discomfort (1973:37 emphasis added) do not support a phenomenological interpretation. She is not discussing merely the respondents' perceptions of reality, but the objective, external reality imposed by social class position.

At this juncture, one is faced with two alternatives. One can tentatively accept Elder's conclusion that the findings support the phenomenological position and search for as yet unrecognized inter-subjective understandings which are bringing about the observed uniformity of behavior. Or, alternatively, in the light of the evidence presented, one can reject Elder's conclusion and examine the possible role of other factors such as income or access to treatment facilities in producing the common behavioral response. Using a cultural materialist approach (one that stands in stark contrast both epistemologically and theoretically to phenomenology), the present study takes the second alternative. The major hypothesis to be tested is that objective socioeconomic factors are more strongly
associated with variations in illness behavior than are beliefs about etiology and the nature of the illness, or what Kleinman has called "explanatory models" (1978a). The remainder of this chapter, then, will outline briefly what is meant by the use of the term "science" and will discuss the differences between phenomenology and cultural materialism and the justification for preferring the latter over the former approach.

SCIENCE.

The Peltos have defined science as

... the structure and the process of discovery and verification of systematic and reliable knowledge about any enduring aspect of the universe, carried out by means of empirical observations, and the development of concepts and propositions for interrelating and explaining such observations (1978:22).

They go on to

...suggest that science includes a large component of searching, speculating, and discovering—a whole set of activities which cannot be easily codified and systematized (1978:22).

This is a broad definition and one which few practitioners of the so-called natural sciences, at least, would disagree.

Implicit in the Peltos' definition, and in orthodox definitions generally, are a number of assumptions about the universe and the way in which it can be comprehended by human beings. The first of these assumptions is that an objective external universe exists independently of human
volition. A corollary of this is a commitment to materialism. This is not the naive "mechanical materialism" of the eighteenth and nineteenth centuries, but a commitment to describing the universe in terms of matter, time, and space as understood in terms of present day physics. Specifically, it leads to eschewal of metaphysical phenomena (if they exist) as being beyond the realm and competence of scientific concern.

A second assumption is that knowledge of the objective external universe can be obtained by a combination of both inductive and deductive procedures. Alone, neither induction nor deduction can provide adequate explanation of the relationships between phenomena. Importantly, however, theories based on deduction must be tested on the basis of empirical evidence. As with materialism, this empiricism is not of the naive variety. It is recognized that the data provided by the senses is never wholly reliable. However, by careful attention to procedures of observation it is assumed that perceptual distortions of phenomena can be minimized. Thus, within the limitations imposed by our theoretical and conceptual frameworks, it is possible to describe phenomena in terms that more or less approximate the character of external reality.

In accord with discoveries within specific natural science disciplines, external reality is not viewed in absolute terms. Rather, perceived regularities are regarded
as being of a probabilistic nature. Whilst it is recognized that the universe does not operate on mathematical principles in any teleological sense, nevertheless, phenomena can be succinctly described in terms of mathematics, including probability theory.

Bearing in mind the assumptions embedded in the Peltos' definition of science, we can examine the types of explanation that science provides. Following Nagel, these are:

1. deduction from known and lawlike principles
2. probabilistic statements, in which the "explanatory premises do not formally imply their explicanda"
3. functional or teleological explanations, in which statements are made about the "functions (or even dysfunctions) that a unit performs in maintaining or realizing certain traits of a system to which the unit belongs, or of stating the instrumental role an action plays in bringing about some goal," and
4. genetic, or historical, explanations, "which set out the major events through which some earlier system has been transformed into a later one" (Nagel 1961:21-24 quoted in Pelto & Pelto 1978:20).

The Peltos go on to indicate that different sciences utilize these types of explanation to different degrees (1978:20), their point being that because anthropology does not rely upon the same mixture as, say, physics does not mean that it is any less a science.

The definition that has been used stresses science as knowledge and ways of knowing. It is important to recognize, however, that science as knowledge does not stand
in isolation and that the idea of scientists carrying out research for "the sake of knowledge" alone is, despite the protestations of some scientists, an extremely naive one. The scientific quest for knowledge takes place within particular social contexts and such contexts either directly or indirectly determine the directions that scientific research takes. Similarly, the results of scientific research can be used for the benefit of all human beings or they can be used to promote the narrow interests of particular groups. As a result of its latter use, in recent years there have even been attempts to portray science as the ideology of certain dominant groups in society. The point is, however, that the problems alluded to are not the faults of science *per se* as some neo-Luddites would have us believe. Rather, they are social, political, and ethical problems whose solution is not to denigrate science but is to attack them at their roots.

**PHENOMENOLOGY.**¹

The term "phenomenology" has been used in various ways by philosophers, including Kant and Hegel, since the eighteenth century. It has gained wider currency in this century to describe the philosophy of Edmund Husserl (1970)

¹ Rather than continually interjecting editorial comments, such as "the phenomenologists believe," etc, this section is primarily presented from a phenomenological viewpoint.
and his followers. In the latter context, phenomenology is employed to mean the study of objects or events as they are manifested in human consciousness, the ultimate aim of which is to understand consciousness itself. Although those who have followed Husserl have described phenomenology as "a child of the twentieth century" (Luckmann 1978:7) and have portrayed it as a radically new development in philosophy, Husserl's roots are clearly traceable in the history of German Idealism. Husserl does, however, take Kant's premise that knowledge of the external world is dependent upon subjective experience to new extremes.

For Husserl, a distinguishing feature of human existence is its intentionality. By this he meant that humans are conscious beings and that it is through consciousness that knowledge of the external world is gained. It is through intentionality of action or experience that the external world gains "meaning." Amongst individuals in the process of social interaction, and by means of language, inter-subjective propositions about the nature and meaning of their world become "sedimented." In turn, these sedimentations become the basis of "natural attitudes" by means of which phenomena are perceived. In everyday life, phenomena are experienced as actualities and for this reason perceptions of everyday life are "naive." It is one of the tasks of phenomenology to delve beyond this naive experience.
Husserl's concern was not with direct knowledge of phenomena in the external world: that is, with objective knowledge as the term is usually employed in scientific discourse. Rather, he held that phenomena are only knowable as phenomena in consciousness. Thus his interest was directed at ascertaining how subjective and inter-subjective human knowledge is acquired. This required the study of consciousness itself and elicitation of its "essences," or basic structures, a process he called "eidetic analysis."

In *Cartesian Meditations* (1970, orig 1929), it was Husserl's contention that Descartes had impelled Western philosophy and science down what was proving to be an increasingly unfruitful path. In his *Meditations*, Descartes "regresses" to a state of "ego as subject of his pure cogitationes" (quoted in Husserl 1970:3) from which he proceeds to deduce the existence of God, and phenomena such as objective nature, and the positive sciences. According to Husserl, Descartes took this path because of his prejudice in favor of formal logic and mathematics; both of which, in phenomenological terms, have their basis in unreflected upon, naive, natural attitudes.

Placing himself in Descartes' position, the phenomenological philosopher takes the path to "transcendental subjectivity" in which he sees,

... that all the world, and therefore whatever exists naturally, exists for me only as accepted by me with the sense it has for me at the time (Husserl 1970:37).
In arriving at this understanding the phenomenologist has performed the "transcendental phenomenological reduction." This reduction lies at the heart of the phenomenological program for understanding knowledge. By recognizing that knowledge is consciousness of phenomena, the phenomenologist is equipped to explore the realms of everyday life; as well as the positive sciences which, because of the unrecognized natural attitudes embodied in them, Husserl merely regarded as "naivetés of a higher level" (1970:153).

The philosophical phenomenology of Husserl was first systematically applied to the understanding of social relations by Schutz in the 1930's and 1940's. More recently, this work has been developed in the works of Berger and Luckmann (1967), Natanson (1974), and under the label "ethnomethodology" by Garfinkel (1967). In philosophical phenomenology, Husserl's ideas have been developed along a number of different lines. So too, in phenomenological sociology there are marked differences between its practitioners. This makes succinct characterization of the field difficult. Essentially, however, the aim of phenomenological sociology is to describe and analyze the shared, inter-subjective understandings that individuals have of their everyday social world and the ways in which these understandings are established and maintained. As Wagner indicates,
Schutz viewed sociology as an exploration of the general principles according to which man in daily life organizes his experiences ... especially those of the social world (1970:44).

As in philosophical phenomenology, in sociological phenomenology the basic building block upon which the epistemological and theoretical edifice rests is the postulate that the external world can be known only in consciousness and that consciousness colors perception of the world. From this follows the principle that, although it may exist independently of human thought, external reality can not be known "objectively." For the phenomenologist, consciousness of the world is conditioned by certain preconceptions, or natural attitudes. This means that knowledge of the world is subjective or personalized on the one hand and inter-subjective or shared on the other. When the term "objective" is used by the phenomenologists it is to describe the social actor's experience of phenomena as external coercive facts (Berger & Luckmann 1976:76), whether or not they have an actual independent existence. This denial of the possibility of obtaining objective knowledge immediately places the phenomenologists outside the realm of orthodox scientific discourse. Although the phenomenologists sometimes describe their attempts at understanding as "scientific," they do not use the term as it is usually understood. In practice, some
phenomenologists have modified this basic tenet and allow that scientific methods are appropriate for the study of natural phenomena. However, all are alike in denying the appropriateness of such an approach to the study of human social life.

For the phenomenologists, a distinguishing feature of human consciousness is its "intentionality" or directedness. Human action is a consequence of intentionality of consciousness towards a particular phenomenon. People act upon the basis of what they perceive to be real. Thus, in order to understand the meaning of social behavior, it is necessary to uncover people's perceptions of reality, rather than external reality *per se*. This directs the researcher's attention to the ideational component of culture. As human response to the external world is mediated by consciousness, even if the world has a "reality" of its own, behavior cannot be understood in terms of a direct relationship to that world.

The initial focus of phenomenological analysis is upon the inter-subjective perceptions that individuals have of their social world and which form the basis for their actions in that world. Berger and Luckmann (1967) have written extensively about the dynamic way in which these inter-subjective perceptions arise and are perpetuated within social groups. What may initially originate as a subjective, personal view may, in the process of social
interaction, come to be shared by other individuals. Language is an important element in this process and it serves as a storehouse of shared understandings. This potentiality for new inter-subjective knowledge to arise from subjective experience explains why knowledge or culture do not remain static. However, the subjective experience of individuals is largely ordered for them by inter-subjective concepts which they internalize from others in the various stages of socialization.

A concept central to the understanding of this "social construction of reality" is that of the "typification." According to Natanson, typifications,... are pure types whose exemplifications in concrete experience are merely representations of their fictive counterparts (1974:29).

Shared experiences of the world become "sedimented" as typifications, and it is by means of these typifications or ideal types that individuals classify and comprehend their social world. Also, typifications provide guidelines to socially appropriate behavior. It is the totality of these typifications which comprise the "natural attitude" or mundane philosophy of the world which individuals share. It is in this area of phenomenological theorizing that the influence of Weber's (1949) "ideal types" as base points for the analysis of behavior, can be clearly seen.

Importantly, in complex societies, the segmentation of the social order means that knowledge of the world also
becomes segmented. In the course of social interaction, different views about the nature of reality arise and/or access to certain aspects or types of knowledge may be restricted. According to Berger and Luckmann, this gives rise to the development of various levels of legitimation which

... produces new meanings that serve to integrate the meanings already attached to disparate institutional processes (1967:110).

Amongst the higher level legitimations Berger and Luckmann include science along with theology and philosophy.

The first step in the phenomenological analysis of society is the "bracketing of reality." That is, in line with their basic epistemological assumptions, questions about the reality of the external world are set aside. What is important to the phenomenological anthropologist is the social actors' experience of their life-world. This directs attention not to social behavior per se, but to the motivations and meanings that actors attach to their behavior. The major techniques employed to elicit these motivations and meanings are intensive, but informal, interviewing and the analysis of language. At this intital stage of research the purpose is to describe "the concrete features of everyday experience" (Luckmann 1978:8).

As the phenomenologists indicate, such description is not a straightforward task for, as we have seen, they deny the possibility of obtaining "objective" knowledge. When an
observer comes to a particular social setting he brings to it views implicit in his own natural attitude. It should be his aim to recognize and transcend these, but to do so completely is not possible. Therefore all descriptions are to some extent colored by the natural attitude of the observer. This assumption leads to the phenomenological rejection of other research techniques used in so-called "positivistic" social science. The use of mathematics to describe social phenomena is eschewed because

... it is not possible to express the 'inexact data of perception in an exact manner'... Thus we cannot expect to quantify and mathematize descriptions of social phenomena if their nature (essence) is qualitative and non-mathematical (Psathas 1973:10).

The use of interview schedules and questionnaires is similarly rejected for these, like mathematical techniques, are believed to impose upon data preconceptions derived from the observer's own natural attitude.

The task of the phenomenological anthropologist is not to stop at the description of the life-world of social actors. As social actors do not subject their views of the world to analysis, such views are naive. For this reason the observer cannot directly elicit from them the typifications by which they structure their experience. Thus, the next step in the phenomenological research strategy is that of eidetic analysis; a form of ideal type analysis in which the researcher attempts to identify and/or reconstruct the actor's typifications. An example of this
can be seen in the work of Manning and Fabrega. After outlining the beliefs characterizing the medical care systems in a Mexican town, they proceed to suggest that at a more fundamental level the image of the human body is used as a symbol to categorize and provide meaning to a wider range of phenomena (1973:278).

A question that must be asked of the results of any research activity is "how valid are the results?" According to Husserl, because it deals with knowledge of the essences of consciousness rather than their naive expression in natural attitudes, phenomenology is not relativistic. However, in the practical application of phenomenology to the analysis of socio-cultural phenomena, because of the denial of the possibility of objective knowledge of external reality, anthropological phenomenology has been extremely relativistic. In accord with this relativism, the tests of validity employed by phenomenologists are themselves relativistic. That is, validity is judged in terms of the life-world being examined. According to Psathas, phenomenological accounts are valid if they:

1. are recognized as valid by the actors;
2. allow others to recognize the activities if confronted with them; and
3. permit the reader to become a player after reading the rules (Psathas 1973:12).

In summary, phenomenologists deny that objective knowledge of the external world is possible. In emphasizing that experience is ordered through consciousness, they
direct the attention of the researcher to consciousness itself and the culturally shared typifications social beings have of their life-world. From the phenomenological point of view, human behavior is incomprehensible apart from the meanings that social actors attach to it and, for this reason, phenomenology's central concern is with ideational phenomena. The overwhelming interest in shared understandings combined with the denial of the possibility of objectivity has led the phenomenologists to an eschewal of the research methods and techniques of what they call "positivistic" social science and to an emphasis on qualitative research which is extremely relativistic and which aims at capturing the ways in which other people comprehend their life-world, rather than providing causal explanations.

CULTURAL MATERIALISM.²

The approach to the study of human culture known as cultural materialism stands in marked contrast to phenomenology. Rather than putting into abeyance questions about the nature of external reality, cultural materialists assert that it does exist independently of human thought. Furthermore, they hold that it is possible to obtain more or

² Although broadly cultural materialist writings are scattered through the anthropological literature, Marvin Harris has been its most outspoken proponent and the following section draws heavily on his writing.
less objective (but never absolute) knowledge of that external reality. In this respect, cultural materialists believe that the methods of science, including as they do intuitive and serendipitous elements as well as formalized investigative procedures, are the best means of obtaining such knowledge. Their conception of science coincides with that of people working in the natural sciences, such as was outlined earlier. In this respect they are the intellectual heirs of the synthetic philosophical tradition derived from Descartes and Hume.

The phenomenologists have criticized cultural materialists and others because of the alleged fact that they are proponents of a "positivistic" view of science which cannot be applied to the study of human cultural phenomena. There are two aspects to this assertion. On the one hand, the term "positivistic" is used specifically to refer to the philosophy of logical positivism. On the other, the term is used as a general epithet to describe attempts to describe social phenomena in objective terms.

A central element in logical positivism is the "verifiability criterion of factual meaningfulness" (Feigl 1982:879-80). According to this criterion assertions only have factual meaning (that is, cognitive as opposed to emotive meaning) if they are formulated in such a manner as to be affirmed or denied, and if they are then conclusively verified as a result of empirical testing. Popper
in his formulation of the "criterion of falsifiability," rejected the logical positivist position on the grounds that assertions can never be completely verified because it is not possible to subject all cases to test. Marvin Harris has defended the logical positivist position. He states that for the working social scientist Popper's distinction is "devoid of operational significance" because rather than discarding falsified theories we must, of practical necessity, hold onto those which have been least falsified (1979:18). Although Harris is the leading proponent of cultural materialism, and despite his defense of this particular tenet of logical positivism, it does not follow that cultural materialists must adhere to the philosophy of logical positivism. From an epistemological point of view, for cultural materialism, the application of scientific methods to the study of cultural phenomena is the central issue and in this respect Popper's "objectivist" approach (that is, objectivity is possible without positivism--Tilley 1981:33) can be substituted for that of logical positivism without substantially affecting the thrust of the cultural materialist position.

There are two other elements which served to characterize the way in which logical positivism was originally formulated. These were the search for absolute laws and the assertion that objectivity was possible in some absolute sense. With respect to the former, developments
within the various sciences have served to emphasize the probabilistic nature of the occurrence of phenomena. This development has been paralleled in the social sciences and few, if any cultural materialists would subscribe to this tenet of logical positivism.

The third major tenet of the logical positivist position, objectivity, needs to be viewed in the light of the phenomenologists' epithetical use of the term "positivist." The reason for this is that they not only deny the possibility of objectivity in the absolute sense in which it is used by the logical positivists, they also deny the possibility of the modified conceptions of objectivity employed by others who believe that scientific methods can be usefully employed in the study of social phenomena. The effects of observer bias have long been noted in the natural sciences and it has been one of the contributions of the phenomenologists, amongst others, to highlight the preconceptions with which observers in the social sciences approach their data. As a result of this, few natural or social scientists would hold to the naive notion of objectivity in the logical positivist sense. However, as Tilley (following Popper) indicates, in denying the possibility of absolute objectivity it is not necessary to "fall into (the trap of) subjectivism/relativism" (1980:32). Knowledge can be objective in that it is possible to recognize some of our biases and use such recognition to
minimize their effects. Being objective means subjecting our propositions to testing according to the canons of science in an attempt to reformulate them in a manner which enables higher levels of prediction and thus a closer approximation of external reality. It is this questioning of assumptions which sets science apart from what the phenomenologists have called "natural attitudes." Thus, the scientific approach is not just another form of inter-subjectivity as the phenomenologists maintain.

Rather what goes for scientific knowledge is the result of critical discussion of ideas detached from their originators ...(Tilley 1980:33).

In the light of the foregoing, it can be seen that although some individuals may subscribe to specific aspects of logical positivism, there is no inherent reason for cultural materialists as a whole to be committed to that position. They do, however, differ markedly from the phenomenologists in their assertion that objective knowledge is possible. However, as was also indicated, this is not the naive objectivity of logical positivism. If cultural materialism is to be called a "positivistic" approach it is so only in a rather loose and misleading sense of the word.

As Harris indicates, there are two major distinctions which are central to the epistemology of cultural materialism (1979:29-45). Once again, these bring cultural materialism into sharp contrast with phenomenology. The first of these distinctions is between mental and behavioral
phenomena. Implicit in the phenomenological approach is the view that behavior is a manifestation of mental events. In that view, to analyze behavioral events separately from mental events is to distort the former by cutting them adrift from the meanings actors attach to behavior. However, a number of arguments can be adduced in support of the cultural materialist view that these can be studied separately but in relation to each other.

Firstly, the philosopher Brodbeck has argued that the term "meaning" has itself several meanings which she says are often not recognized or are confused by the "mentalists." These meanings of the term "meaning" are

1. referential meaning--when a term refers to a character;
2. significance--the relationship between what is referred to and other things;
3. intentional meaning--what a mental act intends, means, or is about; and
4. psychological meaning--the behavioral and physiological responses induced in response to a particular phenomenon (1968:100-6).

When phenomenologists talk about the "meaning" of a phenomenon, they are generally referring to intentional meaning. However, Brodbeck argues that by the use of referential meaning, significance, and psychological meaning, the intentional meaning of behavior can be indirectly though "... objectively construed without appealing to any vitiating participant 'inside knowledge!'" (Brodbeck 1968:115) such as the phenomenologists deem essential.
Secondly, as Harris indicates,

The fact that distinctive operations must be used to make scientifically credible statements about each realm guarantees the distinctiveness of each realm (1979:31).

That is, on the one hand, a researcher can use only indirect methods to ascertain what people are thinking. On the other hand, however, people's behavior can be directly observed. The third reason for making the important distinction between mental and behavioral events is simply that in some areas of social life the stated, inter-subjective behavioral norms of social actors and their actual behavior do not coincide.

The second major epistemological distinction made by cultural materialists is between the participants' and the observers' points of view of social phenomena. These are referred to, respectively, as the "emic" and "etic" points of view. Although the way in which the terms are used by cultural materialists has been modified, they were initially derived by Pike (1967) from the linguistic terms phonemics and phonetics. Phonemes are those sounds which are meaningful in the context of a particular language. Phonetics are an outside grid of all the distinctive sounds that can be uttered by humans. The distinction between emic and etic points of view is crucial and the two cannot be confused if the observer is to present logically coherent descriptions and analyses of the phenomena being studied.
Emic analyses are carried out in terms of concepts relevant to the members of the social group being studied. Etic analyses are carried out in terms of concepts which are of relevance to the observer or community of observers. The reason that these terms are employed, rather than the terms "subjective" and "objective," is that

... both the observer's point of view and the participant's point of view can be presented objectively or subjectively, depending upon the adequacy of the empirical operations employed by the observer ...(Harris 1979:32).

The aim of the anthropologist should be to develop objective, emic and etic descriptions of both the behavioral and mental realms of the people being studied and to explore, rather than assume, the relationships between these.

For the phenomenologists, the distinction between emic and etic points of view is virtually meaningless. This is so because they reject the concept of objectivity and, related to that, they regard the etic view of the scientific community of observers as just another emic point of view. As we saw earlier, the criteria by which the phenomenologist Psathas claimed that the adequacy of accounts of phenomena are to be judged are primarily emic criteria. However, given that Popper has shown that a qualified objectivity is possible, we are on safe ground in rejecting the view of the phenomenologists in this regard.
The main thrust of the cultural materialist approach is that in order to understand a socio-cultural system, in addition to eliciting the social participants' inter-subjective perceptions of their circumstances, one must necessarily discover the objective relationships between the members of a society and their environment and the social relationships which arise as a result of environmental exploitation. First and foremost, cultural materialism seeks to understand human behavior in its ecosystemic context. In this regard it has affinities with evolutionary biology. Cultural materialists, rather than taking ecosystemic relationships as givens or constants as many anthropologists of other theoretical persuasions have done, aim at developing an understanding of the way in which human groups have attempted (both successfully and unsuccessfully) to adapt to their environments. Cultural materialism initially seeks explanations of similarities and variations in human behavior by examining the relationships between that behavior and environmental constraints or limiting factors. From this perspective, culture is not viewed as an ideational system which is free to vary according to the wills of its human carriers. Rather, it is recognized as being an adaptive system; as a particularly important set of shared beliefs and behavioral patterns by means of which human groups adapt to their environments. However, as Gould notes, in this respect,
It is not necessary to demonstrate that all kinds of behavior are adaptive ... It is only necessary to demonstrate that various kinds of behavior are at least not maladaptive to the extent that they undermine the adaptive system (1980:51-2).

According to Harris (1979:46ff), it is possible to discern a universal structure of socio-cultural systems. This universal structure,

... rests on the biological and psychological constants of human nature, and on the distinction between thought and behavior and emics and etics (1979:51).

The biological constants include; the need to extract life-giving energy from the environment, the need to reproduce the species, and need for love and affection. In the form propounded by Harris, this structure consists of a four part division. The "etic behavioral infrastructure" consists on the one hand, of the mode of production by which a group obtains energy from the environment, within the limitations imposed by the environment and the technology available to exploit that environment. On the other hand it consists of the mode of reproduction which is, "The technology and the practices employed for expanding, limiting, and maintaining population size" (Harris 1979:52). The "etic behavioral structure" consists of the organization of reproduction, production, exchange, and consumption at two levels; that of the domestic economy and that of the political economy. Included in the etic behavioral structure are such aspects of social organization as family
structure, age and sex roles, and social stratification (1979:52-3). Quite clearly, on the basis of empirical evidence, this structure is tied to the infrastructure of a society. The hunting-and-gathering mode of production of Australian Aborigines, for example, simply could not support a population organised into city-states. The "etic behavioral superstructure" is comprised of behavior involving creative, expressive, aesthetic, sporting, religious, and intellectual activities (Harris 1980:118).

In this realm are included such elements as art, ritual, games, and science. The final realm in this universal pattern is the "mental and emic superstructure." This consists of,

... the conscious and unconscious cognitive goals, categories, rules, plans, values, philosophies, and beliefs about behavior elicited from the participants or inferred by the observer (Harris 1979:54).

This realm includes such mundane elements as folk classifications of plant and animal species as well as religious beliefs and ideology.

Given this universally discernable patterning in human cultures, the basic theoretical principle of cultural materialism is the "principle of infrastructural determinism." According to Harris, this states that,

The etic behavioral modes of production and reproduction probabilistically determine the etic behavioral domestic and political economy, which in turn probabilistically determine the behavioral and mental emic superstructures (1979:55-56).
In the search for causal explanations of human behavior, attention is initially focussed on infrastructure because it is at this level that behavior is most directly constrained by the potentialities and limitations of the environment, the laws of nature that govern the environment, and the cultural elements that are available to exploit the environment. As the modes of production and reproduction are of such prime importance in any society they have ramifications throughout its culture as a whole.

At this point, it is necessary to clear up some misconceptions that are often entertained in respect to the cultural materialist position. Firstly, the principle of infrastructural determinism does not imply that structural or superstructural elements may not play an independent causal role in human behavior. What it does imply, however, is that it is necessary in the first place to establish the baseline contribution of infrastructural factors. Once this has been done, it then becomes possible to, more or less accurately, assess the contributions of structural and superstructural elements to the observed patterns of behavior.

Secondly, and closely related to the first point, cultural materialists do not deny that ideational elements of culture (that is elements of the mental and emic superstructure) play an important role in human behavior. As Gould has written,
Traditions are an essential part of the human ecosystem and an accurate recognition of their importance can be decisive in explaining behavior (1980:44).

However, their role needs to be discovered, not assumed.

Thirdly, cultural materialists do not claim that all aspects of culture can be inferred from a knowledge of infrastructural conditions. The emphasis in the principle of infrastructural determinism is firmly on its probabilistic aspect. Also, as one moves further from infrastructure through structure and superstructure, there is increasing latitude with respect to the possibility of variation. This has led Gould to propose that some of the more remote elements are "neutrally determined" (1980:52). That is, they are free to vary subject to the requirement that they do not critically undermine the adaptive aspects of the sociocultural system.

Fourthly, there are aspects of sociocultural systems that cannot be scientifically explained. In this realm are found many of the symbolic and aesthetic elements of the mental and emic superstructure. Thus, although it is possible to present a scientific explanation of the evolution and functions of a religious system within a wider cultural system, it is not possible to explain scientifically why, for example, particular symbolic elements of that belief system are chosen in preference to others. Why is it that only black chickens are used in
Vogt and Vogt (1970) state that black is an important symbolic colour, but give no explanation as to why this is so. Cultural materialism has obviously been influenced by aspects of the work of Marx. As Harris indicates, the principle of infrastructural determinism was anticipated by Marx when he wrote,

> The mode of production in material life determines the general character of the social, political, and spiritual processes of life. It is not the consciousness of men that determines their existence but on the contrary, their social existence determines their consciousness (quoted in Harris 1979:55).

Despite its debt to Marxist thought, however, cultural materialism is not a variety of Marxism. On the one hand, Marxist concepts such as the "mode of production" have been reformulated; and, on the other elements such as the Hegelian dialectic, which are central to Marxist analyses and interpretations have been discarded. Consequently, cultural materialism has been vigorously attacked by contemporary Marxists, some of whom accuse Harris of "bourgeois materialism" (Paul & Rabinow 1976:121). Marx's alleged ignorance of precapitalist societies is often cited as the chief reason for the neglect of Marxist thought in social anthropology. As Firth (1975) indicates, however, Marx's political polemic was eschewed by vested interests preferring idealistic interpretations of the nature of human society. These ideological prejudices, in part rooted in
the political repression of the fervently anti-communist 1950's in the West, should not blind anthropologists to the contribution Marxist theory can make to the analysis of social relations.

As a consequence of their epistemological and theoretical differences, the cultural materialists also utilize different research methods and techniques than the phenomenologists. The primary concern of cultural materialism is to causally explain behavior in its ecosystemic context. Consequently, research techniques are employed which permit the recording of objective features of the environment (that is, both its natural and man-made features) and which emphasize the direct observation of behavior. Like the phenomenologists, cultural materialists gather data on the inter-subjective beliefs, values, and perceptions of a society's members. Unlike the phenomenologists, however, no assumption is made that there is a necessary correspondence between these and behavior in particular contexts.

As was indicated, the concepts which the phenomenologists use to analyze a culture and by which they assess the validity of cultural descriptions are the emic concepts of the participants themselves. They regard any others as impositions of the observer's own natural attitude on the social setting. For cultural materialists, on the other hand, the aim is to develop concepts which are
scientifically relevant, which facilitate cross-cultural comparisons, and which lead to the development of causal theories of human behavior.

**SUMMARY.**

The study undertaken by Elder into the beliefs and behaviors of people suffering from osteoarthritis demonstrated that there are important variations in these which are associated with social class position. Elder claimed that these differences support a phenomenological interpretation of human culture. However, in her published material (1973) she does not demonstrate the logical connection between her empirical observations and her macro-theoretical conclusion. Indeed, there appears to be some inconsistency between them. In this light, it seemed reasonable to undertake a similar study utilizing a different theoretical approach, that of cultural materialism.

Cultural materialism differs from phenomenology on epistemological as well as theoretical grounds. Firstly, cultural materialists believe that external reality can, more or less, objectively be known and that sociocultural relations, as part of that reality can be studied according to the canons of science. Phenomenologists, on the other hand, argue that, even if it exists, external reality cannot be known in any objective sense. It can only be construed
in terms of the shared understandings members of a social group have of their life-world. Therefore, what matters is not "what is" but "what people think is." In this view, science is just another way of knowing, one that is no more valid than any other. Given this basic epistemological difference, there is really no common ground upon which discussion of other issues can take place between proponents of these different approaches.

These basic epistemological differences direct the attention of anthropologists working within their frameworks to ask different kinds of questions and to provide different kinds of explanations of sociocultural phenomena. Consequently, phenomenologists focus much of their attention upon the ideational factors underlying human behavior, whereas cultural materialists emphasize the basic relationships of human beings to their ecosystem and the social consequences of those relationships. The relative emphasis that social theorists have placed on ideational or material factors is one major dimension which has and which continues to differentiate them. Depending upon one's stance with respect to the epistemological status of scientific knowledge, the importance of these two sets of factors is open to empirical testing. Thus, for example, it is at least hypothetically possible that a series of tests could be devised which would lead, say, a psychological anthropologist and a cultural materialist to agree that
either ideational or material factors are relatively more important as predictors of behavior. However, phenomenologists would deny that such testing was even valid.

The present chapter has dealt at some length on the basic differences between phenomenology and cultural materialism. In doing so, the aim has been to set out what is implied in Elder's claim that her research findings support the phenomenological position and to outline the basis of the approach being taken in the present study. For the reasons indicated, the position is taken that human behavior can be studied scientifically. Thus, the dissertation is not an attempt to deal with the basic epistemological issues. Instead, the concern is with the macro-theoretical issue of the role of ideational and material factors as determinants of human behavior. More specifically, the chapters that follow are concerned to test the hypothesis that certain material variables are better predictors of illness behavior in response to symptoms of joint disease than are statements of belief about the nature of arthritis.
CHAPTER II

RESEARCH METHODS

The aim of this study is to assess the relative importance of ideational and material factors as determinants of the health-care seeking behavior of people suffering from various forms of arthritis. In doing so, the purpose is to make a contribution to the continuing debate within anthropology about the relative importance of these factors in human behavior in general.

Numerous studies (see review articles by Colson & Selby 1974, Fabrega 1972, Lieban 1973) have demonstrated that, in addition to the manifest characteristics of disease processes, a wide range of economic, social, cultural, and psychological factors affect people's illness behavior. This is an important starting point because the results of the present study do not, in themselves, "prove" causality. It is not denied, for example, that the experiences an individual undergoes in seeking health-care may lead to changes in his or her beliefs or economic position. However, the research cited in the above articles suggests that for the most part the causal arrow points in the other direction. That the findings of the present research project are in accord with those of these other studies lends credence to the conclusions that are drawn.
The major hypothesis to be tested is that "objective environmental and socioeconomic variables are better indicators of illness behavior than are statements of belief about the nature of arthritis." Data which could be used to test this hypothesis were gathered on arthritis sufferers in suburbs of Claremont and Lockridge in the city of Perth in Western Australia. The research population included 103 arthritis sufferers and was comprised of two segments. The first segment consisted of twenty-seven people who were either contacted directly by the investigator or referred to him by physicians. Amongst these people intensive interviews and observations of behavior were conducted. The second segment of the research population was the survey population. This consisted of seventy-six self-reported arthritis sufferers who had previously participated in an unmet health needs sampling survey conducted by the staff of the Department of Community Practice (D.C.P) in the School of Medicine at the University of Western Australia. Once the survey population had been defined it was necessary to collect data on four broad areas. The first task was to describe the population and the differences and similarities amongst people within it. Data collected in this area included demographic variables such as age and sex and socioeconomic variables such as income, availability of transportation, and proximity to health-care facilities and services. Secondly, case histories of arthritic involvement
were collected on each of the participants. On the basis of these, objective assessments were made of the types of joint disease from which people suffered and the levels of disability they incurred as a result. In broad terms, these demographic, socioeconomic, and disease characteristics, have been referred to as material factors because they have an existence in or derive from the characteristics of external objective reality.

The third broad area on which data was collected was that of people's knowledge and beliefs about the illnesses from which they suffered. This included information on the labels used to describe joint disease, knowledge and belief about etiology, pathology, cure and control, and prognosis. In addition, respondents were also questioned about their knowledge of other types of joint disease. It is this set of variables that has been referred to as ideational factors. That is, they are variables which reflect people's cognitive understandings of the joint diseases from which they suffer.

Fourthly, data was collected on the dependent variables themselves; that is, the specific treatments or treatment services that people had utilized. This category of variables included the numbers and types of health-care providers people had consulted, the treatments those health-care providers had prescribed, the forms of self-treatment people had used, and the time periods over
which they had been utilizing various treatments and treatment sources.

The main instrument employed to collect this basic data was a comprehensive interview schedule. This schedule was constructed on the basis of prior research which included a series of intensive interviews with people from the smaller segment of the research population. In an attempt to check the veracity of data gathered in this manner, a limited amount of participant observation was undertaken, objective checks were made upon some of the responses, and access was obtained to some medical records to confirm the diagnoses made on the basis of the collected data.

The interview schedules produced large amounts of raw data. Once this was collated it was necessary to explore the relationships between the variables and to reduce the data to manageable proportions. For example, fifty-one separate variables were evaluated and from them the summary variable "etic diagnosis" was constructed. Also, statistical techniques such as cluster analysis and factor analysis were used to categorize people in terms of their beliefs about their illnesses and the range of treatments and treatment sources they had used. It was in this way that the composite variables "explanatory models" of illness and "treatment strategies" were constructed. In other instances it was found that some variables could be deleted from the analyses because they were a function of others.
After the data reduction and the preliminary analyses had been completed, the multivariate statistical technique known as discriminant analysis was used to test the major hypothesis. Essentially, this is a technique used to analyze the correlation between a dependent variable measured at the nominal level and a number of independent variables measured at the interval level. It is discussed more fully in Chapter VII. In the course of analysis, the relationship between health-care seeking behavior and variables from each of the three categories of independent variables (demographic and socioeconomic, disease characteristics, and knowledge and beliefs) were, in turn, examined. At that point, the variables from each category which best discriminated between people who had employed the different treatment strategies were selected out. These major variables were then used as the independent variables in another discriminant analysis. In the process of analysis, these variables were mathematically combined and weighted in the manner which best discriminated between the users of the various treatment strategies. The standardized weightings assigned to the variables in the calculation of the discriminant functions indicate the relative importance of those variables as predictors in this population sample of variation in the dependent variable treatment strategies.

The results of the study indicate that certain variables, or sets of variables, are more highly correlated
with variations in health-care seeking behavior than are others. To what extent, then, can it be stated that the independent variables cause, or determine that variation? As statisticians warn,

Correlation does not imply causation. The coefficient of correlation measures association; it does not follow that because X is correlated with Y, X causes Y or Y causes X. It may be that some other cause or complex of causes influences both X and Y (Lumsdén 1971:79).

There are two issues involved here; firstly there is the issue of the meaning of the term "causation," and secondly is the issue of what does imply causation, however it is defined. In contemporary science, or the philosophy of science, the term "cause" is rarely used in an absolute sense. Instead, the probabilistic occurrence of phenomena is emphasized. It is the thrust of both this probabilistic perspective and Popper's "falsifiability criterion" that nothing, including cause, can be proven in an absolute sense. Thus, when the term "cause" is used it generally implies a probability statement that a change in one variable will lead to a change in another.

The term "determinism" implies more than causality, it implies that the changes caused by one variable, or set of variables, acting upon another are similar in consequence whenever they occur. Like the term "cause," however, "determines" can also be used in a probabilistic sense. Thus, a rendering of its meaning in accord with scientific
knowledge is that certain factors determine an outcome when it is highly probable that the outcome they cause results in a narrow range of variation.

Some proponents of the role of free will and/or the "intentionality" of human action have invoked Heisenberg's "uncertainty principle" as an objection to the notion that human behaviour is determined. According to this principle, it is not possible to simultaneously determine both the speed and position of an elementary particle. From this, it has been argued that as there is a basic indeterminacy at the quantum level there can be no determinacy at higher levels. There are two objections to this philosophical position. The first made fifty years ago and recently reprinted in Scientific American states that,

All the principle of indeterminacy means is that man has no way of determining both the position and speed of a given electron, not that there is no determinacy in either (1982:10).

The second objection acknowledges uncertainty at the quantum level but notes that,

Modern physics does imply, however, that macroscopic bodies behave in a way that is effectively deterministic, and, because even a single neuron ... is a macroscopic object by quantum mechanical standards, a physicalist Materialist may still regard the human brain as coming near to, being a mechanism that behaves in a deterministic way (Smart 1982:611).

If, then, the terms "cause" and "determines" can be validly used in this probabilistic sense, the second issue raised by the quote from Lumsden needs to be addressed.
That is, how is cause to be inferred? Essentially, causal explanation must rely upon the conjunction of observations made under varying circumstances and the absence of contrary evidence which renders the explanation implausible. Most importantly, hypotheses based on the explanation need to be tested in such a manner that refutation of them, and hence the causal explanation, is possible. To return to Lumsden's statement, although correlation does not imply causation, it is reasonable to tentatively infer that X causes Y, rather than vice versa, if there are plausible logico-deductive reasons for doing so and if further investigation does not yield evidence of a confounding variable or set of variables.

To summarize this argument, many studies have shown that certain factors are regularly associated or correlated with variation in health-care seeking behavior. On the basis of the evidence presented in these studies it can be reasonably assumed that these factors play at least a partial causal role in that behavior. Furthermore, there is enough regularity in these causal sequences that the factors can be described, in a probabilistic sense, as "determining" that behavior. In the present study the relative contribution of a range of these causal/determining factors to health-care seeking behavior has been measured. It is within the framework of this logic and on the basis of these measurements that it is concluded the evidence does not
refute the hypothesis that amongst a cross-section of arthritis sufferers material factors are more important than ideational ones as determinants of health-care seeking behavior.

DATA COLLECTION.

The initial stage of the field research was undertaken at the Rheumatology Clinic at the Queen Elizabeth II Medical Centre—a large teaching hospital complex a few kilometers from Perth's central business district. At the Centre, informal interviews were conducted with some of the clinic's arthritis patients. Initially, the interviews were relatively unfocussed and the patients were encouraged to discuss a broad range of research related issues. The aim of these interviews was to probe beyond some of the preconceived notions that an investigator inevitably brings to a research project. They were successful in that they brought to light some dimensions of belief and behavior that had not been considered in the formulation of the research proposal. Included here were some of the less orthodox etiological beliefs and the wide variety of treatments to which resort had been made.

After each of these interviews had taken place, transcripts of them were reviewed. In the process of review note was made of issues which required further investigation. Questions on these issues were formulated
and reformulated on the basis of responses obtained in subsequent interviews. In addition, experiments were conducted with respect to the order of introduction of specific topics. It was soon discovered that the most effective way to conduct an interview was by initially eliciting a case history of the respondent's illness. This was a relatively neutral topic and discussion of it tended to put the person at ease and allowed time for some empathy to develop between him or her and the investigator. In all, eight interviews were conducted at the Rheumatology Clinic. At the completion of those interviews a basic checklist of questions had been developed. This checklist included sections on the range of symptoms experienced, the treatments and treatment sources employed, and the patient's knowledge and beliefs about the particular type of arthritis from which he or she suffered.

As will be indicated below, the sample of arthritis sufferers encountered at rheumatology clinics, such as those at the Q.E. II Medical Centre, is extremely biased. Thus, it was necessary to make contact with a wider range of people with arthritis to obtain basic data. Such contacts were made through two sources. Firstly, and most importantly, a number of physicians who were on the staff of, or who were associated with, the Department of Community Practice provided a list of arthritis patients. Secondly,
the investigator made contact with arthritis sufferers through his own social network.

The interviews with this wider group were initially focussed around the checklist of questions prepared on the basis of the interviews conducted at the Rheumatology Clinic. In addition, these interviews included relatively unstructured segments as well. However, because with each additional interview conducted, lesser amounts of new data were collected, the interviews became increasingly structured. A draft interview schedule was constructed and this, like the checklist of questions used at the Rheumatology Clinic, was reworded and restructured on the basis of the results of successive interviews.

With advice from the staff at the Raine Medical Statistics Unit at the University of Western Australia, the interview schedule was formalized and draft copies of it were prepared. The original research proposal called for the interview schedule to be pretested on a sub-sample of the survey population. However, by the time the draft schedule had been prepared it had already become obvious that the survey population would be relatively small. Thus, rather than reduce the population further, the original plan was abandoned and the schedule was pretested on some of those individuals who had been referred by physicians.

Altogether, twenty-seven of these preliminary intensive interviews were conducted prior to undertaking the survey in
Claremont and Lockridge. The problems that can arise in studies which rely largely upon interview data were recognized from the outset. Indeed, the cultural materialist approach emphasizes the need to obtain data from other sources. For this reason an attempt was made to supplement the preliminary interviews with a limited amount of participant observation. This was particularly useful for developing an understanding of the context in which lay discussion of arthritis can arise and the kind of information that laymen exchange. However, only two people were observed whilst actually suffering an attack of arthritis. Both of these cases were quite mild and neither had a marked effect on the activities being observed nor caused the informants to seek treatment. The fact that it was not possible to observe a large number of people over considerable time periods meant that this particular data gathering activity was relegated to a position of lesser importance than is the case in more traditional anthropological studies.

Foster and Kemper (1974:16) have discussed the difficulties of undertaking broadly based (as opposed to "street corner") participant observation in an urban setting. Fabrega has argued that this is a particular problem in medical anthropological studies because of the relatively infrequent occurrence of illness episodes (1972:179). At a general level, the findings of White et al.
(1961:886) which indicate that in a one month period 750 out of every 1,000 people will experience at least one episode of illness argue against Fabrega's view. However, at the level of specific types of illness the present study confirms the statements by both Foster and Kemper and by Fabrega about research techniques and lends emphasis to the statement that as anthropologists,

... we must learn to combine the most valuable features of traditional research models (especially intensive interviewing) with the quantitative methods common in the other social sciences (Foster & Kemper 1974:16).

It is important to note that data collected from informants or respondents in an interview situation does not necessarily have emic status. As Harris notes,

Depending on whose categories establish the framework of discourse, informants may provide either etic or emic descriptions of the events they have observed or participated in (1979:36).

Thus, for example, the disease labels used by informants were not used as diagnostic categories. Instead, respondents were asked specifically whether or not they had experienced certain symptoms. On the basis of the responses to those questions the investigator, with assistance from a physician, made the judgement as to whether a particular person was suffering from arthritis and, if so, what type. Again, with respect to assessment of disability, respondents were classified on an etic scale on the basis of the investigator's assessment of questions about a specific
series of tasks, rather than on the basis of the respondent's subjective judgement.

The formal interviews took place in the homes of the respondents. The time each interview took varied from about three-quarters of an hour to two hours, but with most taking about one-and-a-half hours. Little or no difficulty was encountered in conducting the interviews. In part this was facilitated by the fact that many of the respondents were either retired or engaged in home duties and welcomed the opportunity to talk with someone about a subject that was of concern to them. Also, some of the respondents indicated that it was not socially acceptable to discuss one's ill-health at any length with relatives or friends and the interview provided an outlet for such discussion.

INTERVIEWER TRAINING.

To a large extent, the success or failure of the project depended upon the responses to the interview schedule. For this reason it was decided that, if possible, the people employed as interviewers should be experienced, have some anatomical or physiological knowledge, and be female. The majority of people in the survey population were late middle-aged or elderly women and it was believed that they would be more likely to talk freely with other women. Although some difficulties were initially encountered in recruitment, the three interviewers employed
met these requirements. The first was a retired physician who had been involved in the original D.C.P. survey from which the present research population was drawn. The second was a nurse who was studying sociology and the third was an anthropology student who had worked on a medical anthropological research project.

As part of their training in the D.C.P., medical students conduct interviews with "simulated patients." The D.C.P. staff prepare role models of patients from a range of social backgrounds and with a variety of health problems. The roles are elaborated on by individuals employed, on a part-time basis, by the Department. These simulated patients are interviewed by students who have been instructed to obtain comprehensive case histories from them. The interviews are videotaped and observed on monitor screens by D.C.P. staff and other students in an adjacent room. As Owen and Underwood have written,

> The educational objective is to show and discuss the processes involved in doctor-patient encounters (1980:437).

The availability of this program provided an excellent opportunity to familiarize the interviewers with the interview schedule and to observe their own interviewing techniques.

Using data obtained from the intensive interviews conducted earlier in the study, three diverse roles of arthritis sufferers were prepared. Two people were employed
to play these roles and, with the assistance of Dr P. Underwood, the roles were rehearsed and refined. In order to make the training sessions as realistic and as rigorous as possible for the interviewers, the simulated respondents were instructed to give sometimes vague and ambiguous or conflicting responses to the questions they were asked.

Soon after they were employed, the interview schedule was discussed individually with each of the interviewers. At this initial meeting the interviewers were given some basic reading material on arthritis as well as copies of the interview schedules and were given several days to familiarize themselves with these. A second meeting was then held with each of the them to assess their understandings of the schedule and to discuss any issues arising from it or the reading material. Finally, a joint training session was held. At this session each person conducted an interview with a simulated respondent. These interviews were monitored by the other interviewers and afterwards videotapes of the interviews were played back and analyzed and discussed by the whole group, including the simulated respondents.

This training exercise appears to have been justified. By the time the survey was undertaken, the interviewers were quite familiar with the schedule. This familiarity enabled them to effectively deal with some of the difficulties that
arise in interview situations and kept non-responses to questions and obvious recording errors to a minimum.

To minimize bias in the recording of responses to the questions asked in the schedule, the interviewers were not informed of the specific hypothesis being tested in the study. They were told that the broad aim of the project was to obtain data on the knowledge and beliefs people had about joint disease and the types of treatment they had used in response to it. Also, because of the reluctance amongst some people to discuss less orthodox matters with medical personnel, the interviewer who was a physician did not introduce herself as such to the respondents.

Each completed interview schedule included a code number identifying the person who had conducted the interview. When the completed schedules had been collated, the responses to a number of randomly selected questions were compared to ascertain whether or not there were significant differences in the results obtained by each interviewer. In addition to those questions which had been randomly selected, the responses to some questions that might be regarded as being of a sensitive nature were also compared. The questions which were compared included some on disease characteristics, treatments employed, and knowledge and beliefs. In most of these areas there was little difference between the interviewers. However, with respect to beliefs, responses obtained from the physician
were significantly more orthodox than those obtained by the investigator and the other interviewers. For example, between seventeen and forty-four percent of the respondents interviewed by the others at least partially blamed themselves for their illness. However, none of the responses recorded by the physician indicated that respondents did so. This indicates that if anything the results presented in the following chapters underestimate some of the less orthodox beliefs held by people within the survey population.

**THE SURVEY POPULATION.**

A problem that plagues many medical and medical anthropological studies is that of obtaining representative samples of the people suffering from a particular disease or diseases. Many studies rely upon clinical samples but this presents problems with respect to the generalizability of research findings. This is a problem that has long been recognized. White *et al* studied the results of morbidity surveys which had been administered to carefully selected population samples by agencies of the governments of the United Kingdom and the United States. They concluded that within a population of one thousand adults (that is, persons aged sixteen and over) in a one month period,

... 750 will experience an episode of illness, 250 will consult a physician, 5 will be referred to another physician, and one will be referred to a university medical center. The latter sees biased
samples of .0013 of the "sick" adults and 0.004 of the patients in the community (1961:886).

Other research findings indicate that it is not possible to discount the bias in clinical samples by claiming that untreated cases are not significant. Mechanic reports that, Miller et al in their study of 847 children during their first five years in Newcastle-upon-Tyne recorded 8,467 significant incidents of illness of which 42% were untreated. They reported that untreated illness was not insignificant in that it included one in five attacks of bronchitis and pneumonia during the first year and two of every three attacks of vomiting and diarrhea during the five year period (1968:198).

Although problems of this nature were recognized, it was originally proposed to conduct the present study amongst a clinical population. The over-riding factor in this decision was the lack of resources to undertake a wider population study. According to the research proposal, the plan was to obtain a list of people recently diagnosed as suffering from osteoarthritis from rheumatologists associated with the Western Australian Arthritis and Rheumatism Foundation. However, on arrival in Perth, the opportunity arose to work with a sub-group of people who had participated in a study conducted by the Department of Community Practice.

In 1979 the D.C.P. undertook a survey of unmet health needs in the Perth suburbs of Claremont and Lockridge. The former is a relatively affluent riverside suburb to the west of the city and the latter a working class suburb on the
city's northeastern fringe. With the assistance of the Australian Bureau of Statistics, staff from the D.C.P. drew random samples of one dwelling unit in ten in Claremont and one in five in the smaller suburb of Lockridge. Interviews were conducted with the adult members of these households and health-related data was obtained on them and their children.

One of the questions asked of the respondents was whether or not they suffered from "disabling arthritis or rheumatism." Of the 859 adults interviewed, 129 gave an affirmative response to the question. It was these people who formed the basis of the survey population for the present research project. A short time before the survey section of the study was undertaken, letters were written to each of the 129 people. The letters explained that the study was a follow-up to the unmet health needs survey and was aimed at obtaining a better understanding of how arthritis sufferers viewed their illness and how they responded to it.

After the letters explaining the purposes of the survey had been sent, the 129 people were stratified by suburb and by whether or not they were telephone subscribers. Each person was then randomly assigned to one of the three interviewers or the investigator. Shortly thereafter, either by telephone or by calling at their homes, the
interviewers contacted the people, answered any queries they had, and made appointments to conduct interviews.

It was possible to re-interview only seventy-six (58.9%) of the original 129 respondents. Three (2.3%) of the others declined to participate in the study, one (0.8%) person had since died, and four (3.1%) were too ill to be interviewed. Another eight (6.2%) people claimed they had never suffered from arthritis or rheumatism. Although there is no way of checking, it is possible that some of this latter discrepancy might have been due to miscoding in the original D.C.P. questionnaire. However, Milne et al (1970) have shown that even over short periods of time there can be considerable discrepancies in the responses individuals give to the same questions about the experience of particular symptoms. Given these findings, the discrepancies between response to the question on arthritis in the unmet health needs survey and that for the present study are relatively small.

Houghton has commented upon the high degree of spatial mobility amongst residents of Perth. According to national census data, he found that,

Even excluding children born since 30th June, 1971, less than half the city's total population (49.1 percent) were living at the same address in 1976 (as they were in 1971) (1976a:91).

It was ascertained that twenty-one of the original 129 people had changed address in the two year period between
surveys. Three of the twenty-one were contacted and interviewed, leaving eighteen (13.9%) whose new address was either not available or who had left the city. No information at all was available on the other nineteen (14.7%) people. Despite several calls at the addresses under which they were listed no contact was made with them nor any person who knew their whereabouts.

Using data collected in the D.C.P.'s unmet health needs survey, a comparison was made between the seventy-six people who participated in the present study and the fifty-three who did not. The dimensions on which the two groups were compared were: suburb of residence, age, sex, country of birth, occupation, and whether or not their arthritis had been treated at the time of the D.C.P. survey. At the .05 level, there was no statistically significant difference between the participants and the non-participants on any of the dimensions. Thus, on the basis of the evidence to hand, it appears that the seventy-six participants are probably representative of all those respondents to the D.C.P. survey who were reported as suffering from "disabling arthritis or rheumatism."

Obviously, the seventy-six survey respondents do not constitute a random sample of the Claremont and Lockridge residents who were affected by the various rheumatic diseases. In the first place, those people who had asymptomatic cases of arthritis or those who suffered from
arthritis but who did not label it "arthritis" or "rheumatism" were not included in the study population. Secondly, the wording of the question asked in the D.C.P. survey (a question designed specifically for the purposes of the unmet health needs study) may have excluded some people who did not consider their arthritis disabling. With respect to the latter point, however, the present study population includes people who suffered no disability at all as a consequence of arthritis. This suggests that, at least for some people, the emphasis was on the words "arthritis" and "rheumatism" rather than "disabling" and, hence, not all such people were excluded. Despite these limitations, as will be seen in later chapters, the survey population does include a broad spectrum of arthritis sufferers in terms of severity, their knowledge and beliefs about joint disease, and their responses to it. In this respect it appears that although the population is small, some generalizations can be drawn from the study.

**SUMMARY.**

Numerous studies have examined the causal role that factors such as social class, demography, and beliefs play with respect to illness behaviour. The present study takes a number of these factors and attempts to evaluate their relative importance for the health-care seeking behaviour of arthritis sufferers in two suburbs in the city of Perth,
Western Australia. The results of the study have implications for the wider theoretical debate within anthropology that was discussed in the previous chapter. The data upon which the study is based was collected in two distinct phases. Initially a series of intensive interviews and some participant observation were undertaken with the aim of exploring as much as possible of the total range of variation in lay beliefs about arthritis and the treatments sought for it. On the basis of the data collected in this first stage, a comprehensive interview schedule was then constructed. In the second stage of data collection, the interview schedule was administered to a sample of people from two Perth suburbs who, in response to a previous study, indicated that they suffered from "arthritis" or "rheumatism." Although this sample did not constitute a random sample of arthritis sufferers in the two suburbs, it was a more representative group than those people from the largely clinical sample amongst whom the first phase of data collection was undertaken.

The analysis presented in the following chapters is, because of its more representative nature, based on the material gathered in the second data collection phase. In the analysis, the variables on which data was collected were divided into four categories: demographic and socioeconomic, disease characteristics, knowledge and beliefs about arthritis, and the treatments and treatment sources
employed. In the body of the dissertation a chapter is devoted to the variation and interrelationships between variables in each category. Where necessary, the statistical techniques used in analysis are explained in the chapters where they are relevant. Finally, the most important variables from the first three categories are examined to assess their power in "predicting" variation in the treatment strategies employed by the arthritis sufferers.
CHAPTER III

THE SOCIAL CONTEXT;
COMMUNITY AND CLASS

From a cultural materialist point of view, in order to understand culture, it is necessary to understand the environment in which people live, the technology by which the environment is exploited, and the complexity of economic, political, and social relations that is built upon this infrastructure. To understand the way of life of city dwellers it is necessary to understand: their relationship to agriculturalists who produce their food; the types of goods and services that they themselves produce; their position with respect to others in regional, national, and inter-national networks of economic, political, and sociocultural relationships; and the changes and developments occurring in these through time.

The spatial configuration of a city reflects its environment, its broad functional roles, the technology available to its inhabitants, demographic characteristics of its population, and the pattern of social differentiation within that population. In addition, it also reflects the relationship between these factors at different temporal stages of development. The temporal element is important because the spatial expression of these factors at any given
time becomes part of the total environment and provides opportunities for, or imposes constraints upon, future development. As basic productive and exchange relationships are of prime importance, cities tend to be spatially organized with respect to them. In this regard, certain productive activities have greater or lesser flexibility in relation to location than others. However, factors that must be considered here include: availability of natural resources; transportation and communication technology; and proximity to markets.

As Burnley (1980:7) has indicated, the most important use of land in cities is for housing and it is here, particularly, that spatial patterns reflect the socioeconomic differences within populations which are rooted in relations of production. At least in Australia and the United States, this spatial differentiation takes place through the mechanism of the housing market; affected as it is by the influence, manipulation, and planning activities of developers and governments. However, socioeconomic differences are not the only factors operating here; nor are they everywhere necessarily the most important. A number of sociologists and urban geographers (Burnley 1980; Davis & Spearitt 1974; Jones 1969; Shevky & Bell 1955) have demonstrated that two other important population characteristics are reflected in the spatial configuration of Australian and U.S. cities. These
characteristics are "familism" and ethnicity. The first is an important infrastructural demographic variable which relates to life-cycle stage and includes age, marital status, family-size, and whether both spouses are employed outside the home. It is reflected in the fact that there is a tendency for young, single income couples with children to be located in areas of low residential density in outer city areas. The second variable is reflected in the tendency of members of some ethnic minorities to cluster together in geographically restricted areas of cities.

At an ideological level, there is a tendency amongst Australians to view their country as a "classless" society or, alternatively, one in which class differences count for little. A concomitant of this is the emphasis on the values of egalitarianism and "mateship." However, while there has been some debate as to the degree of permeability of the class structure (Broom & Jones 1976, Wild 1978) most anthropologists and sociologists are in agreement that there is little accord between these emic constructs and the etic reality of the Australian social structure (Connell 1977, Encel 1970, Wild 1978). Similarly, it has been shown that there are other inequalities in Australian society based upon ethnicity (Rowley 1972, Collins 1981), sex (Cass 1981), and age (Wild 1978). In turn, urban geographers (Burnley 1980; Houghton 1979a) have demonstrated that such inequalities are expressed in the residential patterning of
Australian cities. In seeking to understand differences in the life-styles of city dwellers, it is not enough, however, to regard differences in residential location solely as a function of factors such as class, ethnicity, and familism. Residential location itself feeds back upon and has consequences of its own for such elements of life-style as: access to employment, commercial centers, and community services; patterns of morbidity and mortality; patterns of social interaction which in turn can affect shared inter-subjective beliefs and values; and the quality of the environment and of life in general.

Social and residential inequalities and their consequences have been demonstrated in all the major Australian cities (Burnley 1980:223ff). For the purpose of the present study, such inequalities are taken as givens. Thus, the aim will be to provide sufficient background detail to enable an assessment of to what degree, if any, these factors influence beliefs about "arthritis" and the treatment strategies that are employed by people suffering from various types of joint disease.

PERTH, WESTERN AUSTRALIA.

The city of Perth, in which the present study was undertaken is located in the south-west of Western Australia. The Perth Statistical Division (which includes the City of Perth itself, its metropolitan area, and the
port city of Fremantle) had a population of 902,000 people in June 1980 (A.B.S. 1981:25). Although the State of Western Australia has an area of over 2.5 million square kilometers, less than fourteen percent of its population resides outside Perth.

Perth itself is only a little over 150 years old. Although the city's location and the agricultural production of its hinterland were both intimately related to the environment, ecological factors in themselves did not shape the basic forms of Perth society. The economic and social infrastructure by which the Western Australian environment was exploited was imposed from without. With modifications to suit the setting, the forms of nineteenth century British capitalism were transferred to the new colony. In the mid-nineteenth century, in a colony geared to agricultural production for the British economy, Perth was primarily a small administrative and financial center through which British investment in the pastoral industry was channelled. It was dependent for its growth and social composition on the requirements of primary industry and what secondary industry there was remained small in scale and was geared to production for the limited potential of the local market.

In the early 1890's, the discovery of gold in the Kalgoorlie area, some 550 kilometers inland, led to a period of unprecedented growth in Western Australia. There was a rapid influx of population from both the other Australian
Map 1

Perth Metropolitan Area.
colonies and overseas. This had repercussions throughout the economy. There was an expansion of commerce and growth in small-scale manufacturing in Perth to support the population on the goldfields. The establishment and growth of public transportation in Western Australia has been outlined by Selwood (1979). The first railway track was laid between Perth and its port city of Fremantle (about fifteen kilometers away) in 1881. In subsequent years residential, commercial, and light industrial development were closely tied to expansion of the railway system. In Western Australia the period of major population growth came after the development of mass public transportation and hence permitted the growth of low density residential suburbs away from the inner city. One of the first of these suburbs was Claremont, established in the 1890's to accommodate the population influx that accompanied the gold rush. The railway system remained a major influence on Perth's spatial development until the end of World War II.

The period following World War II was a relatively prosperous one for Western Australia as it was for the country as a whole. The immediate post-war years saw an increase in overseas immigration. Throughout its history, most migration to Australia has been from the British Isles and this has put a firm stamp on Australian culture and social institutions. However, in this post-war period, for the first time substantial numbers of people from southern
and eastern Europe arrived in the country. Some of these immigrants, most notably Italians and Greeks, tended to be concentrated in low cost housing in the inner city or near Fremantle. This has given parts of these suburbs a distinctively ethnic character. However, many immigrants were dispersed throughout the growing metropolitan area. At the time of the 1976 census, almost one in three people in the Perth Statistical Division was born outside of Australia and of the remainder a quarter were born elsewhere in Australia (Houghton 1979a:16). Although place of birth does not provide an accurate picture of the ethnic origins of a population, no other figures are available for Perth. Of those Perth residents born overseas over half are from Britain. In terms of country of birth, Italians form the largest ethnic minority in the city, comprising a little over three percent of its population. They are followed by the Dutch and Yugoslavs at a little over one percent each. All other groups of immigrants form less than one percent of the city's population (as do Aborigines).

Post-war immigration, which has been age selective, combined with a relatively high birth rate (16.7 per 1,000 of mean population for the State as a whole—A.B.S. 1981:17) has had other demographic and spatial consequences. Over half of Perth's population is less than thirty years of age. Many of these young people are dispersed in outer suburbs, whilst there is a tendency for those over sixty-five to be
clustered in the inner and older established suburbs (Houghton 1979a:41). A relatively high standard of living, increased motor vehicle ownership, and availability of land have been important factors enabling this pattern of low density residential dispersal. As well as private enterprise, the State Housing Commission was also involved in this suburban expansion. The Commission constructed substantial low cost rental and ownership housing in areas adjacent to light industrial areas such as Hamilton Hill near Fremantle, Cloverdale near Welshpool, and Midvale near Midland.

By the early 1960's, Perth was characterized by what is often referred to as "ribbon development." There was continuous settlement along the railway line from Fremantle to the Midland area. Especially to the east of the city, this development was mixed and included warehousing, light industrial, and residential land use. Similarly, there was mixed land use along the railway line extending to the south-east of the city through Welshpool to Armadale. On both sides of the river, along its broadest reaches inland from the port and light industrial areas at Fremantle to Perth, the land had been subdivided for residential use. In particular, the suburbs along the northern side of the river that offered easy access to the central business district became the preserve of the more affluent sections of the community. Another ribbon of development stretched to the
north and west of the city and included the northern beach suburbs. In general, the character of these latter suburbs was more heterogeneous than those along the north of the river and those to the east and south-east.

From the mid-1960's through to the mid-1970's, Western Australia experienced another period of rapid economic and demographic growth stimulated by the mining of iron ore and bauxite. During this period, largely as a result of interstate immigration to take advantage of these mining and industrial developments, Western Australia's population grew by an average of 3.97 percent from 848,100 to 1,043,100 (A.B.S. 1981:19). Although this rate fell to 2.32 percent in the 1971 to 1976 period, the population of Perth, ... grew at an annual rate of 3.3 percent ... compared to an annual national rate of growth of 1.7 percent in the same interval (Burnley 1980:15).

This rapid rate of population growth created an increased demand for housing and there was a proliferation of housing subdivisions, both private and State, to the north-west and south-east of the city. Some of those living in the new suburbs were employed in the newly expanding light industrial areas such as Osborne Park, while many others commuted to employment in the city. In the same period there was also rapid residential development in the Kwinana area and, amongst other developments, the State Housing Commission established its Lockridge housing estate near the light industrial areas of Bassendean and Bayswater. At the
same time, this dispersal of population led to a dispersal of retailing and the establishment of various regional shopping centers throughout the metropolitan region. A consequence of this was a decline in the importance of the central business district as a center of retail activity and an opening up of employment opportunities in the suburban areas (Marsh 1979: 456).

Houghton (1979a: 125-139) has constructed a typology of the social areas of Perth which are ultimately based upon the city's functions and the characteristics of its population. Using data from the Australian Bureau of Statistics' 1976 census, he examined fifty-three population and housing characteristics and subjected them to factor analysis. He found that four factors explained over seventy percent of the variance between the 118 Subdivisions in the Perth Statistical Division. The most important of these factors was correlated with variables which measure aspects of familism or family status. This factor accounted for 31.7 percent of the total inter-subdivision variance. The second factor accounted for some twenty percent of the variance and related to those variables measuring aspects of socioeconomic status and ethnicity. As Houghton remarks, this indicates that, at least in Perth, socioeconomic status and ethnicity are not independent (1979a: 130). This is reflected in the fact that members of ethnic categories who are also of low socioeconomic status tend to be
Social Areas of Perth (Source: Houghton 1979a)
residentially clustered, while those of higher socioeconomic status are more dispersed. The two lesser factors were associated with residential mobility and occupancy of public housing. The scores of subdivisions on these latter factors tended to correspond to those on the former factors.

Using the scores of each census subdivision on each of the four principle factors as a basis, Houghton performed a cluster analysis which yielded a six category typology of the broad social areas within Perth. His "Group A" census subdivisions are characterized by high rates of familism and moderate socioeconomic status. Suburbs in these subdivisions are outer suburbs of private dwellings which have mainly come into being since 1966. Like the subdivisions in "Group A," those in "Group B" are comprised mainly of outer suburbs in which there are high proportions of households with children. However, in contrast to "Group A" subdivisions, they contain high proportions of people of low socioeconomic status, Aborigines, and single parent families. In these subdivisions over a quarter of the housing is provided by the State Housing Commission and in some suburbs this rises to over forty percent. This compares with a city-wide proportion of 6.4 percent. "Group C" consists of older residential suburbs, many of which are along the route of the Fremantle to Midland railway line. As Houghton notes, many of these have undergone residential redevelopment. He writes,
They are characterized by a high proportion of elderly and single person households and a wide range of SES (socioeconomic status). No doubt a more detailed classification would distinguish between high status areas such as Claremont and Cottesloe on the one hand and areas of lower SES such as Fremantle and Maylands on the other (1979a:136).

The suburbs in "Group D" are older suburbs adjacent to the centers of Fremantle and Perth. They are characterized by concentrations of southern European migrants, older people, and people of low socioeconomic status. "Group E" consists of suburbs in high status residential areas in which are located high proportions of people with high levels of education, high incomes, and with professional or executive employment. The final category of social areas, "Group F," consists of older suburbs characterized by the low socioeconomic status of those living there. This is the largest of the categories and it includes suburbs adjacent to areas of light industry to the east and south-east of the city and near the port of Fremantle.

In summary, Houghton has written,

Viewed in terms of a small number of basic social constructs, the residential structure of the Perth Metropolitan area is therefore relatively simple. Indeed the typology ... reveals a high degree of spatial contiguity. Basically, the Perth metropolitan area consists of an outer ring of relatively new suburbs which possess a high degree of familism and which are situated mainly to the north-west and south-east of existing urban areas and a larger core of older residential suburbs. The outer areas are themselves subdivided between areas of private residential development and moderate SES and those in which the role of the State Housing Commission has been significant (Groups A and B). Group C is also defined largely
in terms of the family status dimension (large proportion of elderly and single person households) while the three remaining categories serve to differentiate the older suburbs in terms of ethnic composition and their socio-economic status (1979a:138).

CLAREMONT.

The town of Claremont is located about eight kilometers south-west of Perth's central business district. It is situated on the northern shore of Freshwater Bay on the broad, lower reaches of the Swan River and extends northwards for a distance of about two kilometers. To accommodate the increase in population which accompanied the gold rush in the 1890's, residential land was opened for development in the area adjacent to the Perth to Fremantle railway line. Prior to that, there had been a small settlement at Butler's Swamp (now Lake Claremont) which was serviced by a railway station in 1887 and it is around this that Claremont grew.

Today, the railway line and Stirling Highway, just to the south of it, cut the suburb of Claremont in half. Along the highway there is an assortment of retail outlets which include furniture stores, bookshops, restaurants, yachting suppliers, a hotel, and various other shops. From the south of the highway to the river, although there is a small college of advanced education, a small technical college, and some of Perth's most expensive private schools, most of the land is high priced residential land. Much of the
housing in this area consists of brick-and-tile bungalow type dwellings on blocks of about 0.1 hectares (approximately 0.25 acres). In 1981, the average price of such a dwelling was about $A100,000. Also in this area, especially close to the river, there has been some residential redevelopment and high-rise luxury apartments and low-rise "town-houses" have been constructed.

North of the highway, there is greater variation in land use. The central focus is the shopping area which developed around the Claremont railway station. This area includes two relatively large supermarkets, a small department store, and a wide variety of other shops, banks, and other small commercial businesses. There is also some relatively high priced housing in this area; although, at an average price of $A80,000, it is somewhat less expensive than that south of the highway. In addition there is also some "flat" (rental apartment) development, both high and low rise and including some "pensioner flats" owned by the State Housing Commission. These flats tend to be occupied by less affluent older and younger and single segments of Claremont's population. Also to the north of the railway line, adjacent to Lake Claremont, there is a public golf course, a football ground, and a large show-ground owned by the Royal Agricultural Society.

In June 1980, the population of Claremont, which is one of Houghton's high status "Group C" suburbs, consisted of
8,800 people dispersed through some 3,500 private dwellings (A.B.S. 1981:22). Two demographic characteristics of this population stand out: these have to do with age and with sex ratios and both are interrelated. As an older established suburb, Claremont has a relatively older population. Throughout Perth as a whole, people aged over sixty-four comprise 8.4 percent of the population, yet in parts of Claremont they make up twice this proportion. Conversely, the number of children in both the 0--4 and 5--14 year age groups is about half that for the whole metropolitan area (Houghton 1979a:37-41). As there is a greater life expectancy amongst females, the aged character of the Claremont population also explains the second demographic characteristic and that is Claremont's relatively low masculinity rate when compared to the whole city.

The occupations of people living in Claremont indicate the extent to which socioeconomic factors are reflected in patterns of residence. Although people in professional and higher managerial occupations comprise only twenty percent of the city's total workforce, in Claremont they comprise almost twice that proportion. In fact, if the male workforce only is considered, over fifty percent are in these occupations (Houghton 1979b:327). In contrast, fewer than fifteen percent of those living in Claremont were employed in production or process work or as laborers, compared to 29.5 percent in Perth as a whole (Houghton
Similar imbalances are encountered with respect to educational attainments and incomes of Claremont residents. Twice the city wide proportions had tertiary education qualifications and twenty percent of families had annual incomes greater than $A15,000 (the highest category measured in the 1976 census) compared to 13.9 percent throughout the metropolitan area (Houghton 1979a:64,77). However, with respect to income there was some diversity in Claremont as there was also nearly half the proportion again as the city wide proportion of people in the lowest income bracket (less than $A5,000 per year). This latter fact reflects both demographic and socioeconomic factors. Many of those on low incomes are elderly people who are no longer in the workforce themselves or who no longer have spouses in the workforce. Some of these people are long term residents who own their own homes in the suburb. At the same time the availability of some relatively low cost rental flat accommodation enables both older and younger people on low incomes to live in what is otherwise a high rent area affordable only by the most affluent. This type of accommodation is available because in the past developers were able to construct some high density, low area, low unit cost accommodation on restricted amounts of land. This has given rentier's a relatively large return on their capital. However, the small size of such units precludes their occupation by families with children. These same factors
explain the large number of single person households in the area which is nearly twice the metropolitan proportion (Houghton 1979a:48).

Public transportation in Perth is not highly developed. Government planning since World War II has encouraged the use of privately owned motor vehicles. In fact in Perth the level of car ownership is higher than in any other Australian capital city. At the time of the 1976 census only 13.4 percent of households did not have a motor vehicle whereas 39.3 percent actually had two or more. Houghton has written that, given this state of affairs,

... households without access to a private motor vehicle can be regarded as being seriously disadvantaged (1979a:93).

In Claremont, slightly more households are without motor vehicles than the proportion in the metropolitan area as a whole. This is correlated with the number of elderly and low income residents. However, the disadvantage which accrues as a result of not having a motor vehicle is somewhat mitigated for Claremont residents as opposed to those living in outer suburbs. There are two major reasons for this. The first is the fact that many services and facilities have grown up in the area itself. The second is that although the passenger service along the Fremantle to Perth railway line was closed in 1979 because of declining passenger usage and increasing costs, Claremont is relatively well serviced by public transport. Some twelve
of the Metropolitan Transport Trust's bus routes run to or pass through Claremont on their way to either Perth or Fremantle.

Many arthritis sufferers experience difficulty in using public transport. Reasons for this include distance from bus routes and the height of entry steps to buses. As a consequence these people must often rely upon taxis. For people on restricted incomes, such as old-age pensioners, this is relatively expensive. However, the closer proximity of shopping, health-care, and other facilities means that for Claremont residents this is less of a burden than for people living in outer suburbs such as Lockridge.

LOCKRIDGE.

Lockridge is located in the Shire of Swan in the northeast of the Perth metropolitan area. Lockridge itself does not constitute a separate statistical subdivision. The subdivision of which it is a part includes parts of Guildford, Caversham, and Viveash to the east of Lockridge. This means that it is not possible to extract data on Lockridge specifically from census reports or studies based upon them (such as Houghton's). This presents some minor problems for while, in broad terms, the population of Lockridge shares many of the characteristics of the population in the subdivision as a whole there are some notable differences. Generally speaking, Lockridge and the
subdivision of which it is a part is one of Houghton's "Group B" suburbs. That is, it is characterized by being populated by younger people of low socioeconomic status, with high rates of familism, and high proportions of single parent families, many of whom occupy State Housing Commission homes.

Lockridge is a housing estate of 140 hectares on the northeastern fringe of metropolitan residential development some thirteen kilometers from the central city area. The State Housing Commission commenced the residential development there in 1969 to meet the demand for low cost housing which accompanied the population increase associated with the mining developments of that period. To the north of Lockridge is the new suburb of Beechboro and together these suburbs are surrounded by land used for small mixed farming production and a telecommunications reserve. Although Lockridge lies to the north of the older residential suburb of Eden Hill and the mixed residential and light industrial suburb of Bassendean, it is,...

...in effect geographically and functionally isolated from the main eastern suburban development (Residents of Lockridge n.d.:2).

In contrast to the surrounding area and to Claremont, Lockridge is almost totally a State Housing Commission residential estate. The Commission has constructed 98.6 percent of the 1,289 dwelling units in the suburb. Of the total number of dwellings, 40.7 percent are pensioner units...
or flats. Many of these are occupied by single parent households. The remainder include low cost, two to four bedroom houses, duplexes, and town houses; of which, thirty-five percent are being purchased by their occupiers (Residents of Lockridge n.d.:2). Compared to Claremont, Lockridge has poorer quality housing, in a less desirable environmental setting, located at a greater distance from established services and facilities. These factors are reflected in the cost of housing in Lockridge. In 1981, the average purchase price of a home there was $A27,000.

In contrast to Claremont, and many other Perth suburbs, shopping services and facilities in Lockridge are extremely limited. In the community center there is only one small supermarket, an office of the State Housing Commission, and a Community Health Center. There is also a hotel on Morley Drive which bounds the southern edge of the estate. More extensive facilities are available at the minor district level shopping center adjacent to the Bassendean railway station two kilometers to the south. However, unless a person has use of a private motor vehicle access to this is difficult. To gain access to a range of goods and services equivalent to that available in Claremont, Lockridge residents must travel six kilometers to the large shopping complex at Morley.

Also unlike Claremont, Lockridge is poorly serviced by public transportation. A bus which travels to and from the
Morley shopping center passes through the suburb approximately every thirty minutes between 5:30 a.m. and 10:30 p.m. To journey on to the central city it is necessary to change buses at Morley. Also, there are no direct bus routes from the area to the light industrial areas where many of those in the workforce are employed. Many of the single parent families do not have their own motor vehicles and the consequent difficulties of travel serve to compound their social isolation.

There are marked demographic differences between the populations of Lockridge and Claremont. Firstly, the population of Lockridge is considerably younger. In the statistical subdivision of which Lockridge is a part, the proportion of children is almost fifty percent higher than in the metropolitan area as a whole (Houghton 1979a:37-39). It is difficult to assess to what extent, if any, Lockridge differs in this respect from the rest of the subdivision. However, based on the investigator's observations, it may slightly exceed that proportion. Although for the subdivision as a whole the proportion of those aged over sixty-four is less than the 8.4 percent for the city as a whole, the concentration of pensioner accommodation in Lockridge probably takes its aged population closer to that of the whole metropolitan area. However, it is still probably substantially less than in Claremont.
Another characteristic of the Lockridge population is the remarkably high proportion of single parent families living in the suburb. According to Houghton, 14.6 percent of the households in Lockridge are single parent households, compared to a metropolitan proportion of 4.3 percent and somewhat less for Claremont (1979a:49). This reflects the dependency of many single parents of low socioeconomic status on public housing. Other significant features of the Lockridge population are the greater than average concentration of some migrant groups and Aborigines. Especially in the case of the latter group, this is again a reflection of socioeconomic disadvantage and dependence upon public housing. In fact, the State Housing Commission can be fairly criticized for concentrating some groups who are disadvantaged in various ways in isolated outer suburbs where their disadvantages are further compounded.

Houghton's social atlas shows that, of those in the workforce in the statistical division of which Lockridge is a part, less than half are in professional or managerial occupations and that more than half the metropolitan proportion are production workers, process workers and laborers (1979a:53-55). However, a survey undertaken in Lockridge itself showed that eighty-six percent of the workforce were in the latter occupational categories (Western Australian Government Inter-Departmental Report, quoted in Residents of Lockridge n.d.:6). Although no
similar independent data is available with respect to the incomes of Lockridge residents it is highly probable that there are fewer people in the highest and more people in the lowest income categories than for the subdivision as a whole. Within the subdivision there were seven percent in the upper category and between 22.4 and 33.4 percent in the lowest category; compared to 13.9 percent and 22.4 percent for the whole of Perth (Houghton 1979a:61-67).

THE SAMPLES.

In general terms it is possible to characterize Lockridge as a suburb of Perth in which resides a young working class population and one which also includes especially disadvantaged groups from that social class such as single parents, the aged and Aborigines. The suburb is on the fringe of the metropolitan area where the lack of well developed services and facilities and poor public transportation services compound the isolation and difficulties that many people living there face. Claremont, on the other hand, has a population which is largely middle or upper-middle class. The latter suburb is on land adjacent to, or close to, desirable river and beach locations and is relatively close to the central city area. As an established area populated by an affluent section of the community it has attracted a reasonable amount of commercial and professional business to serve that
population. In contrast to Lockridge, though, Claremont's population is socioeconomically a little more heterogeneous. The suburb contains pockets of both the young and the aged who are less affluent but who have been able to obtain relatively less expensive, lower quality, and higher density residential accommodation in the area. In terms of factors such as income, these people are in the same category as many Lockridge residents. However, in overall terms they are better off as a result of their location in a well developed area of the city.

As indicated in the previous chapter, although the population samples on which the survey is based were drawn from a study which randomly sampled one household in ten in Claremont and one in five in Lockridge, they are not themselves random, representative samples of the populations of those suburbs. Rather, they are self-selected sub-samples of those random samples. They are comprised of people who have some form of symptomatic joint disease and who, themselves, identify that disease by the labels "arthritis" or "rheumatism." That is, they are not a random sample of arthritis sufferers from those suburbs either. Although, given the wide currency of the illness labels used, they probably constitute a more or less random sample of symptomatic cases of arthritis. This means that in several respects the samples differ significantly from the populations from which they were drawn.
As the most common form of arthritis (osteoarthritis) is a disease of late to middle age, both samples consist of people who are older than the average age of people in the suburbs in which they live. However, there was also a statistically significant \( \chi^2_{d.f. 2=13.36 \ p<.05} \) difference between the ages of the two samples; there being a great many more people aged over seventy in the Claremont sample and many less than fifty in the Lockridge sample. This is a reflection of the older age of Claremont's population in general.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Suburb by Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Suburb</td>
</tr>
<tr>
<td>Claremont</td>
<td></td>
</tr>
<tr>
<td>Lockridge</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
</tr>
</tbody>
</table>

\( \chi^2_{d.f. 2=13.36 \ p<.05} \)

In both samples, female respondents outnumbered males. There are two reasons for this. Firstly, there is the tendency for women to live longer than men. Secondly, and more importantly, various forms of joint disease are more prevalent amongst women than amongst men (Cobb 1971:42, 79). Within both samples the actual proportions of men to women
were quite similar; males comprising 30.4 and 26.7 percent of the Claremont and Lockridge samples respectively.

Within both samples the proportion of respondents who were currently married was also quite similar. Those not currently married made up 43.5 percent of the Claremont and forty percent of the Lockridge totals. Although in both samples there were some people who had never been married and a small number who were separated or divorced, most of those not married at the time of the study were widows. Given the marked difference in the ages of people in the two samples, this similarity in marital status is, at first sight, surprising. However, it is partly explained by the greater dependence of some less affluent, younger widows upon the provision of public housing and hence to be slightly more concentrated in a suburb such as Lockridge.

A significant demographic difference in the samples has to do with county of birth. Whilst both samples had more or less equal proportions of immigrants from countries other than Britain, almost half (14 or 46.7%) of the Lockridge sample consisted of British immigrants. In Claremont, also, the proportion of British immigrants in the sample was higher than in the suburb as a whole (19.6% compared to 8.95 --17.9%) but was nowhere near as high as in Lockridge.
Table 2
Suburb by Country of Birth

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Country of birth</th>
<th>Australia</th>
<th>Britain</th>
<th>Other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claremont</td>
<td></td>
<td>30</td>
<td>9</td>
<td>7</td>
<td>46</td>
</tr>
<tr>
<td>Lockridge</td>
<td></td>
<td>11</td>
<td>14</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>41</td>
<td>23</td>
<td>12</td>
<td>76</td>
</tr>
</tbody>
</table>

$\chi^2_{df2} = 8.95 \ p < .05$

That there are no Aborigines in either sample reflects social, economic, and demographic factors. There are few Aborigines living in Claremont because most do not have the financial means to afford accommodation there and many of those that do would shun the social isolation and lack of mutual support that living there would entail. In the case of Lockridge, although many Aborigines live there, most are part of young families and there are relatively few in the age range from which the sample is drawn.

The differences in the levels of education of people in the two samples is quite marked. Similar proportions in each sample had only some primary school education or had completed the Junior Certificate or its equivalent. The latter is a certificate awarded for the successful completion of a public examination at the end of three years of high school. Up to twenty years ago, when most people in Australia left school by or at the age of fifteen, this was regarded as a significant educational achievement. Where
the samples differ is in the high proportion of Lockridge residents who left school before the Junior Certificate level, and the high proportion of Claremont residents who completed high school or went on to obtain technical or tertiary educational qualifications. The proportion of people in the Claremont sample with tertiary education (8.7%) is above the city wide proportion of 6.7 percent but below the proportion in Claremont as a whole. On the other hand, in the Lockridge sample no one had tertiary qualifications.

Table 3
Suburb by Educational Attainment

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Education</th>
<th>Primary school</th>
<th>Some high school</th>
<th>Junior or equivalent</th>
<th>Leaving or Higher</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claremont</td>
<td></td>
<td>13</td>
<td>9</td>
<td>8</td>
<td>16</td>
<td>46</td>
</tr>
<tr>
<td>Lockridge</td>
<td></td>
<td>7</td>
<td>12</td>
<td>5</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>20</td>
<td>21</td>
<td>13</td>
<td>22</td>
<td>76</td>
</tr>
</tbody>
</table>

\[ \chi^2_{df=5} = 15 \quad p < .05 \]

There was a statistically significant \( \chi^2_{d.f. 2=5.97} \) difference in the current employment status of individuals in the two samples. In the Claremont sample, only two males and two females were still in the workforce. Of the remaining forty-two, the females were all engaged in home-duties and the twelve men were retired. In the Lockridge sample, on the other hand, thirty percent (6
females and 3 males) were in full-time employment outside the home. The other sixteen women were engaged in home-duties and of the other five men, two were retired, two were unemployed and one was an invalid pensioner.

Table 4
Suburb by Current Employment Status

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Employment status</th>
<th>Full-time</th>
<th>Home-duties</th>
<th>Retired or other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claremont</td>
<td></td>
<td>4</td>
<td>30</td>
<td>12</td>
<td>46</td>
</tr>
<tr>
<td>Lockridge</td>
<td></td>
<td>9</td>
<td>16</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>13</td>
<td>46</td>
<td>17</td>
<td>76</td>
</tr>
</tbody>
</table>

$\chi^2_{df2} = 5.97 \ p < .05$

There were also marked differences in the types of jobs the respondents currently or last held. In the Claremont sample, fifteen women had never worked outside the home. This was in contrast to only three women in the Lockridge sample who had never worked outside the home. The second outstanding difference in this respect was that fully two-thirds of the Lockridge group had worked or were working in unskilled or service occupations. For the thirteen women this often meant domestic work and for the seven men jobs as storemen or in food processing occupations. In contrast, although ten people from the Claremont sample had been involved in similar work they were mainly women.
Almost equal proportions from each sample had worked in occupations in the white collar and skilled trades occupational categories. All of the eight women from both suburbs had been clerical workers, as were two of the men from Claremont and one from Lockridge. The other two men from Lockridge had been skilled tradesmen. The other marked difference in occupation between people in the samples was with respect to the professional and managerial category. Over half of the Claremont men, but none of the Lockridge men had worked in these types of occupation. Amongst the Claremont men three had been pastoralists or farmers and amongst the others there had been two business managers, an engineer, an agricultural scientist, and a teacher. The women in this category, including the two from Lockridge, were mainly semi-professionals such as nurses and teachers.

These occupational patterns represent a divergence from the patterns within the statistical subdivisions from which the samples were drawn. In Claremont as a whole there is a high proportion of people in professional or managerial occupations. In the case of the Claremont sample, though, the respondents were more evenly spread across the occupational spectrum. In the case of Lockridge, on the other hand, there is an even greater concentration of people who worked in unskilled occupations than there is in the subdivision of which it is part. In both instances this is partly due to the larger proportion of women in the samples,
as women are generally employed in less skilled occupations than males.

Table 5
Suburb by Occupational Category

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Prof'nal</th>
<th>Clerical</th>
<th>Service</th>
<th>Home-duties</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claremont</td>
<td>13</td>
<td>8</td>
<td>10</td>
<td>15</td>
<td>46</td>
</tr>
<tr>
<td>Lockridge</td>
<td>2</td>
<td>5</td>
<td>20</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td>15</td>
<td>13</td>
<td>30</td>
<td>18</td>
<td>76</td>
</tr>
</tbody>
</table>

$\chi^2_{df=3} = 18.5 \ p<.05$

With only one exception, a storeman from Lockridge who was married to a clerical worker, all the males in the study who had been married had been married to women from the same occupational category or from a less skilled category. Similarly, with only two exceptions, the women who had been married and had worked outside the home had been married to men in the same or a more skilled occupational category.

Of the eighteen women who had never worked outside the home, fifteen were Claremont residents. This reflects in part the greater age of these women in a century when there has been an increasing tendency for women to spend at least some time in the outside workforce. However, it also reflects the socioeconomic position of these women and their spouses. Of the eighteen, seven were, or had been, married to men in professional or managerial occupations and seven
were, or had been, the spouses of clerical workers or skilled tradesmen. In this respect, five of the nine men in the study who had spouses who had not worked outside the home were in professional and managerial occupations and two in clerical or skilled occupations.

In any social research, income, no matter how it is defined, is always difficult to measure. For this reason and because of the subsequent manipulations of the raw data during analysis, the figures presented below should only be regarded as broad approximations. However, that at least some faith in their relationship to actual levels of income is warranted seems to be justified on the grounds that: only one person refused to answer the questions on income; few of the respondents were reluctant to do so; and, more importantly, the responses are not inconsistent with other known data such as occupations and observations of life-style. In the interviews, participants were handed a card and asked to choose into which of eleven categories thereon their personal income fell. For comparative purposes, the categories were the same as those used in the 1981 census conducted two or three months earlier.1 They ranged from "no income" to "more than $A26,000 per year." The respondents were asked to consider income from all

1 Unfortunately, at the time of writing, results of the census by statistical subdivision were not available and, hence, intended comparisons could not be undertaken.
sources and before any deductions were made. To minimize confusion and/or guessing the categories were listed in both amounts per week and amounts per year. Subsequently, respondents were asked a similar question about their spouse's income. One person declined to answer either question and three women did not know how much their husbands earned.

Using this basic data, "approximate family income" was derived. This variable was defined as it is by the Australian Bureau of Statistics. That is,

... the sum of the individual incomes of the head and spouse of a family, where both are present, or the individual income of the head where no spouse is present (A.B.S. 1976:2).

This derived figure is only a broad approximation because it is based upon the mid-points of the various income categories. To enable inter-household comparison, the family income figure was divided by one or two, depending upon whether the person was presently living alone or with a spouse. This gave approximate per capita annual income.

As Table 6 indicates, there is no statistically significant difference in the distribution of income between respondents in the two suburbs. However, the Table does disguise some important differences. In the Claremont sample, thirty-two (72.2%) of the forty-two people who are included in the Table were receiving some kind of government pension or benefit. These were usually age pensions but
widow's pensions and war service pensions were also included. However, only half of them were in a position where they received income from that source only. The other sixteen, including all those in the $3--6,000 category had, or their spouse had, some other source of income. In contrast, twelve of the fourteen people in Lockridge who derived their income from social security benefits had to rely on that source alone. This means that half of those Lockridge people whose income is derived from wages or salaries are in the all but lowest income category. There is yet a further difference because whereas the five Lockridge people in the highest income category all received less than $12,000 per year, four of the eight Claremont people in the category received more than that amount. Thus, when people of similar age and status are compared, the people of Claremont are in a better position in financial terms than those in Lockridge.

Table 6

Suburb by Approximate Per Capita Annual Income

<table>
<thead>
<tr>
<th>Suburb</th>
<th>LE $3,000</th>
<th>$3--6,000</th>
<th>$6--9,000</th>
<th>GE $9,000</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claremont</td>
<td>16</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Lockridge</td>
<td>12</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td>28</td>
<td>19</td>
<td>12</td>
<td>13</td>
<td>72</td>
</tr>
</tbody>
</table>

$X^2_{df;3} = 2.59$  $p > .05$
This difference in income is reflected in wealth; as far as equity in one's home is a partial measure of that factor. In Claremont thirty-eight (82.6%) of the people in the sample either owned their home outright or were paying it off. This compares with only nine (30%) people in the Lockridge sample. When the substantial differences in the value of housing in the two suburbs is considered, it can be seen that purchasing or owning a home in Claremont entails substantially more capital.

Table 7
Suburb by Housing Tenancy

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Tenancy type</th>
<th>Boards or rents</th>
<th>Purchasing or owned</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claremont</td>
<td></td>
<td>8</td>
<td>38</td>
<td>46</td>
</tr>
<tr>
<td>Lockridge</td>
<td></td>
<td>21</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>29</td>
<td>47</td>
<td>76</td>
</tr>
</tbody>
</table>

\[ \chi^2_{df1} = 21.29 \ p < .05 \]

THE SAMPLES AND SOCIAL CLASS.

Thus far, discussion of the differences between the two samples, and the populations from which they were drawn, in terms of social class has been purposefully left undefined. This has been done in order to present some specific characteristics of the samples before analyzing
their inter-relationships. In any discussion of social stratification it is necessary to distinguish three related concepts. These are class, status, and power. As Encel indicates (1970:149) the first of these concepts was introduced into the social science literature by Marx and Engels and the other two by Weber. Although the terms are employed by almost all writers on social stratification, there are no generally agreed upon definitions of their meanings or the importance to be given to each in analysis. Generally speaking, social class relationships are regarded as being based on economic relationships; although these are variously defined. Status has to do with the amount of social prestige that is accorded to a person—especially on the basis of his or her occupation. Power refers to the ability to exercise control over social situations. Power can be either economic or political (although many writers have stressed the latter). However, there is much disagreement about the nature of the relationship between these two forms of power.

Perhaps the most common empirical approach to the study of social stratification in Western industrialized societies is the functionalist approach, of which Broom and Jones (1976) have been the leading proponents in Australia. According to this view, industrial societies are structured in a series of hierarchical strata based largely upon occupational status. Either explicitly or implicitly,
occupations are regarded as being evaluated and rewarded, by members of society as a whole, in terms of the extent to which they contribute to the functioning of society (Blaikie 1981:116-7). Education is viewed as a factor contributing to occupational status and income as a material reward to the incumbent of a particular occupational status. In turn, education and income and aspects of life-style to which they give rise are also accorded prestige or status. The strata based on this system of socioeconomic status are not regarded by the functionalists as categories of people having fundamentally different economic, political, and social interests. Instead they are viewed as a hierarchy of mutually dependent, although unequal, segments of society.

Much of the emphasis in functionalist research has been directed at empirically delimiting the various strata within societies. This is usually done by scoring individuals on a number of dimensions and then clustering them in terms of patterns of characteristics or of composite scores. The number of dimensions taken into account varies. The most common schemes employ the three dimensions of occupation, education, and income. Some schemes use only occupation and education, and others expand the number of dimensions to include such factors as the individuals' self-identified class position and life-cycle stage. In all, however, the occupational dimension remains central because, as Broom and
Jones express it,

...The shape of inequality in modern industrial societies is expressed through the occupational system because the kind of work a person does largely determines his or her share of valued resources such as wealth, prestige, and authority (1976:62).

Broom and Jones (1976), and their colleagues at the Australian National University, have attempted to define social strata in Australia on the basis of their analysis of the responses of some 1,925 individuals to a nation-wide sample survey. In assessing social status, each person was given a score of between one and six on three scales measuring occupation, education, and income respectively. The resulting "status profiles" were subjected to cluster analysis and ten socioeconomic strata were derived.

The data from the present study was analyzed using a similar technique, but with some modifications. Broom and Jones' study analyzed data collected from males aged twenty-one years and over, or from their wives as proxies where the men were not available (1976:133). It has often been pointed out that women working outside the home make a contribution to the socioeconomic status of their families. However, no satisfactory measure of such a contribution has yet been devised. This problem of evaluating the status of women has particular relevance for the present study in that seventy-one percent of the respondents to the survey were women. As an operational solution to this problem the
method of Haug (1973) was followed. That is, individuals (both male and female) were assigned to the stratum of their spouse if, when calculated separately, that was higher than the stratum to which they would have been assigned on the basis of their own characteristics. In the case of widows or divorced women, the same procedure was carried out with respect to the characteristics of their deceased or ex-husbands. In the latter instance, it is recognized that in individual cases this procedure is open to question. However, on the balance, it appears that the procedure results in the best approximation of the position of these women.

The second modification to the Broom and Jones procedure was the deletion of income from the assessment. The main reason for this was the fact that the incomes of the respondents varied in response to life-cycle stage and present marital status. It is recognized that these two factors have important consequences for an individual's life-style. However, no suitable means of controlling for the effects of these confounding factors was available. For this reason it was believed that for an assessment of status which more closely reflected that of Broom and Jones, income was best not included.

The results of the analysis are presented in Table 8 along with the percentages in each stratum that Broom and Jones found in their larger survey. Each of the five strata
in the Table are comprised of two strata in the Broom and Jones scheme. Thus, for example, Broom and Jones have an "upper middle class A" and an "upper middle class B" rather than just an "upper middle class." There were two reasons for combining these in the present scheme. The first was the small size of the sample. Secondly, in the Broom and Jones scheme some of the differences between adjacent categories are due to income differences; and, as income was not included in the present assessment the analysis was not sensitive to such differences. In the Broom and Jones scheme there were two "marginal" strata between their "old middle class B" and "middle mass A" strata which were,

...to some extent ... residual categories of men who do not fit the more dominant patterns of social differentiation (1976:113).

In the present study none of the respondents fell into these marginal categories.

Generally speaking, in Broom and Jones' classification, the "upper middle class" categories consist of highly educated, urban professionals, managers, and higher level white collar workers. In the present study, people in this category, or their spouses, were the more highly educated and were drawn from managerial and accounting occupations, engineering, and the semi-proessions such as teaching and nursing. Overwhelmingly, these were Claremont residents. The two exceptions to this residential pattern were a nurse and a woman whose husband had managed a rural business.
Table 8
Socioeconomic Status by Suburb

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Claremont</th>
<th>Lockridge</th>
<th>Totals</th>
<th>Percent</th>
<th>Australian percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper middle class</td>
<td>12</td>
<td>2</td>
<td>14</td>
<td>18.7</td>
<td>10.7</td>
</tr>
<tr>
<td>Old middle class</td>
<td>9</td>
<td>6</td>
<td>15</td>
<td>20.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Marginal</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>11.1</td>
</tr>
<tr>
<td>Middle mass</td>
<td>21</td>
<td>12</td>
<td>33</td>
<td>44.0</td>
<td>33.1</td>
</tr>
<tr>
<td>Working class</td>
<td>3</td>
<td>10</td>
<td>13</td>
<td>17.3</td>
<td>24.1</td>
</tr>
<tr>
<td>Totals</td>
<td>45</td>
<td>30</td>
<td>75</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

$\chi^2_{df} 11.41$  p < .05
*Source Broom & Jones (1976:109)

The "old middle class" categories include people in higher status occupations but with lower levels of education. As Broom and Jones put it, these strata,

... contain occupations that require entrepreneurial skills rather than formal education (1976:112).

Although equal proportions of people in this stratum are found in both the Claremont and Lockridge samples, there is a marked difference in the types of occupations that these individuals or their spouses performed. Those in the Claremont sample were generally owners of large farms or pastoralists and managers; whereas those in the Lockridge sample tended to be white collar workers with higher levels of education or small entrepreneurs.

In both samples, people in the "middle mass" formed the largest category. The average level of education amongst
people in this category was Junior Certificate level and occupationally it included mainly people, or their spouses, who were or had been white collar workers or skilled manual workers. The category also included some women who were the widows of military personnel.

The final stratum, "working class," was comprised of those people or their spouses who had only some primary or lower high school education and who had been employed in semi-skilled or unskilled occupations such as domestic workers, laborers, and shop assistants. In contrast to people in the "upper middle class" stratum, people in this stratum were overwhelmingly residents of Lockridge.

Functionalist approaches to the measurement of social class or socioeconomic status, such as those of Broom and Jones, can be subjected to a number of criticisms. On the one hand there are the general criticisms of the phenomenologists and those of a similar persuasion. Like Berger (1966:79), the phenomenologists have regarded social class as a type of social stratification based on economic criteria. However, they have shown little concern for explanation of the objective nature of social class. They have rejected the methods of the functionalists as being "positivistic" and have concentrated upon the shared understandings of people in particular social positions. Given what has already been said about the phenomenological approaches (see Chapter I) there is no need to elaborate
further upon them or the reasons for rejecting them. However, it is interesting to note in passing that Elder (1973) used Hollingshead's functionalist measure of social class in the study in which she claimed that class related variations in belief about the etiology of osteoarthritis supported phenomenological interpretations of sociocultural phenomena.

From a cultural materialist point of view, a major problem with functionalist models is their confusion of emic and etic criteria in the measurement of social class (Harris 1980:324-5). There is at least a general consensus that social stratification is based upon economic and political relationships and that the aim of analysis is to develop models which summarize and explain the evolution and functioning of stratification systems. People within societies accord each other status in terms of a number of factors including occupation, income, and education. Especially with respect to factors such as income and education, there is considerable overlap between emic and etic measurement or evaluation. However, they are by no means the same. This is particularly the case with respect to occupation. There are often great differentials between the status accorded to people in certain occupations and the amount of economic and political power they wield. Furthermore, at the emic level there is often a great deal of disagreement about the degree of status to be accorded
particular occupations. What the functionalists do is assume a congruence between emically accorded status and the importance particular positions have for the functioning of society as a whole and the amount of power their incumbents are able to wield. Also, from a materialist point of view, the functionalist emphasis on occupation disguises the relationships of a particular person's political and economic interests and his relationships to others. For example, to classify together three carpenters on the basis of occupation when one is an employee, another a foreman in a large company, and the other a small businessman is to overlook some fundamental differences of interest among them. Rather than taking emically derived models of social stratification and treating the strata identified therefrom as objective social categories, to understand social class relations attention needs to be directed at particular economic and political relationships.

The Marxists, in particular, have been critical of the functionalist approaches to the study of social stratification. They have criticized the tendency amongst the functionalists to stress the interdependence of social strata and the fact that they underplay fundamental conflicts of interest between categories of people within society. For the Marxists, social differentiation arises out of differential ownership and control of the means of production (essentially basic resources and productive
technology). According to the Marxist view, the relationships between the owners of capital and workers is inherently unstable and eventually leads to open class conflict. In Marxist class analysis "consciousness" of the divisions within society and the basis of those divisions is an essential feature which distinguishes a class from an economic category.

In its emphasis upon the determinacy of infrastructural factors, the cultural materialist understanding of the nature of social class shares many similarities with Marxist analyses. Harris has written,

... a class is a group of people who relate to the apparatus of control in state level societies in similar ways and who possess similar amounts of power (or lack of power) over the allocation of wealth and privileges and access to resources and technology (1980:322).

As in the Marxist definitions of class, there is an emphasis in Harris' definition on relationship to basic resources and productive technology and control or power over others. As in the Marxist view, Harris also emphasizes the fact that political and economic power are closely related. Connell (1977) has demonstrated this in the Australian context and shows that analyses which separate these distort descriptions of social reality.

There are also major differences between the Marxist and cultural materialist analyses of social class, however. In Marxist analysis, class as a form of social organization
is found only in societies where capitalist modes of production prevail. As Harris defines class, the concept can also be used to describe relations of stratification in socialist states; that is, in societies in which Marxist-Leninists would argue that social classes have been abolished. A second difference between these approaches is that, in the cultural materialist perspective, open class conflict and the emergence of socialism is not viewed as being historically inevitable. However, to be fair, some Marxists have also been less than sanguine on this point (Flacks & Turkel 1978:209). Thirdly, given the cultural materialist emphasis on the need to analyze society in objective terms, consciousness of class divisions is not a prerequisite for defining and understanding their role in sociocultural dynamics.

A survey of the literature reveals that there have been no attempts by cultural materialists to operationalize definitions of social class. Similarly, Marxists have been criticized for writing about class in the broad (and now outmoded) terms originally employed by Marx and Engels and for not having concerned themselves with empirical studies. Wright and Perrone have written,

... quantitative investigations of the causes and consequences of inequality have almost totally ignored Marxian categories. Marxists have been suspicious of quantitative, multivariate approaches to the study of social reality, and the practitioners of multivariate statistics have generally viewed the Marxist perspective as
offering little of interest for empirical research (1977:32).

These writers have attempted to bridge this gap. They specify criteria for evaluating class position and, using those criteria, describe class relationships in a manner which takes into account the increasing separation of management and ownership of the means of production in Western industrialized societies. The criteria Wright and Perrone specify for evaluating class position are:

1. ownership of the means of production,
2. purchase of the labor power of others,
3. control of the labor power of others, and
4. sale of one's own labor power (1977:34).

The expanded class typology they use has four class categories: capitalists, managers, workers, and petty bourgeoisie. In the scheme, managers occupy a position between capitalists and workers in that they share some characteristics with both. In an expanded version of this typology, Wright (1976) also recognizes that there are some people in society who are in ambiguous positions between the petty bourgeoisie and the workers on the one hand and the petty bourgeoisie and the capitalists on the other.

In that Wright and Perrone's criteria for evaluating class position are concerned with the material bases of social stratification and that they do not necessarily entail acceptance of other elements of Marxian class analysis, they provide an operationalization of class that is acceptable from a cultural materialist perspective. For
this reason and because they differ from those used by more orthodox Marxists, these categories will be referred to as "materialist class categories."

The manner in which data on occupation and job descriptions was collected in the present study enabled the classification of respondents (either on the basis of their own or their spouses' characteristics) in terms of Wright's class categories. The results of this analysis are presented in Table 9.

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Class</th>
<th>Petty Bourgeoisie</th>
<th>Managerial</th>
<th>Working</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claremont</td>
<td></td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>45</td>
</tr>
<tr>
<td>Lockridge</td>
<td></td>
<td>2</td>
<td>9</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>16</td>
<td>24</td>
<td>35</td>
<td>75</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 8.07 \ p < .05 \]

The most marked difference between the two samples is in the size of the "petty bourgeoisie." In the Claremont sample this includes a number of pastoralists or owners of large farms or their spouses (actually, in some respects these people are located ambiguously between this class and that of the "capitalists") as well as some self-employed professionals and tradesmen and small business proprietors.
The two people in the Lockridge sample were the spouses of a small farmer and a shop proprietor respectively.

Managers are distinguished from the "capitalist" class, on the one hand, by the fact that their ownership of the means of production is minimal or non-existent and by the fact that they do not themselves purchase the labor power of others. On the other hand, they are differentiated from the working class by the fact that they control the labor power of others. Internally, the managerial class is differentiated in terms of the degree of control managers have over the labor power of others and the amount of control they have over production processes. These differences serve to distinguish between foremen and low level managers at one end of the scale and top level managers at the other. In the Claremont sample, nine of the fifteen respondents or their spouses had been middle or upper level managers or technical experts. Of the other six, two had been military officers and the others had been lower level managers or foremen in building or production work. In the Lockridge sample, this distribution was reversed with spouses of three of the women having been middle managers and the remaining six people or their spouses were, or had been, foremen in skilled or unskilled occupations or, in two cases, nurses.

In Wright's class typology, workers are defined as those who do not own the means of production, who do not
purchase or control the labor power of others, and who must sell their own labor power in order to subsist. As Table 9 indicates, about thirty-five percent of the Claremont sample and fifty-four percent of the Lockridge sample fall into this category. Included in this class are white collar workers and the majority of both skilled and unskilled manual workers or their spouses.

Table 10

Materialist Social Classes by Socioeconomic Strata

<table>
<thead>
<tr>
<th>Class</th>
<th>Upper Class</th>
<th>Old Middle</th>
<th>Middle Mass</th>
<th>Working Class</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petty Bourgeoisie</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Managerial</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Working class</td>
<td>1</td>
<td>2</td>
<td>21</td>
<td>11</td>
<td>35</td>
</tr>
<tr>
<td>Totals</td>
<td>14</td>
<td>15</td>
<td>33</td>
<td>13</td>
<td>75</td>
</tr>
</tbody>
</table>

Table 10 illustrates the relationship between the functionalist and the materialist schemes of social stratification. As can be seen, there is a considerable degree of overlap between them. Wright's scheme separates Broom and Jones' upper middle and old middle class strata into the petty bourgeois and managerial classes. In the former are professionals who owned business enterprises, pastoralists and farmers and/or the spouses of these people. In the latter are professionals and some white collar workers employed in supervisory positions. The three people
in the upper middle and old middle class strata who meet Wright's criteria for inclusion in the working class are a school teacher and the spouses of two of the better educated white collar workers. The latter cases are concrete examples of the disparity sometimes found between status and the power that individuals are able to wield in society.

Just as there was little overlap between the upper middle and old middle class strata and Wright's working class, so there was little overlap between the middle mass and working class strata and the petty bourgeoisie. The two people from the middle mass who are in the petty bourgeoisie were a shop proprietor and the wife of an electrician who had his own business. The majority of both the middle mass and the working class strata are part of Wright's working class. This group includes clerical workers and skilled and unskilled manual workers or their spouses. However, about a quarter of the people in these two strata are part of Wright's managerial class. They include military officers, lower level managers, and skilled and unskilled manual workers in supervisory positions or their spouses.

Whichever model of social stratification is employed, it can be seen that there are marked differences in the social class composition of the samples from Claremont and Lockridge. However, which of the class schemes is employed is not merely a matter of conformity to common usage or of personal preference. As indicated, the functionalist model
is a reflection of emically accorded status; the materialist model is based on etically construed socioeconomic relationships. The test of the worth of either is the ability to use them to predict (or retrodict) other aspects of social behavior. It may be that in different circumstances either model may be more useful than the other; depending upon the importance of ideational or material factors under those circumstances. For this reason, both will be employed in the analysis of the treatment strategies employed by arthritis sufferers from Claremont and Lockridge.

SUMMARY.

Perth is an administrative, commercial, and light industrial city with a population of some 902,000. Its population is differentiated in terms of the roles that people play in its political economy which is largely oriented to the production of primary products for sale on international markets. In order to understand the social differentiation within the city, it is necessary to understand: its history; its economic and political development; and its demographic characteristics. These factors are all reflected in the spatial configuration of the city and, as Houghton (1979a) has demonstrated, it is possible to delimit six social areas within the city.
The samples on which the present study is based are drawn from two rather disparate social areas. On the one hand, Claremont is an established high status residential area. Lockridge, on the other is a relatively new State Housing Commission development in the outer metropolitan area. There are marked differences in the characteristics of the populations of the two suburbs and, although the samples upon which the study is based are not representative of the populations, they do reflect some of the important differences. Whether a functionalist or materialist model of social stratification is used, it can be seen that there are statistically significant differences in the class positions of people in the two samples. In the analysis to follow, the social and demographic differences between the samples and the relative advantages and disadvantages the people experience as a consequence of their spatial location in the city will be examined to establish what role they play in influencing treatment strategies employed to deal with various forms of arthritis.
CHAPTER IV

ARTHRTIS:
THE OBSERVERS' VIEW

The terms "arthritis" and "rheumatism" are used in various and often vaguely defined ways. In his introduction to the authoritative text *Arthritis and Allied Conditions*, Hollander defines them as follows:

The *rheumatic diseases* are those conditions in which pain and stiffness or some portion of the musculo-skeletal system are prominent. These include *diseases of the connective tissue*.

*Arthritis* is the general term used when the joints themselves are the major seat of the rheumatic disease (1979:3, emphases in the original).

Although the term "arthritis" specifically designates a joint problem, it is often used as a synonym for rheumatic diseases in general. Of the latter there are approximately one hundred different types. Amongst them are: gout, ankylosing spondylitis, psoriatic arthritis, systemic lupus erythematosus, and rheumatic fever. By far the most prevalent form of joint disease in urban adult Caucasian populations is osteoarthritis (or osteoarthrosis). Although less common than osteoarthritis, rheumatoid arthritis is also a particularly important form of rheumatic disease. In severe cases of rheumatoid arthritis, unsightly crippling of the hands may occur and in the minds of many people this is
frequently associated with "arthritis" or "rheumatism" in general.

Before proceeding to a discussion of the symptoms of joint disease reported by those who took part in the present study and the way in which these have been classified, it is necessary to outline the present state of scientific knowledge about the two most prevalent forms of arthritis. This will provide a rationale both for the type of questions posed in the survey and the categorization of the responses. It will also provide an etic framework against which the emic views of the participants can be compared.

OSTEOARTHRITIS.

Osteoarthritis is by far the most common of the rheumatic diseases, usually it is asymptomatic or mild in form, and it only rarely results in severe crippling. The prevalence of osteoarthritis increases markedly with age and Cobb has stated that "... as far as can be determined at present, it affects all people who live long enough" (1971:63). It should be stressed that this is so from a pathological, rather than a clinical or symptomatic point of view. Unlike many other rheumatic diseases, such as rheumatoid arthritis for example, osteoarthritis is a non-inflammatory disease and, not being a systemic disease, it is confined to the joints. It has been described as a "wear-and-tear" disease in which there is a breakdown of the
articulated cartilage, accompanied by thickening of the sub-chondral bone, and the formation of marginal osteophytes (Rodnan et al 1973, Sokoloff 1979a).

The most commonly held view of the processes that characterize osteoarthritis has been succinctly described by Rodnan et al (1973:78-82). In this view the initial change in affected joints is a softening of small areas of articular cartilage. As the disease progresses, the softened cartilage begins to crack and fibrillate, and in turn is abraded away. In an attempt to repair the damage that is taking place, bone cells accumulate in the areas below the degenerating cartilage. Thus there is a thickening of the sub-chondral bone which becomes smooth and polished as a result of wear. In addition, the accumulation of bone cells leads to the formation of growths known as osteophytes. These may protrude into either the joint space or into the surrounding tissues causing pain or restricting joint motion. In some cases, inflammation of the synovium may be present. However, this is believed to be secondary to the disease process and to result as a reaction to the presence of abraded cartilagenous material in the synovial fluid. As the disease progresses and the cartilage is further worn away there is often marked narrowing of the joint space; a condition that may be evident upon radiographic examination. In advanced cases of the disease there may also be secondary atrophy of the muscles.
surrounding the joint as the sufferer restricts use of the joint to ease pain.

In normally functioning joints, cartilage protects the bone by absorbing the stresses to which the joint is subjected. This is achieved hydrostatically by the "highly hydrated macromolecules of protein polysaccharides" (Rodnan et al. 1973:79), which together with collagen fibers form the matrix of articular cartilage. In cartilage affected by osteoarthritis, there is a marked reduction in the ratio of protein polysaccharides to collagen in the surface and underlying adjacent areas. This subjects the collagen fibers to increased stress and leads to rupture and fibrillation.

The initial cause of this degenerative process is not known, although there are three major hypotheses which seek to account for it (Rodnan et al. 1973:79-80). The first of these postulates that chondroitin sulphate (an element of the protein polysaccharide complex) is destroyed either by a hyaluronidase enzyme which is normally present in the synovial fluid or by enzymes released by chondrocytes in the cartilage itself. The second hypothesis relates to chondrocyte function. Examination of cartilage which has been subjected to osteoarthritic changes shows marked accumulation of chondrocytes at the base adjacent to the bone. It has been suggested that the metabolic process responsible for the accumulation of these cells is itself
the initiator of the disease process. However, Rodnan et al (1973:80) believe that rather than being the cause of the disease, the accumulation of chondrocytes is part of an unsuccessful attempt to repair damage. Proponents of the third hypothesis suggest that the cause of osteoarthritis is related to the relatively inefficient manner in which articular cartilage is nourished and its consequent inability to rapidly repair itself in the face of excessive wear-and-tear. However, Sokoloff indicates that, following arthroplasties of the hip, it has been observed that there may be some imperfect regeneration of articular cartilage (1979:1147). This has led to a restatement of the third hypothesis to the effect that the limited ability of cartilage to respond to stress may be a contributing factor in the pathology.

Although they are less widely accepted, there are two other hypotheses which propose that the origins of the degenerative process occur in the underlying bone rather than in the cartilage. In a summary of one of these Mannik (1976) says that it is believed that the subchondral bone which absorbs the shock in joints is, over the passage of time, subjected to a series of small trabecular fractures. These cause the bone to become increasingly rigid. As a result of this, the cartilage suffers increased stress and undergoes degenerative change. The second of these hypotheses has wider currency in Europe. According to this
hypothesis, in adults, bone growth does not entirely cease and continued bone growth and remodelling take place as a response to functional demands. If these processes occur more rapidly than cartilage repair then osteoarthritis will develop (Sokoloff 1979:1148).

Much investigative work needs to be undertaken to determine the cause of osteoarthritis. However, it should be noted that all of the above mentioned hypotheses may not be mutually exclusive. Several of them may contribute to full explanation. Support for a multi-causal theory is given by the distinction between primary and secondary osteoarthritis. The former appears to be the result of intrinsic degenerative factors while the latter develops as the result of trauma or continued stress of a particular joint or joints. However, the important factor underlying all of the various etiological theories is the emphasis placed upon the fact that osteoarthritis is a degenerative disease.

Abrams states that,

> From a pathological standpoint, osteoarthritis ... is present universally in individuals beyond the second decade of life. Roentgenographically, manifestations of this disease do not appear as a rule until the fourth or fifth decade but after the age of fifty characteristic changes are usually present. ... In people over the age of sixty it is estimated that 25 percent of women and 15 percent of men has symptomatic osteoarthritis (1966:870).

Pain on motion or weight bearing is the major symptom of osteoarthritis. However, as cartilage contains no sense
organs and as it is the primary site of attack, the majority of affected joints remain asymptomatic. The pain associated with osteoarthritis occurs as the disease advances and surrounding soft tissue is affected. The major symptom is localized stiffness of afflicted joints following sleep or rest.

If the disease progresses, the earlier symptoms may be accompanied by varying degrees of loss of mobility of the joints. In severe cases of osteoarthritis, there may be a change in the shape of the joint as the joint space narrows due to degeneration of the cartilage and consequent collapse of the joint capsule. Although occurring less frequently than in rheumatoid arthritis, in severe cases of osteoarthritis the person may restrict use of a particularly painful joint, thus resulting in secondary atrophy of surrounding muscle. Rodnan et al state that except for degenerative disease of the hip (which in fifty percent of cases follows antecedent causes such as congenital dysplasia of the hip) osteoarthritis seldom cripples or deforms in the way that rheumatoid arthritis can (1973:81).

A number of joints are more frequently affected by osteoarthritis than are others. These include the distal interphalangeal joints of the fingers, the carpometacarpal joints of the thumbs, the first metatarsophalangeal joints, the knees, the hips, and the cervical and lumbar vertebrae. Involvement of these joints tends to be confined
symmetrically to one pair of sites, although in the case of secondary osteoarthritis involvement may be asymmetrical. In addition, certain forms of the disease involve particular joints in characteristic ways. For example, marked bony protuberances known as Heberden's nodes may form...

...at the margins and on the dorsal surface of the distal interphalangeal joints of the fingers and are often associated with flexion and angulation of the distal phalanx (Rodnan et al 1973:81).

This particular form of the disease appears to be influenced in some way by genetic factors. In another form of the disease, known as primary generalized osteoarthritis, which mainly affects middle-aged women, there is multiple involvement of both distal and proximal interphalangeal joints, sometimes the vertebrae, and occasionally the feet, hips, and elbows (Abrams 1966:875). The fact that this form of the disease is, unlike other forms of osteoarthritis, associated with inflammation sometimes makes it difficult to distinguish from rheumatoid arthritis. However, despite these variations, it is possible to characterize osteoarthritis as a disease characterized by old age, "wear-and-tear," and both symmetrical and asymmetrical involvement of the large joints.

RHEUMATOID ARTHRITIS.

Although less prevalent than osteoarthritis, rheumatoid arthritis is a more serious disease as it can result in
severe crippling and deformity. As will become evident, it differs markedly from osteoarthritis in etiology, pathology, symptoms, and prognosis. Despite many years of research, the etiology of rheumatoid arthritis remains essentially unknown. It is generally held, however, that immunologic factors play a major role in the pathogenesis of the disease. In rheumatoid arthritis, as in many rheumatic diseases, inflammation is a prominent element in the disease process.

In the course of the inflammatory process, which is part of the body's normal defence mechanism (Pansky 1975:555), an increased amount of blood is transported to the site of an infection. The blood contains leucocytes, the role of which is to combat the infectious agent. A visible sign of this increased blood flow is redness. At the site, both the infectious agent and the leucocytes multiply at a rapid rate as does tissue fluid and debris from dead cells resulting from the interaction. This causes swelling. In addition, heat is generated by the increased cellular activity. When the invading infectious agent has been defeated and removed, the four cardinal signs of inflammation (redness, swelling, heat, and associated pain) subside. In rheumatoid arthritis, this inflammatory response itself becomes destructive rather than protective.

The cause of this counter-productive phenomenon is not known. However, one leading theory postulates that it is
set in motion by some kind of virus (Arthritis Foundation 1976:5). As yet, though, no specific viral agent has been identified. The fact that some transient forms of arthritis are associated with viral infections such as rubella is supportive of this hypothesis, as is recent work on the role of "slow viruses" as the cause of some chronic degenerative diseases. The other major etiological theory hypothesizes that rheumatoid arthritis results from a malfunctioning of the immune response itself, rather than from some infectious agent (Arthritis Foundation 1976:5).

The evidence for the role of immune mechanisms in rheumatoid arthritis has been summarized by Rodnan et al (1973:25-8) and by the Arthritis Foundation (n.d.). Whether in response to some infectious agent or due to malfunctioning of the immune system, researchers suggest that the immune system produces the immunoglobulin IgG. For some unknown reason, the immune response system comes to perceive this antibody as an antigen. In turn, the antibody "rheumatoid factor" is produced to suppress the antigenic IgG. The interaction of IgG and rheumatoid factor leads to the formation of immune complexes. These are combined with complement, a lytic substance found in serum, and are engulfed by phagocytes, thus forming "R.A. cells." Phagocytes are cells which, under normal circumstances, ingest micro-organisms and break them down by enzymatic action. Again for reasons unknown, in rheumatoid arthritis
the phagocytes themselves break down. The enzymes they contain are then released into the synovium where they cause the death of surrounding tissue. This further stimulates the immune response. In addition, some of these phagocytic enzymes are released into the synovial fluid where they may also attack the articular cartilage. A further consequence of these processes is the development of synovitis which is characterized by the development of lesions, further inflammation, and the production of granulation tissue in the synovial membrane.

For many rheumatoid arthritis sufferers, attacks characterized by the processes described above may flare up for a period of weeks and then subside. In other cases, however, although the pattern of exacerbation and remission may remain, there occurs a steadily worsening progression of the disease as it spreads to other joints and causes gross changes and deformities in joint structure. As the disease worsens, granulation tissue which forms as part of the accompanying synovitis forms a covering called "pannus" over the articular cartilage and attacks and degrades it. In time this tissue,

... may variously undergo metaplasia into synovial tissue, fibrous or hyaline cartilage, or bone; the adhesive bands may thereby cause fibrous, cartilaginous or (rarely) bony ankylosis (Sokoloff 1979:433).

In addition, inflammation spreads to the surrounding connective tissues, including the ligaments and tendons. In
time, these articular tissues may rupture, fuse, or collapse, resulting in restriction of motion. Under the pull of various muscles, there may then be distortion and deformity of the joints. Unlike osteoarthritis, rheumatoid arthritis is not confined to the joints. It is a systemic disease which, though less frequently and less severely, can be manifested in other tissues such as those of the heart and lungs for example.

Numerous individuals have written on the symptoms of rheumatoid arthritis (McEwen 1966, Mannik 1976, Rodnan et al 1973). As was indicated, symptomatic primary osteoarthritis is a disease whose onset appears usually in middle-age or the later years of life. Rheumatoid arthritis, on the other hand, initially occurs most frequently between the ages of twenty and forty-five. Although some cases of the disease may be abrupt in onset, it usually develops insidiously. However, in contrast to osteoarthritis, rheumatoid arthritis is symptomatic from the outset. Because of its systemic nature, rheumatoid arthritis is often heralded by feelings of exhaustion and generalized aches and pains. In some cases, these latter symptoms may be accompanied by fever and weight loss. A common systemic manifestation of the disease is a generalized stiffness on waking ("morning stiffness") which may last up to two hours. Those areas of the joints which are affected by rheumatoid arthritis, including the tendon sheaths and the synovium, contain large numbers of
sense organs and consequently articular pain is also a major symptom. In addition, as a result of the inflammatory process, one finds redness, swelling, and heat at the afflicted joints and the thickened synovium becomes palpable to touch.

Initially, rheumatoid arthritis is usually limited to a small number of symmetrically distributed joints, but as it progresses there is increasing involvement of other sites. Although any of the joints may be affected, the wrist joints, the metacarpophalangeal joints, and the proximal interphalangeal joints are amongst those most regularly involved. Additionally, as the disease progresses, Sokoloff suggests that one in five patients develops "chronic inflammatory nodules ... in para-articular subcutaneous tissue" (1979:435) and McEwan claims that one case in ten progresses to ankylosis (1966:260). However, it should be noted that both of these writers are discussing clinical cases and, thus, their figures are probably over-statements of actual prevalences.

THE PREVALENCE OF JOINT DISEASE.

Estimates of the prevalence of osteoarthritis vary. For example, in one publication the Arthritis Foundation states that there are over sixteen million sufferers in the United States (1978:2). In another, however, the Foundation says that there are 40.5 million, twelve million of whom
have it seriously enough for it to cause them painful problems (n.d.:3). Such difference arise because of difficulties in defining the criteria and methods of diagnosis in the various studies.

The problem of definition arises because there is no way of distinguishing between aging of articular cartilage and osteoarthritis as a disease; if, in fact, there is a difference. Cobb succinctly made this point when he wrote,

All joints in the body are subject to degenerative changes with varying degrees of rapidity and therefore become evident at different ages. ... It is probable that generalized osteoarthritis is merely the most severe form of this process which begins with a single joint and proceeds to multiple involvement, each joint going through its evolution at its own rate (1971:64-5).

Given this state of affairs, there are some who would include all cases of joints which evidence radiographic changes under the rubric osteoarthritis, while others would reserve it for clinical cases. The problems of diagnosis arise because mild forms are difficult to detect on radiographs. Radiographs are the primary mode of classification and it is on the basis of radiographs of hands and feet that the estimate of forty million sufferers in the United States was made.

Attempts to determine the prevalence of rheumatoid arthritis are made difficult because the precise etiology of the disease remains unknown and investigators cannot be absolutely certain that the present classification does not,
in fact, include a number of closely related diseases. In the absence of etiological classification, the clinical criteria used by the American Rheumatism Association (summarized in Table 11) are regarded as the most suitable for clinical diagnosis. However, reliance upon clinical data to describe the prevalence of a disease results in a view which minimizes its frequency and emphasizes its severity in a population. Using this as the basis of his argument, Sidney Cobb, a leading investigator in the epidemiology of the rheumatic diseases, has criticized the use of the clinically established A.R.A. criteria. Despite his misgivings, however, Cobb advocates their continued utilization (along with attempts to improve upon them) as they are the best standardized evaluative criteria currently available and hence are of importance for undertaking comparative studies. Of the criteria themselves, Cobb, following Abramson (1967), states that data derived from clinical evaluation are the most valid means of assessment (1971:19 ff.).

As well as the problems of definition and method that have been mentioned, the investigator seeking to determine the prevalence of rheumatoid arthritis is faced with another major problem due to the intermittent nature of the disease. When point prevalence surveys are undertaken, some cases may escape detection because they are in remittance, again resulting in underestimation of the prevalence of the
disease. This suggests that, ideally, studies should be of a longitudinal nature if they are to present an accurate picture. However, this is often impractical because of the difficulties involved in carrying out follow-up examinations of the large samples that are needed to detect statistically meaningful numbers of cases.

Table 11
Summary of the A.R.A. Diagnostic Criteria for Rheumatoid Arthritis

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Morning stiffness.</td>
</tr>
<tr>
<td>2.</td>
<td>Pain on motion or tenderness in at least one joint ...</td>
</tr>
<tr>
<td>3.</td>
<td>Swelling ... in at least one joint ...</td>
</tr>
<tr>
<td>4.</td>
<td>Swelling ... in at least one other joint ...</td>
</tr>
<tr>
<td>5.</td>
<td>Symmetrical joint swelling ...</td>
</tr>
<tr>
<td>6.</td>
<td>Subcutaneous nodules ...</td>
</tr>
<tr>
<td>7.</td>
<td>Roentgenographic changes typical of rheumatoid arthritis (which must include at least one boney decalcification localized or greatest around the involved joints ... ) ...</td>
</tr>
<tr>
<td>8.</td>
<td>Positive agglutination test—demonstration of the &quot;rheumatoid factor&quot; ...</td>
</tr>
<tr>
<td>9.</td>
<td>Poor mucin precipitate from synovial fluid (with shreds and cloudy solution).</td>
</tr>
<tr>
<td>10.</td>
<td>Characteristic histologic changes in synovium ...</td>
</tr>
<tr>
<td>11.</td>
<td>Characteristic histologic changes in nodules ...</td>
</tr>
</tbody>
</table>

A diagnosis of Classical R.A. requires the presence of 7 criteria; Definite R.A. requires 5; Probable R.A. requires 3; and Possible R.A. requires 2.
(Summarized from Rodnan et al 1973.)

Cobb reviewing several major population studies, has written that

The range of 2 to 6 percent covers at least 90 percent of the point prevalence studies (of rheumatoid arthritis) that have been reported (1971:28).
The Arthritis Foundation's estimate of 6.5 million cases in the United States falls within this range. However, Cobb suggests that, given the problems mentioned above, the true frequency of people meeting the criteria of probable rheumatoid arthritis may be as high as fifteen percent (1971:28). While it is by no means conclusive, Cobb's work suggests that further carefully designed studies are warranted.

Figures on the prevalence of the rheumatic diseases in Australia which are based upon large population studies are difficult to obtain. Maddox quotes studies which variously estimate the prevalence of these diseases to be between six and twenty percent of the population (n.d.:1). According to the Western Australian Arthritis and Rheumatism Foundation, 840,000 Australians suffer from osteoarthritis and 420,000 from rheumatoid arthritis (n.d.:8). Unfortunately, no source for these estimated figures is provided. However, at approximately six and three percent of the population respectively, these figures fall within the ranges quoted by the U.S. Arthritis Foundation and Cobb.

In the original survey from which the present study population is drawn, 129 out of a total of 852 adults responded in the affirmative when asked if they suffered from "disabling arthritis or rheumatism." This figure of 15.1% is less than the Arthritis and Rheumatism Foundation's estimate of 20%. However, it should be noted that the form
in which the question was asked may have tended to exclude some people suffering from mild forms of the diseases (although not all, as will be shown later).

THE SURVEY—REPORTS OF SYMPTOMS.

Differential diagnosis of joint disease is often a difficult task. It is, however, a necessary one. The various forms of arthritis do constitute different diseases which have different manifestations. It was believed that to examine the behavior of "arthritis" sufferers in general, was to run the risk of minimizing differences which might exist in the behavior of individuals suffering from the various types of joint disease. In studies of the present kind, one approach to overcoming this problem is to rely upon the categorizations (or emic diagnoses) used by arthritis sufferers themselves. Maddox quotes a study by Warren (1976) which concluded that,

... in the case of musculoskeletal disorders, self-reported information at interview is a reliable indication of the broad disease group, generally accurate for specific conditions when stated; but that it is deficient in specific detail in many cases (quoted in Maddox n.d.:21).

On this basis, Maddox used self-reports in the analysis of data from a survey undertaken in the Melbourne suburb of Ringwood.

The intensive interviews which preceded the survey section of the present study confirmed Warren's findings
with respect to the indication of broad disease group. However, they did not justify Maddox' decision to utilize the specific disease labels that his respondents employed. Physicians provided their diagnoses of most of those people intensively interviewed. No matter what their physician's diagnosis, most people used the general term "arthritis" to describe their condition. More importantly, however, in those few cases where a specific disease label was employed by a person it was often different to that used by the physician to describe the disease. These results suggested the need for a more objective assessment than reliance upon the descriptive labels used by arthritis sufferers themselves. Ideally, such an assessment should have included a medical examination of all respondents; or, failing that, obtaining the diagnoses made by individuals' physicians. However, given the lack of resources for the former and the practical difficulties involved in the latter, reliance had to be placed on an assessment based on each individual's response to a checklist of symptoms.

The checklist of symptoms included a series of questions on: age at onset; time elapsed since onset; whether onset was abrupt or insidious; sites affected at onset; sites subsequently affected; sites at which swelling, tenderness, or pain was experienced at the time of interview; the presence of morning stiffness; systemic manifestations such as weakness, tiredness, or fever; and
whether the person had Heberden's nodes or possible rheumatoid nodules. In conjunction with a physician, the answers to these questions were analyzed and the respondents categorized on that basis. It is recognized that this method cannot be regarded as producing clinically acceptable diagnoses. However, under the circumstances and given the limited resources available to conduct the study, this was the most objective means available by which to classify respondents in terms of the joint diseases from which they suffered.

Before discussing the patterning of responses to the questions about symptoms and the etic diagnoses made on the basis of them, it is necessary to comment upon some of the limitations involved. Firstly, in making the diagnoses, primary importance was placed upon: approximate age at onset; the sites first affected; and the sites at which, and time over which, subsequent symptoms were experienced. In making a diagnosis of osteoarthritis, the presence of Heberden's nodes, something visually observable to the interviewers, was also important. Responses to other questions proved a little more problematic and hence were relegated to a secondary role in making the assessment. Individuals whose overall pattern of symptoms suggested that they were probably suffering from osteoarthritis sometimes mentioned isolated symptoms that characterize rheumatoid arthritis. These symptoms included generalized morning
stiffness, fever, and "nodules or small lumps" (it is difficult to know whether these were in fact rheumatoid nodules). Similarly, a substantial number of people said that they experienced feelings of weakness or tiredness. However, it is highly probable that such feelings were often the result of factors other than systemic manifestations of joint disease. Where any of these "secondary" symptoms were reported, they were regarded as being of importance if they were consistent with the primary symptoms listed above and if they were reported in association with other secondary symptoms. Where they were reported in isolation, they were given due consideration but where they appeared out of context less importance was placed upon them.

As there is obviously a problem of recall, especially over long periods of time, responses to questioning about the time elapsed since the onset of symptoms of joint disease must be taken as approximations. That this is necessary is reflected in the slight clusterings of responses at multiples of ten years. Nevertheless, the wide range of responses and the fact that many people tied onset to other significant life events, suggests that the approximations are reasonably close ones. As Table 12 indicates, there is a wide range of variation in both the reported number of years since the onset of arthritis, and the age at which individuals experienced the first symptoms of the disease. The mean reported time elapsed since the
onset of symptoms was 16.7 years (s.d. 14.1). The mean age at reported time of onset was 47.9 years (s.d. 17.6).

Table 12

Age at Onset by Years Since Onset

<table>
<thead>
<tr>
<th>Yrs since onset</th>
<th>LE 4</th>
<th>5--9</th>
<th>10--19</th>
<th>GE 20</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE 39</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>40--59</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>39</td>
</tr>
<tr>
<td>GE 60</td>
<td>9</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Totals</td>
<td>17</td>
<td>13</td>
<td>16</td>
<td>30</td>
<td>76</td>
</tr>
</tbody>
</table>

In Table 13 the sites at which articular symptoms were first reported are listed. For ease of collection and analysis, no attempt was made to record information about each individual interphalangeal or metacarpophalangeal joint and, for the same reason, data on the interphalangeal joints of the feet and the metatarsophalangeal joints were also grouped together. For the purpose of the study, each of these clusters of joints on each side of the body was regarded as one "site." Thus, for example, the distal interphalangeal joints of the left hand constitute one site and those of the right a second site. In the case of joints, or sets of joints, which are symmetrically distributed a distinction was made as to whether involvement was symmetrical or asymmetrical and the number of people experiencing both types of involvement is indicated in the
total column of the table. In the case of joints which are not symmetrically distributed, numbers of people experiencing involvement at a particular site are indicated only in the total column.

Table 13
Sites Involved at Onset of Symptoms

<table>
<thead>
<tr>
<th>Joint or set of joints</th>
<th>Asymmetrical involvement</th>
<th>Symmetrical involvement</th>
<th>Total involvement</th>
<th>Total percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter- &amp; metatarsophalangeal</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>Ankle</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>Knee</td>
<td>6</td>
<td>13</td>
<td>19</td>
<td>25.0</td>
</tr>
<tr>
<td>Hip</td>
<td>11</td>
<td>5</td>
<td>14</td>
<td>18.4</td>
</tr>
<tr>
<td>Sacroiliac</td>
<td></td>
<td>7</td>
<td>11</td>
<td>14.5</td>
</tr>
<tr>
<td>Lumbar vertebrae</td>
<td></td>
<td>11</td>
<td></td>
<td>14.5</td>
</tr>
<tr>
<td>Cervical vertebrae</td>
<td></td>
<td>8</td>
<td></td>
<td>10.5</td>
</tr>
<tr>
<td>Distal interphalangeal</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>13.2</td>
</tr>
<tr>
<td>Proximal interphalangeal</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Metacarpophalangeal</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Wrist</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Elbow</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Shoulder</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>15.8</td>
</tr>
<tr>
<td>Other and/or soft tissue</td>
<td></td>
<td>5</td>
<td></td>
<td>6.6</td>
</tr>
</tbody>
</table>

As can be seen, the most common sites of onset of articular symptoms were the knee, hip and shoulder joints, the joints of the lumbar vertebrae, and the distal interphalangeal joints. Given the higher incidence and prevalence of osteoarthritis compared to other rheumatic diseases, this pattern is what one might expect. At the time of onset, sixty-seven (88.2%) people experienced symptoms in only one or two articular sites.
A surprisingly high proportion of people (twenty-five or 32.9%) reported abrupt onset of symptoms. Initially, it was thought that this unexpected figure may have been a consequence of error in recall. If it was, however, it was not simply related to the period of time elapsed since onset. Instead, the large number appears to be partially explained by the pattern of initial joint involvement. Many of these people reported asymmetrical involvement of joints such as the knee, elbow, or lumbar vertebrae. Such a pattern suggests secondary osteoarthritis and it is possible that, at least in some cases, people were recalling the actual trauma from which it stemmed.

Table 14
Individuals Who Had Experienced Symptoms at Particular Sites

<table>
<thead>
<tr>
<th>Joint or set of joints</th>
<th>Asymmetrical involvement</th>
<th>Symmetrical involvement</th>
<th>Total involvement</th>
<th>Total percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter- &amp; metatarsophalangeal</td>
<td>6</td>
<td>21</td>
<td>27</td>
<td>35.5</td>
</tr>
<tr>
<td>Ankle</td>
<td>9</td>
<td>16</td>
<td>25</td>
<td>32.9</td>
</tr>
<tr>
<td>Knee</td>
<td>9</td>
<td>34</td>
<td>43</td>
<td>56.6</td>
</tr>
<tr>
<td>Hip</td>
<td>20</td>
<td>19</td>
<td>39</td>
<td>51.3</td>
</tr>
<tr>
<td>Sacroiliac</td>
<td></td>
<td></td>
<td>25</td>
<td>32.9</td>
</tr>
<tr>
<td>Lumbar vertebrae</td>
<td></td>
<td></td>
<td>37</td>
<td>48.7</td>
</tr>
<tr>
<td>Cervical vertebrae</td>
<td></td>
<td></td>
<td>34</td>
<td>44.7</td>
</tr>
<tr>
<td>Distal interphalangeal</td>
<td>8</td>
<td>27</td>
<td>35</td>
<td>46.1</td>
</tr>
<tr>
<td>Proximal interphalangeal</td>
<td>5</td>
<td>24</td>
<td>29</td>
<td>38.2</td>
</tr>
<tr>
<td>Metacarpophalangeal</td>
<td>4</td>
<td>19</td>
<td>23</td>
<td>30.3</td>
</tr>
<tr>
<td>Wrist</td>
<td>4</td>
<td>12</td>
<td>16</td>
<td>21.0</td>
</tr>
<tr>
<td>Elbow</td>
<td>6</td>
<td>17</td>
<td>23</td>
<td>30.3</td>
</tr>
<tr>
<td>Shoulder</td>
<td>18</td>
<td>22</td>
<td>40</td>
<td>52.6</td>
</tr>
<tr>
<td>Other and/or soft tissue</td>
<td></td>
<td></td>
<td>8</td>
<td>10.5</td>
</tr>
</tbody>
</table>
In all but six instances, people reported that since initial involvement they had experienced progression of either swelling, tenderness, or pain to other sites. Table 14 provides a summary of the numbers of individuals who had ever experienced articular symptoms at particular sites since the onset of their disease. Once again, the joints of the knee, hip, shoulder, and the lumbar and cervical vertebrae are prominently involved. At the lower end of the scale less than a fifth had involvement confined to only one or two sites and at the upper end a quarter had experienced involvement at more than ten sites. The mean number of sites per person at which articular symptoms had been experienced was eight.

Table 15

Individuals Experiencing Symptoms at Particular Sites at the Time of Interview

<table>
<thead>
<tr>
<th>Joint or set of joints</th>
<th>Asymmetrical involvement</th>
<th>Symmetrical involvement</th>
<th>Total involvement</th>
<th>Total percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter- &amp; metatarso-phalangeal</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>10.5</td>
</tr>
<tr>
<td>Ankle</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>Knee</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>14.5</td>
</tr>
<tr>
<td>Hip</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Sacroiliac</td>
<td></td>
<td>7</td>
<td></td>
<td>9.2</td>
</tr>
<tr>
<td>Lumbar vertebrae</td>
<td></td>
<td>10</td>
<td></td>
<td>13.2</td>
</tr>
<tr>
<td>Cervical vertebrae</td>
<td></td>
<td>10</td>
<td></td>
<td>13.2</td>
</tr>
<tr>
<td>Distal interphalangeal</td>
<td>4</td>
<td>10</td>
<td>14</td>
<td>18.4</td>
</tr>
<tr>
<td>Proximal interphalangeal</td>
<td>3</td>
<td>10</td>
<td>13</td>
<td>17.1</td>
</tr>
<tr>
<td>Metacarpophalangeal</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>Wrist</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Elbow</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Shoulder</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td>11.8</td>
</tr>
<tr>
<td>Other and/or soft tissue</td>
<td></td>
<td>1</td>
<td></td>
<td>1.3</td>
</tr>
</tbody>
</table>
The pattern of exacerbation and remission that characterizes much joint disease is reflected in the fact that at the time of interview thirty-four (44.7%) people were not experiencing any arthritic symptoms of arthritis. Further, twenty-seven (35.5%) people reported current involvement of only one or two sites.

Forty-four of the respondents indicated that they suffered from morning stiffness. Of these people, half reported that the stiffness was localized and half that it was generalized. There were statistically significant relationships between reports of generalized morning stiffness ($\chi^2_{d.f.4}=11.06\ p<.05$) and abruptness of onset ($\chi^2_{d.f.1}=4.07\ p<.05$). Those people who reported generalized morning stiffness tended to be younger at age of onset and to have experienced abrupt onset; a pattern characteristic of rheumatoid arthritis.

Many people (39.5%) reported that their arthritis was accompanied by feelings of weakness and tiredness. As indicated, much of this is probably unrelated to rheumatic disease. However, some undoubtedly is so related and this is reflected in the statistically significant relationship ($\chi^2_{d.f.2}=11.83\ p<.05$) between reports of weakness and tiredness and morning stiffness. Generalized morning stiffness was often experienced by those people (68.2%) who also reported feelings of weakness and tiredness. About
equal numbers of the remainder reported localized stiffness or no morning stiffness at all.

A small number of individuals (9.2%) reported that their articular symptoms of joint disease were sometimes accompanied by fever. Most of these people were less than forty years of age at onset. They reported generalized morning stiffness, and said that they often felt weak or tired.

The presence of Heberden's nodes was one symptom which was relatively easy to confirm. Twenty-two (28.9%) of the respondents exhibited this characteristic of osteoarthritis. Twelve (15.8%) people replied in the affirmative when asked if they had "developed any nodules, or small lumps, in the vicinity of (their) joints or elsewhere." As indicated, however, interpretation of these latter responses proved problematic.

On the basis of the patterning of these symptoms, respondents were allocated to one of four etic diagnostic categories. The first of these categories has been labelled "Insufficient information available." That is, given the limited range of symptoms these people reported, it was not possible to attempt any diagnosis. Six individuals were included in this category and all had isolated articular, or soft tissue symptoms; the mean number of sites ever involved in each person being 1.8. Their mean age at onset was 40.8 years and the time since onset 10.5 years. However, because
of the wide range of responses (as indicated by the respective standard deviations of 25.4 and 8.8) these figures disclose little. While four of these six reported abrupt onset of symptoms, only two of them suffered from morning stiffness and only one experienced any weakness or tiredness.

The second etic diagnostic category was that of "Probably osteoarthritis." Fifty-four of the respondents were labelled with this diagnosis. The average age at onset of people in this category was 52.9 years (s.d. 14.6) and two thirds of them indicated that onset was gradual. Amongst this group, joints prominently involved at onset were those of the knees, hips, and distal interphalanges. In the case of the knee and hip joints, this involvement was often asymmetrical. The mean number of sites ever involved was 6.6 and the most prominent were the joints of the knees, hips, shoulders, distal interphalanges, and the lumbar and cervical vertebrae. About half of these people reported experiencing morning stiffness; usually of a localized nature. Of the other symptoms, Heberden's nodes and feelings of weakness and tiredness were each reported by about a third of the group and a small number reported that they had developed other nodules. Amongst those people who reported symptoms generally associated with more severe forms of rheumatic disease (generalized morning stiffness, weakness and tiredness, etc.) the reports tended to be
isolated. For this reason, it was thought best to attribute them to some other probable cause or to discount to some degree their importance in the overall patterning of the symptoms. Hence these people are included in this category.

The third diagnostic category is that of "Indeterminate or other." Some respondents were allocated to the first diagnostic category ("insufficient information") because of the paucity of information about their symptoms. In contrast, respondents were allocated to the present category because of the ambiguous nature of the information about their symptoms. The mean age of onset of symptoms amongst people in this category was 38.2 (s.d. 16.6). Of the ten people in the category, six reported gradual onset of symptoms, three abrupt and the other could not recall. The most prominent site involved at onset was symmetrical involvement of the knees. Other sites were varied and included shoulder, elbow, wrist, proximal interphalangeal, and interphalangeal-metatarsophalangeal joints. The mean number of sites at which articular symptoms had ever been experienced was substantially higher amongst these people than amongst those classified as probably suffering from osteoarthritis; 11.7 compared to 6.6. The pattern of joint involvement also differed somewhat; the most prominently affected sites being the knee, proximal interphalangeal, shoulder, and wrist joints and the joints of the lumbar and cervical vertebrae. Some people in this category reported
non-articular symptoms in isolation while others experienced several in concert.

The main problem that arose in attempting to assess the people in this category was one of differential diagnosis. That is, on the basis of the information to hand, it was difficult to determine whether a person was suffering from osteoarthritis, or rheumatoid arthritis, or both, or in a lesser number of cases some other rheumatic disease. Thus, rather than attempting to force a particular diagnosis onto the data, the present category was established.

"Probably rheumatoid arthritis" is the fourth etic diagnostic category and it contains six of the respondents. The mean age at onset of symptoms amongst them was 26.7 years (s.d. 13.7) and, hence much lower than the average age of those included in the other categories. Of the six, one could not recall whether onset of symptoms was abrupt or gradual, three said that it was abrupt and two gradual. The mean number of joints involved at onset was 5.8, although this is inflated because of the small numbers and the fact that one person reported suffering acute onset involving some eighteen sites. Multiple joint involvement was a characteristic of all the people included in this category, the mean number of sites ever involved being 20.6. Due to this pattern of multiple involvement, and the small numbers, no particular sites were more prominently involved than any others. All reported generalized morning stiffness, and
Table 16
Summary of Symptoms and Characteristics of Individuals in the Diagnostic Categories

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Insufficient information</th>
<th>Probably osteo and/or other</th>
<th>Probably R.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 6</td>
<td>n = 54</td>
<td>n = 10</td>
</tr>
<tr>
<td>Age at onset:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>years</td>
<td>40.8</td>
<td>52.0</td>
<td>36.2</td>
</tr>
<tr>
<td>S.D.</td>
<td>8.8</td>
<td>11.6</td>
<td>16.6</td>
</tr>
<tr>
<td>Mode of onset: (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>abrupt</td>
<td>66.7</td>
<td>27.8</td>
<td>30.0</td>
</tr>
<tr>
<td>insidious</td>
<td>33.3</td>
<td>66.7</td>
<td>60.0</td>
</tr>
<tr>
<td>don't recall</td>
<td>-</td>
<td>5.5</td>
<td>10.0</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Sites involved at onset:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number prominent</td>
<td>1.0</td>
<td>1.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Various, isolated</td>
<td>Knee hip</td>
<td>Lumbar vert</td>
<td>Cervical vert</td>
</tr>
<tr>
<td>DIP</td>
<td>PIP</td>
<td>wrist</td>
<td></td>
</tr>
<tr>
<td>Sites ever affected:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number prominent</td>
<td>1.8</td>
<td>6.6</td>
<td>11.7</td>
</tr>
<tr>
<td>Various,</td>
<td>As above</td>
<td>As above</td>
<td>Multiple</td>
</tr>
<tr>
<td>Morning stiffness: (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>general</td>
<td>33.3</td>
<td>20.4</td>
<td>30.0</td>
</tr>
<tr>
<td>local</td>
<td>-</td>
<td>31.5</td>
<td>50.0</td>
</tr>
<tr>
<td>none</td>
<td>66.7</td>
<td>48.1</td>
<td>20.0</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Weakness or tiredness: (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>16.7</td>
<td>35.3</td>
<td>60.0</td>
</tr>
<tr>
<td>no</td>
<td>83.3</td>
<td>64.7</td>
<td>40.0</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Fever: (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>-</td>
<td>-</td>
<td>30.0</td>
</tr>
<tr>
<td>no</td>
<td>100.0</td>
<td>100.0</td>
<td>70.0</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Heberden's nodes: (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>-</td>
<td>31.5</td>
<td>10.0</td>
</tr>
<tr>
<td>no</td>
<td>100.0</td>
<td>66.5</td>
<td>90.0</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Nodules: (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>-</td>
<td>7.4</td>
<td>30.0</td>
</tr>
<tr>
<td>no</td>
<td>100.0</td>
<td>92.6</td>
<td>70.0</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
most experienced weakness and tiredness. Of the other symptoms, occasional fever, Heberden's nodes, and other nodules were each reported by four of the six. The pattern of involvement in some of these people, including the presence of Heberden's nodes, led to their being diagnosed as having both rheumatoid arthritis and osteoarthritis.

In Table 16, the characteristics of individuals who have been classified under the various diagnostic labels are summarized. Again, it should be made perfectly clear that no claim is made that the method employed results in clinically accurate diagnoses. It is claimed, however, that these etic diagnoses, based as they are upon a number of symptoms and their patterning, are relatively more accurate as descriptions of the particular disease involved than are the emic labels employed by the respondents themselves. The relationship between these etic and emic diagnoses are set out in Table 17. As can be seen, there is little correspondence between them.

It is impracticable, because of limitations of space, to attempt to justify, on an individual basis, why the etic diagnoses should be preferred to the emic ones. However, two examples may suffice. One person reported symmetrical involvement of virtually all major joints (some eighteen sites), soft tissue involvement, and onset of symptoms at the age of twenty-six. She described her illness as "osteoarthritis." However, given what has been said about
the characteristics of both osteoarthritis and rheumatoid arthritis, it is highly probable that she is suffering from the latter rather than the former. In the second case, a person reported asymmetrical involvement of one shoulder, elbow, and heel and symmetrical involvement of the metacarpophalangeal joints. As the symptoms did not begin to develop until the age of fifty-nine and as he reported no other symptoms, other than feelings of weakness and tiredness, it is more likely that he is suffering from osteoarthritis, rather than rheumatoid arthritis as he claimed.

Table 17
Emic by Etic Diagnoses

<table>
<thead>
<tr>
<th>Etic</th>
<th>Emic</th>
<th>&quot;Arthritis&quot;</th>
<th>&quot;Osteo-arthritis&quot;</th>
<th>&quot;Rheumatoid arthritis&quot;</th>
<th>Other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient info</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Probably osteo</td>
<td>33</td>
<td>13</td>
<td>6</td>
<td>2</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Indeterminate, other</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Probably R.A.</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>43</td>
<td>22</td>
<td>7</td>
<td>4</td>
<td>76</td>
<td></td>
</tr>
</tbody>
</table>

It is recognized that there are weaknesses in the etic diagnostic method. For one thing, the questions asked generally permitted a broad distinction to be made with little difficulty between osteoarthritis and rheumatoid arthritis. Otherwise, though, it proved to be more
difficult to distinguish other types of joint disease. For example, one person who reported only asymmetrical involvement of the interphalangeal-metacarpophalangeal joints was included in the "insufficient information" category. However, in this particular case, the respondent's emic diagnosis of "gout" is an equally feasible alternative. Similarly, it is quite possible that the description "osteoporosis" (a metabolic bone disorder with articular consequences) is the correct diagnosis of the disease afflicting another of the respondents, although, using the present method of diagnosis, the woman was placed in the "indeterminate" category. Anomalous cases such as these, however, are outweighed by cases where it is possible to make diagnoses with a reasonable degree of confidence.

In nine cases, it was possible to obtain the permission of both respondents and their physicians to extract data from medical records. Using the interview data, all nine of these people were diagnosed as having osteoarthritis. Their respective physicians had diagnosed seven as having osteoarthritis, and one as suffering from both osteoarthritis and gout. In the ninth case, the physician had not made a specific diagnosis. Of these nine people, five (including the one suffering from osteoarthritis and gout and the person who had not been given a specific diagnosis) described their condition by means of the general term "arthritis." Of the others, three said they suffered
from osteoarthritis and the fourth that he suffered from rheumatoid arthritis. Thus, on the face it, the etic diagnoses are closer to those of the examining physicians than are those of the patients themselves. Unfortunately, though, the expected prevalence of osteoarthritis is so high and the confirmed diagnoses so few that it is not possible to statistically assess whether such correspondence is due to the relative accuracy of the method or whether the results were due to chance. The results do, however, appear to provide intuitive confirmation of the method's effectiveness.

DISABILITY.

It has often been pointed out that measurement of the extent of pathology is not necessarily a reliable indicator of the degree of incapacity suffered by a sick person. For this reason, attempts are often made to assess the functional disability that is occasioned by disease. As both Shanas et al (1968:27) and Maddox (n.d.:60) indicate, the items used to measure disability are generally selected on pragmatic grounds. That is, they are items which assess the ability of individuals to care for themselves and thus whether or not they require the assistance that many people in the health and related professions can provide.

Particular diseases affect individuals in a variety of ways. Thus, for ease of analysis, attempts have been made
to construct composite scales which assess overall levels of
disability in terms of which individuals can be easily
compared. Such scales usually score people's responses to a
series of questions covering a variety of activities. The
"Index of Incapacity" used by Shanas et al.

requires an answer to six questions from the old
person: (1) Can he get out-of-doors? (2) Can he
walk up and down stairs? (3) Can he get about the
house? (4) Can he wash and bathe himself? (5) Can
he dress himself? (6) Can he cut his own toe-nails?
(1968:27).

A major question that arises with respect to this scale, and
others like it, is "Are the various items measuring the same
thing?" Often, the answer is "No." In the arthritis survey
carried out in Ringwood, Maddox used a modified version of a
scale devised by Harris for a survey in Britain. When he
factor analyzed his results, Maddox found not one, but four,
dimensions underlying the twenty items on which people were
questioned (n.d.:62-3).

In an article which appeared in the *Journal of Health
and Social Behavior*, Chappell reviewed the reliability and
validity of three composite measures that have been
frequently used to measure the functional ability of elderly
people (1981:90-102). Of the three instruments, Index of
Life Skills, Shanas' Index of Disability, and the Chronic
Conditions Index, Chappell comes out most strongly in
support of the Index of Disability. On factor analyzing the
responses of some 4,344 people she found that,

... the items by and large appear to form two
clusters, but without interpretable distinctions between them (1981:97).

Despite these results she goes on to say that amongst people living in the community (as opposed to the institutionalized, for example) it is a highly reliable and valid measure of disability which is measuring a "highly homogeneous construct" (1981:97).

Table 18

Activities of Daily Living by Degree of Restriction

<table>
<thead>
<tr>
<th>Degree of restriction Activity</th>
<th>None</th>
<th>Some diffic.</th>
<th>Unable perform</th>
<th>Rotated factor</th>
<th>&quot;r&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating</td>
<td>73</td>
<td>3</td>
<td>-</td>
<td>2</td>
<td>.51</td>
</tr>
<tr>
<td>Going outdoors in fine weather</td>
<td>67</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>.56</td>
</tr>
<tr>
<td>Reading or writing</td>
<td>63</td>
<td>13</td>
<td>-</td>
<td>2</td>
<td>.76</td>
</tr>
<tr>
<td>Getting about the house</td>
<td>62</td>
<td>14</td>
<td>-</td>
<td>1</td>
<td>.97</td>
</tr>
<tr>
<td>Washing and bathing</td>
<td>60</td>
<td>16</td>
<td>-</td>
<td>2</td>
<td>.54</td>
</tr>
<tr>
<td>Going out in inclement weather</td>
<td>57</td>
<td>17</td>
<td>2</td>
<td>1 2 3</td>
<td>.39</td>
</tr>
<tr>
<td>Dressing, tying shoelaces</td>
<td>54</td>
<td>20</td>
<td>2</td>
<td>1 2</td>
<td>.43</td>
</tr>
<tr>
<td>Getting in and out of bed</td>
<td>49</td>
<td>27</td>
<td>-</td>
<td>3</td>
<td>.69</td>
</tr>
<tr>
<td>Climbing stairs</td>
<td>40</td>
<td>32</td>
<td>4</td>
<td>3</td>
<td>.78</td>
</tr>
</tbody>
</table>

Given Chappell's findings, it was decided to use a modified version of the Index of Disability to measure the functional ability of those taking part in the present study. Individuals were asked if, due to their arthritis, their ability to perform any of the following activities was restricted: climbing stairs, getting about their home, going outdoors in fine weather, going outdoors in inclement
weather, getting in and out of bed, washing and bathing, dressing or tying shoelaces, eating, and reading or writing. The responses to these questions are summarized in Table 18. The tasks reported as presenting the most difficulty were climbing stairs and getting in and out of bed. Those that presented the least difficulty were eating and going outdoors in fine weather.

Table 19

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>None</th>
<th>Mild</th>
<th>Moderate to severe</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient information</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Probably osteoarthritis</td>
<td>21</td>
<td>29</td>
<td>4</td>
<td>54</td>
</tr>
<tr>
<td>Indeterminate or other</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Probably R.A.</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Totals</td>
<td>31</td>
<td>32</td>
<td>13</td>
<td>76</td>
</tr>
</tbody>
</table>

A response of "no restriction" in answer to the above questions was scored as one, "some difficulty" as two, and "unable to perform" as three. The responses of each person were summed and those with scores of nine (that is, a score of one on each question) were allocated to the category "no disability," those with scores of 10 to 13 to "mild disability," 17 to 19 "moderate disability," and 20 to 27 "severe disability." The latter two categories were later collapsed because of the small numbers they contained. The
relationship of the assessments of disability to the etic diagnoses is presented in Table 19. As indicated, thirty-one (40.8%) people reported no disability at all, thirty-two (42.1%) mild disability, and thirteen (17.1%) moderate to severe disability.

   Kerlinger has defined "factor analysis" as,
   
   ... an analytic method for determining the number and nature of the variables that underlie larger numbers of variables or measures (1979:180).

   He goes on to define a "factor" as,
   
   ... a construct, a hypothetical entity, an unobserved variable that is assumed to underlie tests, scales, items, and indeed measures of any kind (1979:180).

   In order to assess whether they were measuring the same underlying variable, the items on the Index of Disability were factor analyzed. The technique used was the S.P.S.S. principal factoring with iteration method and the varimax orthogonal rotation (Nie et al 1975:468-514). The results of the analysis are presented in Table 18. As the table indicates, and contrary to what Chappell found, the summary scores on the Index of Disability appear to be measuring three underlying factors; ambulatory mobility (factor 1), manipulative ability (factor 2), and arduousness of tasks (factor 3), as well as combinations of these. The values of "r" in Table 4.8 indicate the correlation between a particular factor and a particular variable. These findings give emphasis to the comments of Maddox to the effect that
with respect to similar tests the evidence has,

... failed to support the existence of a single handicap dimension underlying all observed activity limitations (n.d.:62).

Table 20
Household Activities by Degree of Restriction

<table>
<thead>
<tr>
<th>Degree of restriction Activity</th>
<th>None</th>
<th>Some difficulty</th>
<th>Unable perform</th>
<th>Rotated factor</th>
<th>&quot;r&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making tea or coffee</td>
<td>75</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>.48</td>
</tr>
<tr>
<td>Preparing a hot meal</td>
<td>71</td>
<td>5</td>
<td>-</td>
<td>2</td>
<td>.63</td>
</tr>
<tr>
<td>Light housework</td>
<td>67</td>
<td>9</td>
<td>-</td>
<td>2</td>
<td>.75</td>
</tr>
<tr>
<td>Laundry</td>
<td>63</td>
<td>13</td>
<td>-</td>
<td>2</td>
<td>.58</td>
</tr>
<tr>
<td>Shopping</td>
<td>59</td>
<td>14</td>
<td>3</td>
<td>2</td>
<td>.67</td>
</tr>
<tr>
<td>Light gardening</td>
<td>56</td>
<td>14</td>
<td>6</td>
<td>1</td>
<td>.62</td>
</tr>
<tr>
<td>Heavy housework</td>
<td>42</td>
<td>27</td>
<td>7</td>
<td>1</td>
<td>.67</td>
</tr>
<tr>
<td>Household repairs</td>
<td>40</td>
<td>22</td>
<td>14</td>
<td>1</td>
<td>.84</td>
</tr>
<tr>
<td>Heavy gardening</td>
<td>37</td>
<td>23</td>
<td>16</td>
<td>1</td>
<td>.92</td>
</tr>
</tbody>
</table>

As well as the modified version of Shanas' Index of Disability, the Index of Living Skills which was evaluated by Chappell was also incorporated into the interview schedule used in the present study. Rather than being included as a measure of functional ability per se, this was initially included because it enumerates a number of tasks which need to be performed in and around most households. It also includes questions on the source of assistance that individuals utilize if they have difficulty in performing or are unable to perform particular tasks. Thus, it provided
grounds for further comparison between various sub-groups within the research population. Furthermore, as an index of functional ability, this measure proved less ambiguous than the Index of Disability.

The responses to the items included in the Index of Living Skills were scored in the same manner as those to the Index of Disability. Again these were factor analyzed. The items, the responses to them, and the results of the factor analysis are summarized in Table 20. The results of this analysis are consistent with those of Chappell who indicated that,

...the ILS appears to be measuring two basic underlying constructs rather than one, a distinction being evident between the heavier and lighter tasks (1981:100).

Table 21

<table>
<thead>
<tr>
<th>Index of disability</th>
<th>None</th>
<th>Mild</th>
<th>Moderate to severe</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index of living skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>25</td>
<td>8</td>
<td>-</td>
<td>33</td>
</tr>
<tr>
<td>Mild</td>
<td>5</td>
<td>18</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>Moderate to severe</td>
<td>1</td>
<td>6</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Totals</td>
<td>31</td>
<td>32</td>
<td>13</td>
<td>76</td>
</tr>
</tbody>
</table>

Both of the measures of functional disability are actually measuring more than one underlying dimension. In overall terms there is a relatively high correspondence
between classifications based upon them. As Table 21 illustrates, 72.4% of the research population falls into the same categories on both measures. Although the Index of Living Skills includes several more arduous tasks than does the Index of Disability, this does not account for the differences in classification as almost equal numbers move up or down a category of disability when assessed by the different measures. Rather, the differences are accounted for by small differences in scores which appear greater when separated by arbitrary cut-off points.

Given this close correspondence between scores on the composite scales, it appears that although they both measure a number of dimensions underlying "disability," they tend to verify each other in the overall assessment of this complex variable. In fact, given the individual variation in the number of sites affected and severity in pathological terms, it is perhaps unrealistic to expect to construct a measure of disability which measures only one dimension. After all, such scales are needed to permit the making of broader generalizations and if researchers are confined to the use of particularistic scales that measure only one dimension then the heuristic value of the constructs becomes negligible. Consequently, in the light of the evidence to hand, the decision was made to accept either of the measures as broad indicators of the degree of disability incurred by
individuals in the study population as a result of their arthritis.

SUMMARY.

In summary, fifty-four of the people in the study population were "diagnosed" as probably suffering from osteoarthritis. Another six individuals were classified as probably having rheumatoid arthritis. Of the remainder, in ten cases, in the light of the problematic nature of some of the reported symptoms, it was not possible to make a diagnosis with any degree of certainty; and in six instances there was simply insufficient information available to attempt any diagnosis whatsoever. As measured by Shanas' Index of Disability, most of these people experienced no or only mild functional disability as a consequence of their arthritis. Although the numbers are small, a greater proportion of those classified as probably suffering from rheumatoid arthritis and those for whom a diagnosis could not be determined experienced moderate to severe levels of disability.

Over half the respondents to the survey described their illness by the general labels of "arthritis" or "rheumatism." In those cases where respondents offered a more specific label to describe their affliction there was generally not a close correspondence between those emic diagnoses and the étic ones. In the few instances where the
medical records of respondents were available they appear to support the etic rather than the emic diagnoses. Similarly, in the more intensive investigations preceding the survey, there were real discrepancies between the labels applied to a disease by a patient and that applied by his or her medical practitioner. Thus, although there are obvious limitations to the etic diagnostic procedures, it is believed that diagnoses based upon them are more accurate classifications than are the classifications made by the arthritis sufferers themselves. What difference knowing the etic as opposed to the emic diagnoses makes with respect to predicting illness behavior is assessed in a later chapter.
In 1976, in a paper prepared for a conference on "Theory in Medical Anthropology," the anthropologist and psychiatrist Arthur Kleinman suggested a number of concepts and a model for the analysis of medical systems. According to Kleinman,

Most health care systems contain three social arenas within which sickness is experienced and reacted to. These are the popular, professional, and folk arenas. The popular arena comprises principally the family context of sickness and care, but also includes social network and community activities. ... The ... (folk arena) consists of non-professional healing specialists, sometimes classified by ethnographers into sacred and secular groups. The professional arena consists of professional scientific ("Western or "cosmopolitan") medicine and professionalized indigenous healing traditions (eg, Chinese, Ayurvedic, Yunani, and chiropractic). (1978a:86-87).

Kleinman goes on to suggest that within each of these arenas or within subsectors of them, it is possible to elicit different "explanatory models" of illness episodes. These explanatory models,

... contain explanations of any or all of five issues: etiology; onset of symptoms; pathophysiology; course of sickness ...; and treatment (1978a:87-88).
Kleinman's work shows the influence of some aspects of phenomenology. In addition to viewing healing as a means of attempting to deal with disease processes, he emphasizes its role in the provision of meaning for illness at both the subjective and inter-subjective levels. Explanatory models are regarded as being central to this provision of meaning; and, in a dynamic model of the healing process, Kleinman suggests that meanings are transacted between patients and healers.

Both implicitly and explicitly, Kleinman's concept of explanatory models entails the notion that within a society there are distinct multi-dimensional patterns of belief about illness. Obviously, if this is so, and if it is possible to uncover these, an investigator can develop more powerful analyses of the relationship of beliefs to illness behavior than if the individual dimensions (such as etiology) are examined in isolation.

In an attempt to elicit explanatory models of the type to which Kleinman referred, respondents were asked a number of broad questions. At a general level, these were based on Kleinman's list of issues with which explanatory models deal. At a more specific level, the questions were based on features of belief about arthritis uncovered by Elder (1973) and upon the findings of the intensive interviewing conducted in the early stages of the present study. These questions asked: the name the individual employed to
describe his or her illness; what the person thought was the cause of the illness and whether the person held himself or herself responsible for it in any way or regarded it as some kind of punishment; whether the person could describe the pathological processes which characterize the illness; whether the person thought the illness could be cured or its progression controlled; whether the person had considered the prognosis of the illness or what effect it may have on his or her health in the future; and whether the person knew the name of any other type of arthritis and, if so, how it differed from the type from which her or she suffered.

It has become common practice in the sociological and anthropological literature to distinguish between "illness" and "disease" (Coe 1970:98, Fabrega 1972:213). According to this distinction, disease describes the etiology, pathology, and manifestations of ill-health as they are understood in terms of scientific medicine. That is, disease labels are etic concepts which provide a foundation for cross-cultural comparison of phenomena. On the other hand, illness describes the etiology, pathology, and manifestations of ill-health as they are understood by members of a particular society or social group. Thus illness labels are culture specific, or emic, concepts. They are used for communication within or sometimes, less successfully, between members of social groups. In modern industrialized societies, the same terms are used by restricted segments of
society as disease labels and by a wider range of individuals as illness labels. To preempt one of the conclusions of this chapter, what a term such as osteoarthritis, for example, denotes to a physician is usually markedly different to what it means to his patients. Consequently, in the discussion that follows, to distinguish the different usage of terms employed to describe ill-health, when a word is used as an illness label it will be enclosed in inverted commas. Thus, for example, "arthritis" is to be understood as an emic label with specific lay connotations in contrast to the use of the same word without the commas as an etic label used to refer to joint disease generally.

LAY KNOWLEDGE AND BELIEF.

At a general level, all those people who participated in the survey regarded their illness as "arthritis" or "rheumatism." Indeed, that is the criterion on which they were selected. When viewed in terms of symptoms, these labels were used by the participants to denote stiff and/or aching joints. For some people the labels also included soft tissue (usually "muscular") involvement, but only one person mentioned "muscular" involvement alone when describing her symptoms. Beyond this broad level of agreement about the meaning of the terms, however, there
existed a diversity of knowledge and beliefs about arthritis.

The term respondents most commonly (56.6%) used to refer to their symptoms of joint disease was simply "arthritis." Some people also used the general term "rheumatism," but as these labels were usually used interchangeably they were treated as synonyms. As one person said,

"They didn't call it arthritis when I was younger. We just called it rheumatism then."

The second most commonly (36.8%) used label was "osteoarthritis." Of the eleven individuals who employed other terms, seven said they suffered from "rheumatoid arthritis," two claimed to have "gout," and two described their illness as "osteoporosis."

Early in the course of data gathering it became apparent that the illness labels had different meanings for different individuals. At one level, for example, some people used the term "osteoarthritis" to denote one of a variety of types of "arthritis." Others, however, would use the same term as a more precise description of the one illness "arthritis." Despite such variations in the usage of terms, it was considered worthwhile to attempt an analysis of the responses to the questions on knowledge and belief on the basis of the tentative postulation that the illness labels might be used to describe discrete folk
illnesses. This analysis was undertaken using simple cross-tabulations to assess the association between the illness labels and the other variables. As will be seen, some simple patterns of association emerged from this analysis. However, this mode of analysis could not be carried further because of the small number of people and the relatively large number of variables involved. This meant that cross-tabulations could not be performed which controlled for the confounding effect of more than one variable at a time and, thus, the complexity of the relationships could not be examined. One result of this analysis, however, was the assignment of individuals to a multiplicity of small categories, the only difference between some of which was the illness label that accompanied the pattern of responses. This indicated the need to abandon the assumption about the primacy of illness labels when examining the overall patterning of lay knowledge and belief.

Elder has written,

*The cause of arthritis symptoms ... is unknown or, at best, controversial, and as a consequence official communications concerning it are limited. Thus a fertile field exists for the development of ideas derived from empirical experience and non-scientific beliefs about body functioning* (1973:29).

Although she was referring specifically to osteoarthritis and despite the fact that there has been a vast outpouring of literature in recent years, Elder's statement about
etiology remains true of many of the rheumatic diseases. Her research uncovered a range of lay etiological theories and she demonstrated that these were linked to social class position. The present study, similarly, uncovered a wide variety of lay theories. However, in the present survey population there was no statistically significant correlation between etiological beliefs and either social class ($r = .14$ sig. .08) or social status ($r = .11$ sig. .13).

In order to summarize the diversity of answers to questions about etiology, the responses were divided into five broad categories. These were independently ranked by a physician and the investigator according to the extent to which they approached biomedically orthodox etiological theories of the diseases involved. To this extent, the categories reflect the uncertain knowledge that biomedical science has of the etiology of osteoarthritis and rheumatoid arthritis in particular. Thus, for example, while heredity and aging are not directly implicated as causal factors in either osteoarthritis or rheumatoid arthritis it cannot, at this stage, be unequivocally ruled out that they do not play at least an indirect role. For this reason, lay explanations invoking these factors have been given a higher ranking than responses in which individuals indicate that they have no idea whatsoever about cause. Similarly, the latter response has been ranked as more orthodox than explanations, such as exposure to the elements, which are
untenable in biomedical terms. Responses have been assigned to these categories on the basis of their appropriateness in terms of the illness from which an individual claimed to be suffering. Thus, for example, individuals who attributed their "osteoarthritis" to the secondary effects of trauma had their responses assigned to the "orthodox belief" category; whereas the person who attributed her "gout" to the same cause had her response categorized as "other unorthodox." It is recognized that this system of categorization imposes a grid upon the emic data that is not of the respondents' making. However, this was necessary to reduce the diversity of responses to manageable proportions and, in the event, does not appear to have done much injustice to the data.

The responses summarized as "orthodox etiological beliefs" consist of three distinct sets of responses. These were what has been termed as "informed don't know," the effect of some previous medical or physical problem, and the secondary effects of trauma or prolonged physical stress. The six who gave the first response stated that they did not know the cause of their particular complaint but also clearly indicated that they were aware that there is no generally accepted biomedical explanation. Amongst those who gave the second response, one person claimed to have suffered from "rheumatoid arthritis" ever since contracting rheumatic fever as a child. The other two attributed their
"arthritis" and "osteoarthritis" to stress on their joints; in one case as a result of a spinal problem and in the other as a result of obesity.

The second broad etiological category is the combined one of "heredity or aging." Nine people attributed their symptoms to heredity and five to aging. There was no notable association between either of these lay etiological theories and any of the lay diagnostic categories. However, the percentages who responded in these terms stands in marked contrast to what Elder found in New Haven. In her study population, aging

... was the major explanation for 16 percent of the respondents, and an important explanation for a further 36 percent (1973:31), and 23.7 percent of her sample "... thought their condition was inherited" (1973:33).

The third category of etiological beliefs was that of "hard-work or over-use." The difference between responses in this category and those responses in the "orthodox" category attributing symptoms to trauma or physical stress was a qualitative one which lay in the logic and sophistication of explanation. The people whose responses were included in the present category were much more vague about the relationship of their symptoms to the suggested cause. There were nine people in this category, four of whom said they had "arthritis," four of whom had
"osteoarthritis," and one of whom said she had "osteoporosis."

Included in the etiological category "uninformed don't know" are the responses of fourteen individuals who did not have any explanation for the cause of their variously labelled symptoms of illness. In contrast to those people in the first etiological belief category who did not know the cause of their illness, after further probing, they also revealed that they were unaware that there was no definitive biomedical answer to this question.

Table 22
Lay Diagnosis by Etiological Belief

<table>
<thead>
<tr>
<th>Etiology Lay diagnosis</th>
<th>Other unorth.</th>
<th>Uninf. don't know</th>
<th>Hardwork overuse</th>
<th>Heredity aging</th>
<th>Orthodox belief</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Arthritis&quot;</td>
<td>9</td>
<td>9</td>
<td>4</td>
<td>7</td>
<td>14</td>
<td>43</td>
</tr>
<tr>
<td>&quot;Osteoarthritis&quot;</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>&quot;Rheumatoid arth.&quot;</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>&quot;Gout&quot;</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>&quot;Osteoporosis&quot;</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>19</td>
<td>14</td>
<td>9</td>
<td>14</td>
<td>20</td>
<td>76</td>
</tr>
</tbody>
</table>

The final etiological category, "other unorthodox," grouped together a number of lesser explanations. Included in the category are the responses of six people who attributed their illness to some aspect of diet, such as
poor quality diet in childhood or to specific elements of diet such as "too much meat." Another six people in this category blamed the weather or exposure to the elements for their complaint. The others attributed their illnesses to such diverse factors as the after effects of childbirth, the shock of having a Downes syndrome child, and the effects of herpes zoster.

In New Haven, Elder found that some (unspecified number) of osteoarthritis sufferers were "... likely to blame themselves, at least in part, for having this condition"(1973:32). Similarly, in the present survey population, fourteen (18.4%) people held themselves to blame in some way for their illness. Eight of these people attributed their illness in part to failure to take care of their health. One person, for example, had worked a market garden with her husband. She said that she often spent time working out in the rain and now blamed herself for exposing her body to the elements thus leading to the onset of "arthritis." Five other people believed that "overwork" or over activity in the past had contributed to their illnesses and blamed themselves for this. The other person who blamed herself said that her "osteoarthritis" was due to her over-indulgence. She said that inattention to her diet and drinking alcohol had "poisoned" her system. Although the numbers of people involved were small there did not appear to be any relationship between such beliefs and either the
illness labels the respondents employed or the class and status categories of which they were members.

Elder also found that eight (5%) of the people in her study population regarded their illness as "punishment" and she interpreted this as,

... traces of magical thinking on the part of respondents in the lower classes (1973:37).

Of the seventy-six people who participated in the present study, three (3.9%) professed similar views. As one would expect, belief that illness is a punishment is associated with self-blame. The three affirmative answers to questioning on this issue echoed that of the person who said that,

"It's a punishment for trying to fit too much into too short a time. It's something God sent to be endured."

Given the small number of people professing such beliefs it is not possible to make any generalizations about their relationship to other elements of the lay explanatory models of arthritis.

It can be seen that for a not insignificant proportion of the study population their illnesses were not simply regarded in terms of their physical manifestations and consequences. For almost a fifth of the respondents there was a moral imperative attached to its assessment. Whilst most did not go as far as the three who regarded their arthritis as a punishment inflicted by "God" for some moral
transgression, they nevertheless appeared to view it in terms of the widely expressed social value of individual responsibility. That is, they blamed, or partly blamed, themselves for their illness by attributing it to some act of omission or commission in the past. This moral evaluation of illness was not restricted to those who employed the less orthodox etiological explanations. Thus, for example, four of the six people who gave the "informed don't know" response to questioning about etiology nevertheless attached some blame to themselves for their illness.

It is important to note that the majority of respondents (56 or 73.3%) could offer no description at all of the pathological processes characteristic of their illness. Of the twenty people who did provide a description of pathology, the most common response was that of the eight people who said there was a "drying up" of the joint fluid. As one person described it, "It's (the joint) like a bearing in a car with no lubricant." The only other shared response was that of simply "inflammation" which was given by three of the twenty. Other responses were varied and included; degeneration of the joints, production of too much joint fluid, formation of crystals in the joint, and the bone becoming "chalky" or "rubbery."

From an etic point of view, there was little congruence between the illness labels employed and the descriptions of
pathological processes. Only in two, or possibly three, instances, did they approach what could be regarded as orthodox descriptions of the pathological processes involved in the diseases named. In a small number of other cases, people gave descriptions of pathology that would be regarded as more-or-less orthodox for other types of joint disease but not the types from which the people concerned claimed to be suffering. Thus, most attempts to describe pathology were unorthodox. There was an association between a claim to have knowledge of pathological processes and the illness labels employed. Half of the twenty-two people who claimed to have "osteoarthritis" gave a description of pathological processes compared to only seven (16.3%) of the forty-three who said they had "arthritis," and one (14.3%) of the seven who said they had "rheumatoid arthritis." However, on the basis of the data collected it has not been possible to provide an explanation of this particular relationship.

The majority of those people who participated in the survey knew that their illness was incurable. Of the others thirteen thought that some type of cure was possible. Almost half of this latter group thought that cure could be effected by means of medication. The others mentioned a variety of curative treatments. These included chiropractic, acupuncture, heat-treatment, dietary changes, and "the Lord's will." All of those who believed in the possibility of cure claimed to be suffering from either
"arthritis" or "osteoarthritis." That is, they were drawn from the ranks of those who, in lay terms, were suffering from what were regarded as the least serious of the illnesses. However, such beliefs were independent of the severity of disease as measured by the Index of Disability. In part this result should be interpreted as a hope amongst some respondents for a cure rather than knowledge or experience of it. Those who thought that their arthritis was curable were drawn from the different social classes in about the same proportions as people in the research population as a whole. This was also the case amongst the seven people who did not know whether their illness was curable.

Although most people thought that their illness could not be cured, forty-seven (61.8%) said that its progression could be controlled in some manner. Of the others, twenty-two thought that no control was possible and seven did not know one way or the other. Some form of medication was the most commonly named means of control and this was mentioned by twenty-eight of the respondents. The other nineteen people who thought their particular illness could be controlled tendered beliefs about the efficacy of treatments such as exercise, rest, application of heat, and abstinence from alcohol.

When the responses to questions about cure and control are combined, they cluster into three main categories.
Firstly, twenty-one (27.6%) people thought that their complaint could neither be cured nor controlled. Secondly, thirty-four (44.7%) people believed that, although it could not be cured, progression of their illness could be controlled. The third category was comprised of twelve (15.8%) people who thought that their illness could be cured. The other respondents expressed various combinations of beliefs about these matters.

Table 23

Lay Diagnosis by Belief About Cure and Control

<table>
<thead>
<tr>
<th>Lay diagnosis</th>
<th>No cure, no control</th>
<th>No cure, but control</th>
<th>Cure and control</th>
<th>Other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Arthritis&quot;</td>
<td>14</td>
<td>15</td>
<td>9</td>
<td>5</td>
<td>43</td>
</tr>
<tr>
<td>&quot;Osteoarthritis&quot;</td>
<td>5</td>
<td>10</td>
<td>3</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Totals</td>
<td>21</td>
<td>34</td>
<td>12</td>
<td>9</td>
<td>76</td>
</tr>
</tbody>
</table>

All of the four people claiming to suffer from "gout" or "osteoporosis" and five of the seven who gave lay diagnoses of "rheumatoid arthritis" were in the category of people who believed that their illness could be controlled but not cured. That is, in etic terms, the people who used those illness labels tended to express medically orthodox views on these matters. On the other hand, as Table 23 illustrates, there was a more varied distribution of values
on the combined measure amongst those people who said they suffer from either "arthritis" or "osteoarthritis."

Table 24
Concern Over Prognosis by Lay Diagnosis

<table>
<thead>
<tr>
<th>Lay diagnosis</th>
<th>&quot;Arthritis&quot;</th>
<th>&quot;Osteoarth.*&quot;</th>
<th>Other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>No concern</td>
<td>29</td>
<td>11</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>Concern</td>
<td>14</td>
<td>11</td>
<td>8</td>
<td>33</td>
</tr>
<tr>
<td>Totals</td>
<td>43</td>
<td>22</td>
<td>11</td>
<td>76</td>
</tr>
</tbody>
</table>

\[ \chi^2_{df2} = 6.29 \quad p < .05 \]

Most respondents (43 or 56.6%) said they had given no thought to the effects that their illness might have upon their health or physical activities in the future. Of those that had, the majority thought that their daily activities or some valued recreational pursuit might be curtailed in some (usually minor) way. Only eight (10.5%) people were concerned about the possibility of severe crippling. This latter group of people often mentioned the disfigurement and distortion of hands that sometimes occurs in severe cases of rheumatoid arthritis. Additionally, one woman was concerned about the possible side effects on her kidneys that the drugs she was taking for her "gout" might have. As can be seen in Table 24, there is a statistically significant relationship between lay diagnoses and the expression of concern over prognosis. As one moves through
the categories "arthritis" and "osteoarthritis" and into the other lay diagnostic categories there is an increasing concern over the possible future consequences of the illnesses.

Table 25
Lay Diagnosis by Knowledge of Related Illness Labels

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<th>Know of other Lay diagnosis</th>
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</tr>
<tr>
<td>&quot;Osteoarthritis&quot;</td>
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<tr>
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<tr>
<td>Totals</td>
<td>44</td>
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</table>

χ²(1) = 18.47 p < .05

In order to further ascertain what people meant by the label they applied to their illness, they were asked if they could name another type of arthritis or rheumatism; and, if so, what the difference was between that and the illness from which they suffered. The majority (57.9%) could not name any other type of arthritis. Of the those who could, twenty-four (31.6%) named "rheumatoid arthritis;" generally speaking, these were people who claimed to be suffering from "osteoarthritis." Conversely, most of those who named "osteoarthritis" as another type described their own illness as "rheumatoid arthritis." As one might expect, and as Table 25 illustrates, there is a statistically significant
relationship between the labels people use to describe their illness and their knowledge of other illness labels. That is, the more specific the label a person employs, the more probable it is that he or she knows at least the name of a related disease.

Half of the people who were able to name another type of arthritis, were unable to explain how it differed from their own illness. Amongst the sixteen who did attempt to provide an explanation, ten people made a general contrast between "rheumatoid arthritis" as an illness which had "muscular" as well as articular manifestations and "osteoarthritis" as a complaint which was confined to the joints. It is possible that a small number who responded in terms similar to this may have implied that "rheumatoid arthritis" is only muscular. Unfortunately, however, the manner in which the data was recorded does not permit them to be distinguished. Four other people distinguished between "osteoarthritis" and "rheumatoid arthritis" in terms of severity. However, contrary to orthodox medical views, two "osteoarthritis" sufferers claimed that "osteoarthritis" was more severe than "rheumatoid arthritis." In the words of one of them, "Osteoarthritis is more painful and crippling than rheumatoid arthritis." The other two people who proffered answers in response to questioning on this matter did not actually make clear comparisons. One "arthritis" sufferer said, "Rheumatoid arthritis destroys
joints and is incurable." However, she also thought that "arthritis" was incurable and did not give a description of the pathology of "arthritis" against which this statement could be compared. The other person who made no real comparison was an "osteoarthritis" sufferer who merely said, "The bones go funny in osteoarthritis," and did not elaborate further.

EXPLANATORY MODELS.

The dimensions of knowledge and belief that have so far been examined cover the core areas of what Kleinman calls the "explanatory models" of illnesses held by different groups of individuals within society. The next step in the analysis of the survey data was to examine the responses to establish whether or not there were regular patterns in them. In this analysis the summary categories of responses to each of the questions were converted into dummy variables, thus giving metrical characteristics to each. The inter-relationship between these summary variables was then examined using the S.A.S. cluster analysis procedure (Helwig & Council 1979:157-161). This statistical technique is one which, based on the correlations between variables, permits the discovery of,

... any structure (ie. natural arrangement of the objects into homogeneous groups) inherent in the data themselves (Johnson 1967:241).
An hierarchical level was chosen which clustered the respondents into ten distinct categories. The decision to treat this, rather than some other level, as the basis of analysis was made because it balanced the necessity to represent the real diversity within the raw data with the need for convenience of data manipulation. It is these clusters of responses to questions concerning knowledge and belief about arthritis have been called explanatory models. There are six models of "arthritis," two of "osteoarthritis," and one of "rheumatoid arthritis." Use of the term "model" here requires some qualification. As it is usually employed, the term implies a summarization of regular integrated patterning of phenomena. However, as Kleinman notes,

To analyze popular EMs (explanatory models) into the five categories enumerated above is to attribute more formal organization and specificity to them than they usually possess. Vagueness, multiplicity of meanings, frequent changes, and lack of sharp boundaries between ideas and experiences are characteristic of lay EMs (1980:107).

The analysis which follows highlights the sheer diversity within this limited ideational realm.

Arthritis 1. The largest category of people who held similar views about their illness contained seventeen individuals. All but three of these people described their illness as "arthritis." The others used the label "osteoarthritis" but are included in this category because,
### Table 26
Characteristics of Explanatory Models

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despite the use of a different label, their views on the other issues are essentially the same. A distinguishing characteristic of the people within this category was that they all expressed medically orthodox views about the etiology of their illness. As was the case generally, most people in this category were unable to provide a description of the pathological processes characteristic of their illness. However, with the exception of the category "Arthritis 4", it did contain the largest proportion of "arthritis" sufferers who did attempt to explicate the pathology of their illness. The five people who did try to describe these processes either gave medically unorthodox views such as "drying up" of the joint fluid or mentioned isolated symptoms such as swelling.

This was one of the most diverse groups in terms of belief about the possibility of cure and control of "arthritis." Seven of the seventeen respondents stated that although their illness was incurable its progression could be controlled. Amongst the others there was considerable difference of opinion. Of the six people who had given any consideration to prognosis, five had been concerned that the illness might lead to some minor restriction of activity and the other that it might lead to crippling. A little over a quarter of the people in the category knew the name of at least one other type of joint disease. Five of them, including the two who labelled their illness
"osteoarthritis," named "rheumatoid arthritis" and another said that there were many types. Of these six people, two described the difference between their illness and "rheumatoid arthritis" in terms of the latter having muscular manifestations.

**Arthritis 2.** As can be seen in Table 5.5, there was a greater diversity of labels attached to the beliefs characteristic of this model than there was to the first. Also in contrast to those in the first category, all these people gave medically unorthodox explanations of the etiology of their illness. The most common of these explanations attributed the illness to either diet or exposure to the elements. Two respondents in this group held themselves to blame. The one because of overindulgence and the other because of carelessness. Only one of the fifteen claimed to know anything about the pathology of the illness and this person said it was characterized by "drying up of fluid in the joint."

Again, as in the previous category, beliefs about cure and control were varied. Eight of the fifteen said that progression of their illness could be controlled but that it could not be cured. Of the others, four thought that cure was possible and three that neither cure nor control were possible. Over half of those in the category said they had given no consideration to the effects the illness might have in the future. Of the five that had, four were concerned
about restriction of activity and one about crippling. Six of the fifteen knew the name of another form of arthritis but only one of them, a person claiming to suffer from "rheumatoid arthritis," was able to tender an explanation of how that differed from "osteoarthritis."

**Arthritis 3.** The third major category was comprised of eleven individuals and, again was made up mainly of people who applied the emic term "arthritis" to their illness. Common to all people in the category was a personal lack of knowledge of the cause of their illness and lack of knowledge that there was no generally accepted biomedical explanation of etiology. In some cases, this lack of knowledge of etiology seemed almost to amount to lack of interest. Congruent with this, was lack of knowledge of other facets of their illness: none was able to describe the pathology of the illness; only one had been concerned about its prognosis; and none knew the name of any other type of arthritis. As in the previous categories, there was a mixture of beliefs about cure and control. However, in this case, over half the individuals believed their illness was curable. Of the others, three thought that neither cure nor control could be achieved and two that it could be controlled but not cured. Importantly, as measured by the Index of Disability, all of these people had mild forms of joint disease. That is, their lack of knowledge and concern
was associated with the fact that, generally speaking, their illnesses were of minor consequence.

**Arthritis 4.** Amongst the six people who comprised the fourth category there was greater diversity with respect to the labelling of symptoms than was evidenced in the other categories. Apart from that, however, the six were relatively uniform with respect to other characteristics. In contrast to the people in the categories already discussed, four people in the present category attributed their illness to heredity and two to aging. One of the latter individuals also partly blamed herself for the illness as consequence of failure to take care of her health. Within the category, there was a uniformly, medically orthodox pattern of beliefs about cure and control. That is, all thought nothing could be done to effect a cure but all believed that progression of their illness could be controlled; five by means of medication and one by means of rest.

In contrast to people in the other categories that have been discussed, there was greater concern about prognosis amongst individuals in this category. Three of the six expressed concern that they might experience restriction of activity as a result of their illness and one that he might be crippled by it. Another distinguishing characteristic of this category was that everyone in it gave the name of another type of arthritis; four named "rheumatoid arthritis"
and one each "osteoarthritis" and "gout." Of the six; half did not know the difference between their illness and the one they named; two contrasted the "muscular" manifestations of "rheumatoid arthritis" with the solely articular manifestations of "osteoarthritis"; and the other person said that "rheumatoid arthritis is more crippling and unsightly than osteoarthritis." Of all the explanatory models of "arthritis" (as opposed to "osteoarthritis" or "rheumatoid arthritis") this was perhaps the most orthodox.

**Arthritis 5.** Five people were included in this fifth category. Like people in the previous category, these people attributed the cause of their illnesses to either heredity or aging. The one person who described the pathology of her "rheumatoid arthritis" said that the joints become inflamed. Where this group of people differed from those in the previous category was either with respect to their beliefs about the treatment of their illness, their views on its prognosis, or their knowledge of related illnesses. Within the present category, three people believed that their illness could be neither cured nor controlled, one that it could be controlled but not cured, and another that it could be cured. Amongst these people there was also less concern about the consequences of the illness; only one of the five having given consideration to its possible future effects. Of the five, none knew the name of nor could describe any other type of arthritis.
Arthritis 6. The four people in the sixth category described their illness as "arthritis" and attributed its cause to over-use or hard work. None of them was able to provide a description of the pathological processes which characterize their illness. The beliefs of the four with respect to cure and control of their "arthritis" were mixed; two thought that neither cure nor control were possible, one thought that it could be controlled but not cured, and the other thought that it could be cured. Of the four, two had been concerned that the illness might lead to some restriction of activity and two expressed no concern about prognosis. None of the four knew of any other terms for joint disease apart from "arthritis." Aside from their beliefs about the cause of their illness and perhaps a greater concern about its prognosis, the overall pattern of knowledge and belief amongst people in this category was similar to that of people in the category "Arthritis 5."

Osteoarthritis 1. This category was made up of five people all of whom referred to their illness as "osteoarthritis" and all of whom attributed its cause to over-use or hard work. Four of the five described what they thought were the pathological processes involved in their illness but all gave explanations such as "You lose fluid and the joint gets gritty." None of these people thought that "osteoarthritis" could be cured but three thought that it could be controlled, one each by the orthodox means of medication,
rest, and physiotherapy. The other two thought nothing could be done to control the progression of the illness.

One person in the category said she had been concerned about the possibility of being crippled or disfigured as a consequence of her "osteoarthritis" and another said that she was worried that it may lead to her not being as active as she then was. Interestingly, those who expressed concern over prognosis were people who thought that their illness could be controlled, rather than those who asserted that nothing could be done to control its progression. Three of the five named "rheumatoid arthritis" as another form of joint disease. When asked how this differed from "osteoarthritis," one gave the more or less orthodox view that "rheumatoid arthritis" also had non-articular manifestations and another gave the unorthodox view that "osteoarthritis" is more severe than "rheumatoid arthritis."

**Osteoarthritis 2.** All three of the people in this category believed that their illness was inherited; that it "runs in the family." One of the three, a butcher, said that he partly held himself to blame for the illness for "working too hard in poor conditions." One of the others blamed herself for the illness because she had "not looked after" her health. This woman also regarded the illness as a form of punishment. She told the person who interviewed her, "I
think anything (adverse) that happens is a punishment of some kind." The three gave various unorthodox descriptions of pathology: one said that, "the joints become rough and the nerves rub against each other"; another that there was "too much fluid in the joints"; and the third said that "it's something in the blood or kidneys." Two of the three thought that neither cure nor control of the illness was possible and the third said she did not know whether it could be cured or controlled. In contrast to the previous category of "osteoarthritis" sufferers, all three of these people expressed concern about the consequences of their illness for their future health or activity. All three knew of "rheumatoid arthritis" in addition to their own illness but only one claimed to know the difference between it and "osteoarthritis." This person said of the latter, in contrast to the former, "It affects the muscle rather than the bones of the joint."

**Rheumatoid Arthritis.** Two of the three people expressing the beliefs characteristic of this explanatory model said they did not know the cause of their illness. However, one knew that there was no generally accepted scientific explanation of etiology but the other did not. The third person said that he had suffered from "rheumatoid arthritis" ever since contracting "rheumatic fever" as a child and he attributed the cause to that. Of the three, none thought that "rheumatoid arthritis" could be cured but two of them
said that, by means of medication, its progression could be controlled. Only one of the three, a person who generally expressed a concern with maintaining physical fitness, said that he was worried about the consequences of the illness. All three named "osteoarthritis" as another form of joint disease and two of the three gave more or less orthodox descriptions of the differences; the first in terms of systemic versus more restricted joint involvement and the second in terms of the more severe consequences of "rheumatoid arthritis."

Other. Unlike the other categories, this final one is not a cluster of individuals with more or less homogeneous characteristics. Rather, it is a "catch-all" category which includes seven people whose patterns of responses do not neatly match those of people in the other categories or those of each other. It includes three people who claimed to have "osteoarthritis," two who said they had "osteoarthritis," and the two who said they suffered from "gout." Amongst the "osteoarthritis" sufferers there was a commonality in that they each believed that their illness was incurable and in that they were each able to name "rheumatoid arthritis" as another type of arthritis. However, apart from that there was a great deal of variation in their beliefs. Similarly, there were marked variations in the beliefs of the "osteoporosis" and "gout" sufferers.
Given the diversity exhibited in this ideational realm of culture, it is important that the range of explanatory models uncovered in the study population not be considered exhaustive of those that might be found even within the confines of the city of Perth as a whole. The range of models is limited by the size of the study population. In a larger population it is to be expected that, in particular, more varied models of "osteoarthritis" and "rheumatoid arthritis" would be discovered.

In the previous chapter it was indicated that there was little correspondence between the emic illness labels people employed to describe their illnesses and the etic diagnostic labels. Similarly, there is no relationship between the labels used to characterize the explanatory models and the diagnostic labels. There are, however, some relationships between manifestations of joint disease and the explanatory models. Firstly, the shorter the period of time since the initial onset of symptoms, the less knowledge an individual is likely to have about the illness. This is certainly the case amongst those individuals employing the explanatory models "Arthritis 3," "Arthritis 5," and "Arthritis 6." Although, the increase in knowledge that appears to accompany the passage of time is not necessarily biomedically orthodox knowledge. Thus, for example, those people in the explanatory model categories "Arthritis 1," "Osteoarthritis 1" and "Osteoarthritis 2" have acquired
unorthodox views about the pathology of their illness; as have those in the category "Arthritis 2" with respect to beliefs about etiology. On the other hand, as one might expect, with the passage of time since onset there is less likelihood of people believing that their illness can be cured. This is so with respect to the people in the categories "Arthritis 2," "Osteoarthritis 1," "Osteoarthritis 2" and "Rheumatoid Arthritis." However, this also appears to be influenced by the severity of the diseases involved. The fact that few of those people in the category "Arthritis 1" suffered any significant disability explains why there is a wide diversity of beliefs about cure and control amongst them when they have experienced the symptoms of joint disease for considerable periods of time.

Generally speaking, there was no association between the explanatory models and either social class or social status position. There was, however, a minor exception to this. Five of the six respondents in the category "Arthritis 4" were from the petty bourgeois social class and all were from the upper middle or old middle class social status groups. What this indicates is that relatively more orthodox views about "arthritis" are held by small numbers of better educated, self-employed professionals or their spouses. Apart from this, it was not possible to detect any patterned relationship between beliefs and class or status. Rather, a wide variation in belief was found in all class
and status groups and it appears that the explanatory models of arthritis that individuals hold are independent of their class or status position.

**SUMMARY.**

All those people who took part in the survey were people who, in a previous study, claimed to be suffering from "arthritis" or "rheumatism." Generally speaking, these terms were employed by the participants to describe an illness that was characterized by stiff and/or aching joints. However, underlying this general level of agreement there was a considerable diversity of knowledge and belief.

For over half the study population, there was only one type of arthritis and, whilst a small number called it by more specific names such as "osteoarthritis," most people simply referred to it as "arthritis." Of those who knew the name of another type of arthritis, only half could explain how it differed from the type from which they suffered. Usually, though not always, this small group explained the differences in more or less medically orthodox terms. Beliefs about the causes of the illnesses from which participants claimed to be suffering were varied but fell into five broad categories of roughly equal size; orthodox explanations, aging or heredity, overuse or hardwork, uninformed lack of knowledge, and various other unorthodox
explanations. According to Kleinman, amongst other things explanatory models include lay explanations of pathophysiology. However, over half the respondents were unable to provide any description of the pathological processes involved in their illness. Of the twenty people who did provide such a description, all but three did so in unorthodox terms. With respect to beliefs about treatment, a little less than half of the respondents said that although their illness was incurable, its progression could be controlled, usually by means of medication. A little over a quarter of those participating thought that neither cure nor control was possible, about sixteen percent believed their illness could be cured, and most of the remainder did not know about one or the other. While the majority regarded their illness as incurable, less than half of those people were sufficiently concerned or knew enough about its consequences to have considered its possible effects on their health or activities in the future. Of the thirty-two people who did express such concern, most were worried about some restriction of their activities and eight about possible crippling.

Such a brief summary of responses does not do justice to the diversity of people's knowledge and belief about their illness. Not one person in the seventy-six responded to all the questions in a manner that reflected a medically orthodox understanding of any of the forms of arthritis and
most did not come close to doing so. Also there was no strong association between medically orthodox views about one aspect of a particular form of arthritis and those about another. Thus, for example, a person may have orthodox views about etiology but completely unorthodox ones of pathology. From an etic point of view, these factors mean that there is a great deal of difference between the way in which particular disease labels are used by medical practitioners and the ways in which they are used by their patients. This difference was not simply one of the participants having a view that was a simplification of medical views. Rather, there are pertinent areas in the explanation of disease in which patients have no knowledge or have knowledge which is fundamentally at odds with that of orthodox medicine. In effect, this means that, although they may use the same terms, what those terms connote to physicians and their patients are markedly different. In a limited sense they are speaking different languages! Although this issue was not explored in the study, it obviously has important implications for the understanding of physician-patient interactions.

What is perhaps more surprising than the lack of congruence between lay and medical explanations of arthritis is the fact that not one individual responded to questioning with all of the most commonly given answers. Thus, it is not possible to build a lay model of "arthritis" based upon
the most frequent responses as few people would hold similar patterns of belief. This is another reflection of the previously mentioned diversity of lay views of the nature of "arthritis." This diversity of knowledge and belief was analyzed using an hierarchical clustering technique. The analysis resulted in the delineation amongst the research population of six models of "arthritis," two of "osteoarthritis," and one of "rheumatoid arthritis."

The first and most commonly held of these explanatory models was "Arthritis 1." The people within this category were distinguished by a uniform profession of orthodox etiological beliefs combined with a diversity of beliefs about the cure and control of their illnesses. With fifteen adherents, "Arthritis 2" was the second largest category. The most outstanding characteristic of these people was their unorthodox beliefs about etiology. In the third category, "Arthritis 3," were twelve individuals whose pattern of responses was marked by their lack of knowledge of etiology and pathology and lack of expressed consideration of the possible consequences of their illness.

In general terms, "Arthritis 4" was the most orthodox of the lay explanatory models. That is the etiological beliefs of the people in the category were the least unorthodox of the unorthodox views expressed; they uniformly believed that their illness was incurable but controllable; they appeared to have made realistic assessments about the
possible consequences of their illnesses; and all knew at least the name of another type of arthritis. Like the people in the previous category, those in the category "Arthritis 5" all attributed their illness to heredity or aging. Unlike them however, there was greater variation in belief about the possibility of controlling the illness, there was less concern about prognosis, and none knew the name of any other type of arthritis. The four people in the category "Arthritis 6" were all people who believed that their "arthritis" was caused by over-use of the joints or by hard work. None of these people indicated how this might actually cause arthritis and none could describe the pathological processes that characterize the illness. These people, like those in the previous category, were unable to name any other form of arthritis.

The category "Osteoarthritis 1" was made up of five individuals who attributed their illness to the effects of over-use or hard work and who generally provided unorthodox descriptions of the pathology of their illness. The three people in the category "Osteoarthritis 2" were characterized by their belief that "osteoarthritis" is a consequence of heredity or aging. Like the people in the category "Osteoarthritis 1," all gave unorthodox descriptions of the pathology of their illness. In contrast to them, however, two of the three attached some blame to themselves for their illness. Three people also made up the category "Rheumatoid
Arthritis." Unlike people in other categories, these people did not have more or less uniform beliefs about the etiology of their illness. Although none of the three described the pathology of their illness, all three distinguished it from "osteoarthritis" and two gave more or less orthodox descriptions of the difference between them.

The present study indicates that very few people share exactly the same views about the nature of a particular illness. Even within the smaller categories there are important differences between individuals. Although derived from only a limited realm of ideational culture, this variation amongst so few individuals suggests the need to be wary of normative accounts of cultural phenomena. Having outlined the variety of explanatory models people in the survey population used to describe their particular illnesses the question arises as to the extent to which they establish constraints upon people's responses to the actual symptoms of their disease. This is an issue which will be addressed after an examination of the treatments and treatment strategies employed by people within the study population.
CHAPTER VI

TREATMENTS, TREATMENT SOURCES, AND TREATMENT STRATEGIES

At the present time there are no known cures for either osteoarthritis or rheumatoid arthritis. However, as noted in Chapter IV, such joint diseases—while chronic—usually remain limited in severity. Despite the lack of cure, the disease processes can be controlled and in more severe cases the deformities which sometimes occur can be prevented or corrected. Within orthodox medicine, specific treatment programs depend upon the type of disease from which the person is suffering and its severity. However, Hollander has identified four generalized objectives of treatment. These are:

1. sustained relief of pain and stiffness in joints and muscles;
2. reduction or suppression of inflammation;
3. preservation of function of affected parts; and,
4. prevention of ankylosis or contractures (1974:8).

To that list, Freyberg has added:

5. maintenance of proper diet and nutrition;
6. treatment of concurrent illness and complaints; and
As P. Underwood (personal communication) indicates, there are two glaring omissions from these lists: careful explanation of the disease and treatment regimen to the patient and general patient support.

It is beyond the scope of the present discussion to enter into a thorough exploration of orthodox medical treatment. However, before examining the treatments actually used by people in the present survey population some points should be made. Firstly, the major drug prescribed for both osteoarthritis and rheumatoid arthritis is asprin. In both diseases, it is important for the relief of pain and in rheumatoid arthritis is of major importance as an anti-inflammatory agent. Maintenance of a daily dose of between 4.5 and 7.5 grams has the effect of suppressing the inflammatory reaction and thus slowing down the disease process.

With respect to Freyberg's point about diet, it is important to note that,

... there is no scientific evidence that any food or vitamin deficiency has anything to do with causing arthritis and no evidence that any food or vitamin is effective in treating or "curing" it (Arthritis Foundation 1978:22-3).

However, obese osteoarthritis patients are often placed on a weight loss program in order to reduce stress on weight-bearing joints. For rheumatoid arthritis patients, a well balanced diet is essential to maintain general health
and to enable the body's endogenous healing processes to minimize the systemic effects of the disease.

As well as drug therapy and diets, treatment of arthritis often includes prescription of exercise and periods of rest as well as heat treatment. At least ideally, treatment of the more severe cases of arthritis entails the cooperative efforts of a variety of medical and paramedical health-care personnel. These include, rheumatologists; orthopaedic surgeons to correct deformities or replace joints; physiotherapists to help the person retain or regain either full or partial range of joint motion; occupational therapists to help with adjustments that may be necessary in daily activities; and psychologists and social workers to provide assistance with personal and social problems which sometimes accompany severe cases of joint disease. As will be seen, however, in addition to the orthodox forms of treatment, arthritis sufferers also employ a variety of other treatments and seek help from less orthodox types of health-care providers.

SELF-TREATMENT.

Forty-nine of the respondents to the survey reported the use of treatments which they had prescribed for themselves. The most commonly used treatments were patent medicines; which were employed by about half of these people. In considering the use of patent medicines,
however, it is useful to divide them into two categories; "liniments" and "other" patent medicines.

In one sense, liniments can be regarded as a form of heat treatment. That is, they are used with the aim of obtaining symptomatic relief from the heat produced by their application. As such, they were often used in conjunction with other forms of heat treatment. Altogether, twenty-one people had used some form of heat treatment. All but three of them had used one of the common brand name liniments that are readily obtainable in supermarkets or pharmacies. Additionally, twelve of them applied warmth to affected sites by a variety of other means. Heat lamps were the most popular method but electric-blankets, hot-water bottles, and hot baths were also employed.

In addition to those who employed liniments, eight people used other kinds of patent medicines. These included tablets made from an extract of a species of green-lipped mussel, herbal medicines, and a locally made brand of "rheumatic powders." The latter were produced by a small family business in an inner Perth suburb. According to one informant, the man who heads the business once did a favor for an Indian family who, in return, gave him the recipe for these supposedly efficacious powders. Surprisingly, given the role it plays in orthodox medical treatment, only one person reported self-prescription of aspirin. Perhaps the reason for this is that self-prescription is an alternative
or a supplement to the treatment provided by other practitioners.

After heat treatments (that is, liniments and other types), various folk remedies figured next in order of frequency of self-prescription. Fifteen (19.7%) people had used at least one of these remedies. The most common of the folk remedies was cider vinegar with honey. Also common were remedies based on; cod-liver or castor oil, epsom salts, and citrus juices. Lesser folk remedies included tea, boiled parsnip water, garlic, and the use of copper bracelets. Interestingly, some of the folk remedies included variations of the kind one would expect to arise as information is passed along oral channels of communication. For example, two informants said that they took orange juice with cod-liver oil while a third took cod-liver oil but was emphatic that orange juice should be avoided.

Nine people (11.8%) had self-prescribed some form of diet as a remedy for their arthritis. As used in this sense, diet means a particular regulation of food intake which is aimed at curing or controlling arthritis as a direct result of the particular properties of the food itself. The category does not include the regulation of food intake with the aim of reducing weight and thus indirectly relieving symptoms. Nor does the category include individual items of food (such as honey, garlic, or parsley) which are included in the category of folk remedies.
remedies. A variety of diets was employed. The most popular were vegetarian diets or variations of a then popular diet which involved elimination of plants from the "nightshade" family, including potatoes, tomatoes, peppers, eggplant, and tobacco.

A minor form of self treatment which warrants separate mention is the use of medication which can normally be obtained only on prescription by a physician. Five people gave specific brand names of drugs and claimed that they had prescribed them for themselves. It is not clear from where they obtained these medicines. However, one possible source (and one mentioned by an informant in the intensive interview sessions) is from relatives or friends who have had the medication prescribed for a similar complaint.

Finally, sixteen people had prescribed a variety of lesser treatments for themselves. Five of them had used some form of exercise aimed at maintaining freedom of movement of affected joints. Other treatments in this broad category included prayer, lying on a flat surface (for back pain), sun and salt water, weight loss, and generally keeping fit.

Of the various self-prescribed treatments, the heat treatments were judged by the respondents to be the most efficacious. The majority of those who had employed them claimed to have obtained symptomatic relief. Other treatments were much less esteemed. Generally speaking,
most of the folk remedies, diets, and other treatments were found to be ineffective. After having tried them for short periods of time most people had given them up. Despite such experiences though, many people expressed a willingness to continue experimenting with new treatments.

There were no class related differences in the types of treatments that individuals prescribed for themselves. However, whether or not a person had, in fact, self-prescribed some form of treatment was class related. Whereas eighty percent of working class people had employed some form of self-treatment, only about sixty and forty percent of people from the managerial and petty bourgeois classes, respectively, had done so.

**ALTERNATIVE PRACTITIONERS.**

The people referred to as "alternative practitioners" are those health-care providers whose theories of illness and its cure fall outside the bounds of orthodox biomedicine. The category includes naturopaths, iridologists, faith-healers, chiropractors, and acupuncturists. In all, eighteen of the respondents had made resort to the services of an alternative practitioner and five of them had used the services or more than one type of alternative practitioner.

Eleven people had consulted a chiropractor about their arthritis, thus, making them the most frequently utilized of
the alternative practitioners. Although there are variations, the central theory of chiropractic is that illness results from malfunction of the nervous system. Much of this malfunctioning is supposed to stem from constriction of the spinal chord and its branches due to dislocations of the vertebral column. In practice, much of the chiropractor's healing activity consists of manipulation of the spinal column as part of the overall aim of restoring health through the restoration of the integrity of the nervous system. Most of those people interviewed, however, seemed unaware of the major tenets of chiropractic. Rather, they tended to view the chiropractor as a kind of physiotherapist, as a skilled manipulator who could bring relief directly to the afflicted joint.

The average time that the eleven people reported as having elapsed since they first consulted a chiropractor was about five years. In none of these cases was a chiropractor the health-care provider first consulted. The approximate time between the onset of symptoms and consultation with a chiropractor was eleven years. However, this figure obscures two distinct patterns. On the one hand, there was a small group of people who had developed the symptoms of joint disease relatively recently and who had consulted a chiropractor within a period of five years after its onset. On the other hand, was a group of people who had suffered from arthritis for more than twenty years and who had only
recently utilized chiropractic services. Amongst the latter group part of the reason for the delay in seeking such services may be related to the changing status of this health-care occupation. As one person said, "Before I went to see a chiropractor, lots of times people suggested it. But I used to get annoyed because in those days (about 20 years ago) chiropractors had the reputation of being quacks." This changing status is probably reflected in the fact that three of the eleven were either referred to a chiropractor by their physician, or had prior approval of that consultation from their physician. However, that chiropractic still stands in an ambiguous position can be seen in the fact that physicians also advised two people to discontinue such treatment.

Eight of the eleven, claimed that the treatment provided by chiropractors had led to an improvement in their condition. In two of the other cases, the chiropractors had provided their patients with no specific treatment. The two people who received no treatment from the chiropractors paid only one visit and did not return. The others consulted with varying degrees of frequency. This included intensive visiting over one short period, several periods of such intensive consultation, and one or two visits per year. At the time of the interviews, four people were still using the services of a chiropractor. Reasons given by the others for discontinuing the use of these services included the
remission of symptoms, medical advice, ineffectiveness of
treatment, and the expense of treatment. At the time the
study was undertaken, chiropractors charged between $13 and
$16 per consultation. Only $7 of this amount was
recoverable through health insurance and to receive this
benefit it was necessary to pay an additional premium. In
comparison, the cost of a general practitioner consultation
was $9.90, of which $8.45 was refunded by health insurance
companies.

Generally, people seemed satisfied with the treatment
provided by chiropractors. Seven of the eleven indicated
that if the need arose (and they could afford it) they would
again utilize chiropractic services. Of the others, one was
uncertain and three said they would not (two on medical
advice).

After chiropractors, acupuncturists were the most
frequently consulted alternative practitioners. Although
some acupuncturists are also qualified medical
practitioners, acupuncture itself is not part of orthodox
medical care. For this reason, if a person consulted a
general practitioner-acupuncturist and sought or received
acupuncture, the practitioner was considered to be an
acupuncturist for the purpose or the study. On the other
hand, if the general practitioner-acupuncturist provided
only orthodox medical care he was classified as a general
practitioner.
Altogether, six of the respondents had consulted an acupuncturist about their arthritis. One person had done so about a year after he had developed the symptoms of arthritis (three years prior to the interview) and had consulted no other type of practitioner. The others had all consulted at least one other type of practitioner prior to an acupuncturist. At the time of the interviews, no respondent had consulted an acupuncturist more than two years previously. This combined with the fact that the average time since the onset of symptoms amongst these people was 15.3 years again partly reflects the recent popularization of this form of treatment.

In one instance, although a person went seeking acupuncture, the acupuncturist treated him by manipulation. This man's wife visited the same acupuncturist and was treated by both manipulation and massage as well as acupuncture. The woman said that the former treatment led to an improvement in her arthritis but that the acupuncture had no effect. Two other people also reported that they felt acupuncture was ineffective. Despite this, all but one person (who had been told not to do so by a physician) expressed willingness to use acupuncture in the future. Given the disparity between this and the reports about the results of treatment there appears to be a certain amount of faith involved in the belief in the efficacy of acupuncture.
The third general category of alternative practitioners consulted includes naturopaths, iridologists, and a faith-healer. Essentially, naturopaths argue that illness is a result of being in a state of disequilibrium with nature. They seek to restore this equilibrium through the body's endogenous healing processes aided by the "healing" properties of "natural" foods and substances (by which they usually mean unprocessed products and the foods which contain no animal protein). Iridologists believe that the structure of the eye is a microcosm of the human body as a whole. They seek to diagnose illness by examination of the iris, paying attention to tell-tale "abnormalities" which enable them to pin-point the root cause of illness. Once illness has been diagnosed in this manner it is usually treated in some naturalistic manner and hence there is often a considerable overlap between the roles of iridologists and naturopaths. Thus, they will both be referred to as "naturalistic healers." One woman, whose name came up frequently in both the formal and informal interviews, calls herself a naturopath and employs iris analysis to diagnose illness.

It is informative to examine the etiological theories of this particular naturopath, not only for their own sake but because they incorporate in a systematized manner many of the folk beliefs about arthritis and its cure that were more randomly expressed by a number of informants.
According to Mrs Finch, the body has two digestive juices, one alkaline, the other acid. These are produced in response to the food eaten but should be in a balance of 80% alkaline to 20% acid. Certain foods, especially animal protein, require acid to be digested. Diets which contain a high proportion of such foods cause the body to secrete large amounts of acid which, while digesting the food, also has certain deleterious effects on the body and leads to illness. According to this theory of health and nutrition, non-organic compounds such as iron and salt cannot be utilized by the human body unless they are assimilated beforehand by plant-life. Consequently, for a healthy body, one should eat a diet containing a high proportion of fruit and vegetables and avoid milk, eggs, meat and salt.

According to Mrs Finch's theory, arthritis has four causes. Firstly, toxins which enter, or are produced in, the body as a result of the food eaten, attack the joints. Secondly, non-organic compounds which have not been assimilated by plants are deposited in the joints because the body is not able to utilize them. The third causal element is calcium. This is regarded as being essential for growth in children and is obtained from milk. In adults, however, when normal growth has ceased, continued intake of milk results in the formation of bony growths in the joints.

1The name is a pseudonym, as are those of respondents mentioned in the text.
Finally, over-production of digestive acids results in their eating away the bones. For these reasons, Mrs Finch prescribes a diet comprised totally of fruit and vegetables and fruit and vegetable juices, the purpose of which is to restore "natural" body functioning. Additionally, she claims that correct alignment of the spine is essential for good health. Consequently, she often refers her patients to a well known Perth chiropractor for "spinal alignment."

For her services, Mrs Finch charges $20 per consultation; none of which is recoverable under health insurance. For some people, the diets she prescribes are often expensive, including as they do items which at certain out of season times are difficult and costly to obtain. One of the people that participated in the earlier part of the study had to give up this treatment because she could no longer afford the diet that had been prescribed for her.

Generally speaking, people who had consulted a naturalistic healer had done so on only one occasion. Three of the six people who had used the services of a naturopath or iridologist had initially consulted these practitioners because of concern over their general health and another did so because of an upset stomach. Of the two who went along specifically for their arthritis, one consulted a naturopath before any other type of practitioner.

In five cases these naturalistic healers had prescribed herbal and patent medicines of the type normally sold in
health-food stores. These medications included such things as vitamin supplements and celery tablets. However, only one person thought that these had any beneficial effects upon her arthritis. Special diets, similar to those prescribed by Mrs Finch, were also prescribed for three of these respondents. Of the three, one had not followed the diet because it was too expensive, another thought the diet had no effect, and the third claimed to have obtained some relief.

One woman who is included in the category of people who had consulted some other type of alternative practitioner had been to a faith healer. Unfortunately, however, the person who conducted the interview with the woman did not obtain details about this aspect of the woman's case.

Some of those people who had not utilized the services of alternative health-care providers expressed opinions about them. Generally, such comments were tempered and merely expressed the view that alternative practitioners would be unable to provide care equivalent to that which they received from their medical practitioner. Occasionally, however, such comments took a stronger form; such as the statement by one person that alternative practitioners are "... motivated only by want of money," with its added implication that they are charlatans. Those who expressed reservations about alternative practitioners did not always lump them together as one group. Thus a
woman who had utilized the services of a chiropractor said that she would not seek treatment from an acupuncturist because she "... didn't fancy the needles."

In summary it can be seen that a substantial number (18 or 23.7%) of people had consulted alternative health-care providers. Generally speaking, alternative practitioners are not the health-care providers of first resort. Nor are they usually the only source of health care. Of the seventy-two people who had consulted any kind of health-care provider, only one had relied solely on the services of an alternative practitioner. Of the eighteen people who had consulted any kind of alternative health-care provider, three had consulted two or more chiropractors and one had consulted two acupuncturists. In all these instances the respondents said that they had changed practitioners for reasons of convenience; as in the case of a person whose work entailed a good deal of travelling. While there is undoubtedly some basis for these claims, the overall pattern of health-care seeking behavior of some of these people suggests that they are what Maddox (n.d.:37), amongst others, has described as "shoppers" for health-care. This is also true of four other people who had utilized the services of more than one type of alternative practitioner.

At the time the interviews were conducted, over half of those people who had consulted alternative practitioners had discontinued use of the services or treatments they had
provided. The reasons people gave for doing so were various but included remission of symptoms, ineffectiveness of treatment, medical advice, and the expense of treatment. The most popular of the alternative practitioners, and the ones who provided treatments with which respondents were most satisfied, were chiropractors. However, it is of interest to note that the proportion of people in the present study who had made resort to chiropractic is less than half of those in Maddox' Ringwood survey; 14.5% compared to 32% (n.d.:37). On the other hand, the proportions of people consulting acupuncturists and naturalistic healers are essentially the same as in Ringwood. In the present study population 7.9% of respondents had consulted an acupuncturist compared to 8% in Ringwood; and 7.9% consulted a naturalistic healer compared to 9% in Ringwood (n.d.:37). Although caution is warranted in generalizing from such small numbers, it appears that in terms of statements about treatment acupuncturists and naturalistic healers provide less satisfaction amongst their patients than do chiropractors. However, a higher proportion of those consulting acupuncturists expressed a willingness to use such services again.

**PARAMEDICAL PRACTITIONERS.**

Almost half of the respondents (48.7%) had consulted some kind of paramedical health-care provider. These
paramedical providers were of three types: physiotherapists, dieticians, and pharmacists. The thirty-two people who had ever visited a physiotherapist comprised 42.1% of the study population and is again virtually the same as the 40% Maddox found in Ringwood (n.d.:29). That physiotherapy is primarily an adjunct of orthodox medical care is attested by the fact that twenty-nine of the respondents were referred to a physiotherapist by either a general practitioner or medical specialist.

Amongst those who had used the services of a physiotherapist, the average time elapsed since the onset of their symptoms was 19.5 years but the average time since their first consultation was only four years. Thus, for most, this was a form of therapy which was of relatively recent resort. Generally, resort to physiotherapy was the result of medical referral rather than an initial choice made by the individual. Nevertheless, twelve people had consulted more than one physiotherapist and half of those were people who had also made resort to various alternative practitioners and other paramedical providers.

At the time of the interviews, six people were still making regular visits to a physiotherapist. Of those who were no longer receiving physiotherapy, ten had discontinued because they believed that the treatment they had received was ineffective. To the extent that expression of willingness to utilize these services in the future reflects
satisfaction with the services, there was a relatively large degree of dissatisfaction, with nine people saying that they would not consult a physiotherapist again and four being unsure.

In the initial stage of the study, it became obvious that some people used the term "dietician" in a broad sense which included nutritionists, naturopaths, and even employees in health-food stores. Consequently in the survey, before classifying providers as dieticians, the interviewers were instructed to pay careful attention to the type and purpose of the diet prescribed and the context in which prescription took place. Thus the etic category "dietician" contains only practitioners who are qualified nutritionists or their equivalents.

Like consultation with physiotherapists, consultation with dieticians was primarily an adjunct of orthodox medical care. Five of the six people who had used the services of a dietician had been referred by a medical, or paramedical, practitioner. However, of the six, three were people who can be classified as "shoppers" for health care (the person who had not been referred by another health-care provider was one of these). Only one person had consulted more than one dietician and that was because of staff roster changes at a health-care center.

The average period of time elapsed between the onset of symptoms and first consultation was approximately nine years
and on the average it was five years since that first consultation had taken place. All of the six people in this category had multiple joint involvement. More importantly, however, all had involvement of the important weight-bearing joints of the knees and hips and five of them also had involvement of the ankles. This pattern of joint involvement highlights the major reason for referral of patients to dieticians.

At the time they were interviewed, two people were still using the diets that had been prescribed for them—although one of them felt it was ineffective. Three people had given up their diets because they believed they were ineffective and one because she had a "disagreement" with the dietician. Despite the general feeling that the diets were not effective in bringing about an improvement in their arthritis, three of the six indicated that they would be prepared to use the services of a dietician again.

The vast majority of respondents had dealt with pharmacists as dispensers of the medication prescribed by medical practitioners. However, that is not of interest in this context. What is of interest are those instances in which people actually sought advice about treatment from a pharmacist. As prescription of treatment is not generally part of their role, Maddox categorized pharmacists as "unorthodox" practitioners (n.d.:32). Contrary to that, for the purposes of this study they are classified as
paramedical health-care providers because of their familiarity with the orthodox forms of medication prescribed for various forms of arthritis and because their training is firmly grounded in bio-medical science.

Two of the six people who had sought treatment from a pharmacist had used the pharmacist as the health-care provider of first resort. In one of these instances the pharmacist was a business acquaintance of the man's father and the man had raised the subject of his arthritis with the pharmacist whilst they were having an after-work drink at a hotel. In the second instance in which resort was first made to a pharmacist (and in one other case) the pharmacist did not provide any treatment at all. In the four cases where treatment was provided, it consisted of some kind of patent medicine. Specific types included brands of aspirin, in one case in conjunction with a well known brand of liniment.

No one had consulted more than one pharmacist. Again, however, two of the "shoppers" were amongst those people consulting pharmacists. Apart from the man who was a friend of the pharmacist involved, all had sought care on only one occasion and that was on an average of about five years before. Despite the fact that three of the four people who received treatment claimed to have obtained some relief from it, only two of them said they would consider consulting a pharmacist about treatment for their arthritis again.
Table 27

Paramedical Consultation by Index of Disability

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<th>Consulted</th>
<th>Disability</th>
<th>None</th>
<th>Mild</th>
<th>Moderate to severe</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>22</td>
<td>15</td>
<td>2</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9</td>
<td>17</td>
<td>11</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>31</td>
<td>32</td>
<td>13</td>
<td>76</td>
<td></td>
</tr>
</tbody>
</table>

χ²(df2) = 11.76  p < 0.05

It can be seen that apart from consultation with pharmacists, initial consultation with paramedical health-care providers is generally the result of referral by a medical practitioner. A reflection of medical referral of relatively more severe cases can be seen in Table 27 which shows a close relationship between paramedical consultation and score on the Index of Disability. Of the thirty-seven people who had contact with paramedical providers, only two had first consulted pharmacists and two physiotherapists as providers of first resort. The pattern of medical practitioner referral suggests that, for most people, use of paramedical services is not primarily part of the "shopping" for treatment that is reported amongst some arthritis sufferers. Nevertheless, there was a considerable proportion of "shoppers" amongst the users of paramedical care. Like the users of paramedical care in general, this latter group stated that the reason for multiple
consultations with particular types of providers was mainly for convenience. However, their overall pattern of health-care seeking behavior contradicts this to some extent.

There was not the same degree of satisfaction with the treatments provided by paramedical health-care providers as there was with those of alternative practitioners, especially amongst chiropractors. Similarly, respondents expressed less willingness to use the services of paramedical providers in the future than did those who had used the services of alternative practitioners. On the basis of the intensive discussions, there seem to be two reasons for this. In the first place, people appeared to be using physiotherapy and dietary treatments with the expectation of rapid symptomatic relief rather than with full awareness that a large part of their purpose is prophylactic. In turn, this dissatisfaction was more freely admitted because use of such treatment was often not the individual's personal choice. That is, they did not have the personal investment in justifying resort to these practitioners that those who had chosen alternative practitioners had. This reflects Maddox' impression that some users of unorthodox care "protested too much" (n.d.:37) as to its efficacy.
MEDICAL PRACTITIONERS.

At one time or another, sixty-nine (90.8%) of the respondents had consulted a general medical practitioner about their arthritis. Further, for all but three of these people, the general practitioner was the health-care provider first consulted. For over a quarter of them the consultation at which they first discussed their arthritis was not made specifically for that purpose. That is, they had visited the general practitioner in connection with some other health problem, such as "nervousness" or "heart trouble," and had mentioned their arthritic symptoms during the course of the consultation. This reflects both the insidious nature of the onset of much joint disease and also the view that it is a natural part of growing old. In this respect, consultation with general practitioners was similar to that with naturalistic healers, chiropractors, and pharmacists and in contrast to that with acupuncturists, dieticians, and physiotherapists with whom initial consultation tended to be more specifically for arthritis.

The mean reported time since the onset of symptoms amongst those who had ever consulted a general practitioner was 17.7 years. Of the sixty-six people who used a general practitioner as the health-care provider of first resort, thirty-two said that there was little or no delay between the onset of symptoms and the time of first consultation. That is, they claimed to have consulted a general
practitioner within three months of the onset of symptoms. However, as mentioned elsewhere, given the length of time since many of these consultations had taken place, the periods of delay must be regarded as broad approximations only.

Twenty-three people reported that they had consulted two general practitioners about their arthritis and a further twenty-three that they had consulted three or more. This is a considerably greater proportion than reported multiple general practitioner consultations in Ringwood (n.d.:27). Also, contrary to what was found in the Ringwood survey, there was a definite minority of people who did appear to be shopping for care amongst general practitioners. However, as Table 28 illustrates, much of the multiple general practitioner use is related to the length of time since a general practitioner was first consulted. Of those people who had consulted more than one general practitioner, most had done so for reasons of convenience or necessity. That is, they had changed their place of residence, they had seen different doctors at group practices or hospital outpatients departments, or their previous doctor had either retired or died. Minor reasons for such change, given by five of the respondents, were dissatisfaction with treatment and personality conflicts with a physician.
Table 28

Period Since First Consulting a General Practitioner by Number Consulted

<table>
<thead>
<tr>
<th>Number consulted</th>
<th>One</th>
<th>Two</th>
<th>Three or more</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period since 1st cons.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 5 years</td>
<td>15</td>
<td>7</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>5--10 years</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>6</td>
<td>9</td>
<td>19</td>
<td>34</td>
</tr>
<tr>
<td>Totals</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>69</td>
</tr>
</tbody>
</table>

Although they had consulted general practitioners about their arthritis, eight people were neither given specific treatment nor referred to another health-care provider by their doctor. Generally speaking, these were people who had first developed the symptoms of joint disease a decade or more before, had gradual onset of symptoms, had delayed consultation for varying periods of time, and who had raised the issue of this particular illness on only one or two occasions. A comment made by one of these people, and one echoed by others who had developed arthritis many years before or who had consulted older general practitioners, was that doctors were "not interested" in arthritis because "nothing could be done" about it.

In five instances, general practitioners did not prescribe any form of treatment. They did, however, refer the people concerned to medical specialists, usually rheumatologists. In all but one of these cases, people
consulted the specialist to whom they were referred. Twenty-six other people also reported that a general practitioner had referred them to either a medical specialist or paramedical practitioner in addition to the treatment that he or she provided. Thus, all told, general practitioners referred thirty-one (44.9%) of the sixty-nine people who consulted them to other health-care providers.

General practitioners prescribed some kind of medication for fifty-two of the fifty-six individuals for whom they recommended some particular form of treatment. The most common forms of medication were the analgesics sold under the brand names of "Indocid," "Brufen," and "Naprosyn." These were prescribed either exclusively or as part of a sequence of drugs for twenty, seventeen, and fourteen individuals respectively. Other prescribed drugs included salicylates (various brands of aspirin), phenylbutazone, and colchicine (for gout). One person amongst the fifty-two did not comply with the prescribed drug treatment because of concern about possible side-effects. Of the remainder, thirty-six said that one or other of the prescribed drugs brought some symptomatic relief, eleven that their prescribed medication had no effect, and four that the medication actually exacerbated their illness.

For thirteen people, general practitioners also prescribed other treatments in addition to (9 cases) or
instead of (3 cases) the drugs mentioned above. These other treatments included: injections of cortisone, gold, or some unspecified substance; manipulation or massage; weight loss; and heat treatment. Generally speaking the injections and the heat treatment were the most favorably regarded.

At the time of the interviews, thirty-six of the fifty-six people who had received treatment from a general practitioner were still using the services or treatment that their doctor had prescribed. Of the remaining twenty, ten had discontinued treatment because of remission of symptoms, four because the treatment was ineffective, and six for a variety of reasons including; inconvenience, change to self-care, and adverse effects of treatment. There was a slightly greater tendency to continue use of treatment amongst those who suffer some disability but, at the .05 level, this was not statistically significant. Of the fifty-six, fifty-one (91.1%) people expressed a willingness to utilize a general practitioner's services again. In no other type of practitioner was this level of confidence expressed.

Sixteen of the respondents said that they had consulted a rheumatologist about their arthritis. All of these people were referred by a general practitioner; in most instances to the rheumatology clinics at Royal Perth Hospital or the Queen Elizabeth II Medical Centre. The rheumatologists provided no treatment at all for two of these people but
referred them for physiotherapy. Two other people were also referred to physiotherapists but this was in addition to treatment provided by the rheumatologist. Medication was prescribed for only six people and in two instances this was a modification of the prescription made by the patient's general practitioner. Much of the treatment provided by rheumatologists tended to supplement that provided by general practitioners. In four instances patients were given injections of either cortisone or gold and, as was the case amongst people given similar injections by general practitioners, all claimed to have obtained symptomatic relief. Other treatments prescribed by rheumatologists but which were less favorably regarded by patients were exercise, weight loss, and a cast for a person's hip.

Three of the sixteen people had consulted a rheumatologist on only one occasion, some years previously. Two of these people had been dissatisfied with the treatment prescribed and the other felt that, after having referred him to a physiotherapist, the rheumatologist could do little else. The other thirteen had visited a rheumatologist once or twice a year for varying periods of time. When interviewed, half of the fourteen who had received treatment were still consulting a rheumatologist on a regular, though infrequent, basis or were using the treatment that a rheumatologist had prescribed. The others had discontinued such treatment because of remission of symptoms,
ineffectiveness of treatment or because of receipt of treatment from a general practitioner.

Additionally, nine (11.8%) people had consulted a surgeon regarding their arthritis. Six of these people were referred directly to a surgeon by their general practitioner and two were referred by rheumatologists. The ninth person was not referred at all but consulted a surgeon who was part of his circle of friends. Of the nine, three people had consulted both a rheumatologist and a surgeon as well as their general practitioner.

Surgeons provided no direct treatment for four of these people, including the person who had consulted his friend. Surgery was only performed on three of the individuals; one was given an artificial hip, one had osteophytes removed from joints in her feet, and the other had an operation on the fingers of her right hand. In the other two cases, one person was given a cortisone injection and the other was given a prescription for the anti-inflammatory analgesic phenylbutazone. The expectation that those referred to a surgeon would be people with more severe cases of joint disease is borne out by the fact that six of the nine were classified as moderate to severe on the Index of Disability.

In summary, it can be seen that the majority (69 or 90.8%) of respondents sought orthodox medical care for their arthritis. Orthodox medical practitioners, specifically general practitioners, were also the health-care providers
to whom sixty-six (86.8%) people made first resort. Amongst the seven people who had not utilized the services of an orthodox medical practitioner, neither recent onset nor retention of functional ability appear to unambiguously explain this non-use, as the mean time elapsed since the onset of symptoms amongst them was 6.4 years and three of them experienced at least some disability as a result of their arthritis.

Fifty-seven (75.0%) people had consulted only a general practitioner amongst the orthodox medical personnel available. Of the others, thirteen had been seen by a general practitioner and a rheumatologist, six had consulted a general practitioner and a surgeon, and three (3.9%) had consulted all three types of practitioner.

Table 29
Results of Medical Practitioner Consultation

<table>
<thead>
<tr>
<th>Practitioner</th>
<th>Not consulted</th>
<th>Consulted not treated</th>
<th>Treated</th>
<th>Referred</th>
</tr>
</thead>
<tbody>
<tr>
<td>General practitioner</td>
<td>7</td>
<td>13</td>
<td>56</td>
<td>31</td>
</tr>
<tr>
<td>Rheumatologist</td>
<td>60</td>
<td>4</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Surgeon</td>
<td>67</td>
<td>4</td>
<td>5</td>
<td>-</td>
</tr>
</tbody>
</table>

Although forty-six of the sixty-nine people had consulted more than one general practitioner, most claimed this was for convenience or necessity. This is almost
certainly so in most instances. However, the overall health-care seeking behavior of a minority—which includes consultation with a variety of other health-care providers as well as multiple general practitioner consultations—suggests that there are other, unstated reasons for these changes. It appears that consultation with medical specialists was generally the result of general practitioner referral rather than "shopping" for care. However, the possibility cannot be ruled out that in some cases patients put pressure on their doctor to refer them to a specialist.

Table 30
Treatments Provided by Medical Practitioners

<table>
<thead>
<tr>
<th>Practitioner</th>
<th>Oral medication</th>
<th>Injections</th>
<th>Surgery</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General practitioner</td>
<td>52</td>
<td>6</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Rheumatologist</td>
<td>6</td>
<td>4</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Surgeon</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
</tr>
</tbody>
</table>

Amongst those who were actually treated by medical practitioners, satisfaction with treatment was equalled only amongst those who had consulted chiropractors. As far as expressed willingness to make future resort to a health-care provider reflects overall consumer satisfaction, general practitioners were the most favored providers of all. On this indicator rheumatologists fared a little less well,
partly because of the higher expectations people seemed to have of practitioners who were specialists in the field.

In New Haven, Elder and Acheson reported that there was little class related difference in general practitioner consultation. They also found that there was a tendency for lower class respondents to rely upon practitioners who were not physicians and for upper class individuals to utilize the services of medical specialists in musculoskeletal problems (1970:469-70). Differences in the types and range of practitioners that respondents in Perth had consulted, and in the classification of those practitioners, precluded direct comparison of the results of the two studies. However, in broad terms, there were both similarities and differences. As in New Haven, there was no difference in general practitioner consultation between people from different class or status positions. The reliance of lower class people on non-medical personnel that Elder and Acheson reported was not found in Perth. On the one hand there was no statistically significant relationship (at the .05 level) between either class or status and use of an alternative practitioner. On the other hand there was a relationship between class and status and use of paramedical health-care providers but it was the opposite of that in New Haven. That is, there was a statistically significant relationship between higher class ($\chi^2_{d.f.2} = 6.30 \ p < .05$) and status ($\chi^2_{d.f.3} = 8.92 \ p < .05$) position and paramedical
consultation. Although not significant at the .05 level, there was also a tendency for those who had consulted medical specialists to be from higher class and status positions—as was the case in New Haven. Thus there is a tendency for people of higher class and status position to receive more specialized care for their arthritis. However, these relationships are confounded by other variables and discussion of them will be undertaken in the following chapter when the determinants of treatment strategies are analyzed.

LAY CONFERRAL.

In addition to self-treatment and consultation with various types of health-care providers, the majority of people (66 or 86.8%) recalled having discussed some aspect of their arthritis with other lay persons. In fact, thirty-one (40.8%) people said that they first discussed the symptoms of their arthritis with a lay person. Of the others, most said that they first discussed their illness with a medical practitioner. However, given the periods of recall involved and the fact that other researchers (Kleinman 1978b, White et al 1961) have found that most illness is initially treated in the home, the above figures probably tend to underestimate the frequency of initial lay conferral.
Most of the ten people who said they had not discussed their arthritis with any lay person either said there was no particular reason for not doing so or that their arthritis was not severe enough to bother. The latter statement is partly borne out by the fact that six of the ten experienced no disability at all as a result of their arthritis. Another reason given for not discussing illness reflected a value expressed by other respondents as well. This was the notion that one should not be a "whinger" (Australian slang for someone who constantly complains) or "moaner"; that one should not complain or burden others with one's troubles. Statements to this effect included:

"People around here have enough troubles without hearing about mine."

and

"People don't like you to complain. It doesn't help anyway."

Claimed adherence to this value did not always serve to minimize discussion or, in some cases, to prevent what appeared to be excessive complaining. However, it did lead to a great deal of qualification of discussion. People would often preface their discussions with disclaimers such as "It's not right to complain but ..." or "I'm not as bad off as (so-and-so) but ...." Of course, some of this willingness to act contrary to the stated norm is the result of the interviewers being perceived as people who were both interested and willing to listen to such conversation and
who were people outside the normal range of social interaction. However, observation of conversations of informants with other people suggests that this is not the only factor involved.

Most frequently, lay conferral took place with relatives; fifty-eight (76.3%) of the respondents having said that they had spoken to one or more relatives about their illness. Besides spouses, the relatives with whom discussion most frequently took place were adult children, siblings, and parents, as well as the spouses of children or siblings. From discussion and limited observation, it would seem that one important trigger for such conversation is an actual attack of arthritis. For example, at a barbeque for his family, while cooking the food Mr Thomas experienced a sharp pain in his left shoulder. His daughter-in-law noticed him wince and enquired as to what was the matter. This led to a lengthy discussion about the frequency of attacks and how he attributed the arthritis to prolonged periods of working in the rain some twenty years previously.

Fifty (65.8%) people said that they discussed arthritis with their friends; thus making the this group the next largest category of lay discussants. Several people said if they or a friend happened to be suffering from an attack of arthritis they might mention it in passing and that sometimes the conversation might turn to topics such as the inconvenience it was causing or the treatment they were
currently using. In both Claremont and Lockridge, people who attended Senior Citizens' Clubs said that a common topic of conversation amongst members was the merits of various types of treatment that people were using or had heard about.

In the initial stages of the research, five people were interviewed who either all knew each other directly or who knew two or three people and knew about the others indirectly through them. In the course of the interviews, all said that one of their friends had suggested they take the previously mentioned tablets containing extract of the green-lipped mussel and five of the four said they had actually used them. When the interviews were completed, it was possible to trace the path along which knowledge of the tablets had diffused. The central node in this network was a middle-aged male. This person had been told about the tablets by his sister who had visited him from England where she had heard about them from a hotel porter in London. In turn, the man in Perth had told two of his friends about them; one of whom tried the tablets and one who did not. Subsequently, the person who had used the tablets informed the other two friends about the tablets and they also used them. One of the women in this network told me that they were "all in the same boat" and that they drew a lot of support from each other as well as "exchanging so-called cures."
Especially amongst informants of higher class or status positions, the company of a person who had more than a modicum of knowledge about arthritis was also a stimulus to discussion. Thus, at another barbeque, the presence of the investigator led to a discussion of joint disease and led the host to ask a medical practitioner, who was also a guest, for specific advice on treatment. Similarly, another informant said that she often had general discussions about arthritis with a friend who was a rheumatologist.

People with whom respondents worked, or had worked, formed the third broad category of lay conferees. Twenty-five (32.9%) people said they had discussed their illness with people at work at one time or another. These people were spread throughout the various occupational categories so that there was no one set of people who were more likely to discuss it with workmates than others. However, in at least one instance a person did not regard the workplace as a favorable setting in which to discuss her illness. This particular woman, who lived in Lockridge and who worked as an attendant at a day care center, said that she was afraid to discuss her illness with fellow employees for fear that her employer might retrench her if she was suspected of being disabled in any way.

The fourth category of lay conferees consisted of a miscellany of individuals. In all, fifteen (19.7%) of the respondents reported discussing aspects of their arthritis
with these other lay people. The category included such people as shop assistants, people met while riding on public transport, and casual acquaintances, amongst other people. In one instance, an informant said that whilst she was in the waiting room at the rheumatology clinic at the Queen Elizabeth II Medical Centre, one of the other patients recommended to her that she take large doses of vitamin C for her arthritis.

In about half of all instances in which lay conferral was reported, people said that conversation was centered upon general issues such as current state of health, the restriction of activity or inconvenience that arthritis caused, and comparison of treatments. In the other instances, conversation went beyond such general matters to the recommendation of particular forms of treatments or health-care providers. Although such recommendations were made by only half of the lay persons they had spoken with, because of the pattern of multiple conferrals, forty-one of the sixty-six people who reported lay conferral said that someone had recommended some form of treatment or some kind of practitioner to them. Amongst these people, various treatments had been suggested to twenty-five, health-care providers to twenty-one, and both treatments and providers to four.

Both the types of treatments and practitioners recommended were as varied as those actually used or
consulted. However, the most commonly recommended treatments were folk remedies, which were recommended to fourteen people and used by nine. In all instances, over half of those who indicated that some form of treatment had been recommended to them said that they had used the treatment concerned. Of the health-care providers, general practitioners were the most frequently suggested. Eighteen people said that some lay person had recommended that they consult a general practitioner and thirteen said that such a suggestion had influenced their decision to do so. Other health-care providers were recommended much less frequently and in all instances less than half the respondents claimed to have followed the suggestion made to them. As Table 31 illustrates, not only were relatives and friends more likely to suggest that individuals seek care but, also, their advice was more likely to be followed.

Table 31
Lay Conferral Source by Type of Conferral

<table>
<thead>
<tr>
<th>Source</th>
<th>Type</th>
<th>No conferral</th>
<th>General conferral</th>
<th>Treatment or provider not used</th>
<th>Treatment or provider used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative</td>
<td></td>
<td>18</td>
<td>33</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Friend</td>
<td></td>
<td>26</td>
<td>22</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Workmate</td>
<td></td>
<td>51</td>
<td>14</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Other lay person</td>
<td></td>
<td>61</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>
THE MASS MEDIA.

Amongst those people who had employed some form of self-care, twelve (15.8%) people said that they had used at least one treatment that had been suggested or discussed in the mass media. Of the twelve, five people said they had used liniments which they had heard or seen advertised on radio or television (in four cases television). Four people had tried folk remedies which in three instances they had read about in magazines or newspapers and which, in the fourth case, the person had seen discussed on a television program. These folk remedies included taking epsom salts, cider vinegar, or large amounts of water, and avoiding lemon juice. The other three people had used diets which they had read about in magazines or books. Although the range of treatments that people had learnt about and used directly from media sources did not include any that were not transmitted along social networks, nevertheless it was not as broad.

It is important to bear in mind that this category of people includes only those who acknowledged that the mass media had a direct influence on their choice of self-treatment. No doubt other people had seen and read material from similar sources. However, it is not possible on the basis of the present research to attempt to assess the extent to which that material influenced behavior or reinforced information from other sources. The important
point is, though, that the role of the mass media in disseminating information about certain types of treatment is not insignificant.

**TREATMENT STRATEGIES.**

As was the case with respect to beliefs about arthritis, the most striking aspect of the types and sources of treatment employed by individuals suffering from joint disease was their diversity. Not only were there different arenas of treatment (self-care, alternative, paramedical, medical) but within these arenas there was a variety of practitioners and treatments from which to choose and resort was sometimes made to more than one practitioner of any particular type.

In the Ringwood survey, when examining "patterns of help-seeking," Maddox distinguished simply between "orthodox" and "unorthodox" forms of care and constructed a five category system of classification based on this dichotomy. This categorization and the results are reproduced below with comparative data from the present study. The figures for Perth in column two are based on the same criteria as those used by Maddox. That is, pharmacists were treated as unorthodox practitioners and acupuncturists were not included in either category. For the latter reason, one person in the present study who had consulted only an acupuncturist was not included in column two. When,
as in the present study, pharmacists are regarded as orthodox practitioners and acupuncturists as unorthodox practitioners, the respective percentages are as indicated in column three. Use of this scheme for categorization in the present study was decided against on the grounds that it obscures the range of practitioners consulted, the numbers of each type consulted, and does not include patterns of self-care.

Table 32
Patterns of Help-Seeking

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Ringwood ( n = 646 )</th>
<th>Perth ( n = 75 )</th>
<th>Perth ( n = 76 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthodox throughout</td>
<td>54.5</td>
<td>68.0</td>
<td>71.1</td>
</tr>
<tr>
<td>Unorthodox throughout</td>
<td>0.2</td>
<td>0.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Change from orthodox to unorthodox</td>
<td>34.4</td>
<td>22.7</td>
<td>21.0</td>
</tr>
<tr>
<td>Change from unorthodox to orthodox</td>
<td>5.4</td>
<td>4.0</td>
<td>1.3</td>
</tr>
<tr>
<td>No contact regarding arthritis</td>
<td>5.6</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>Totals</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Source Maddox (1971:3).

What Maddox has called "patterns of help-seeking" are referred to in the present study as "treatment strategies." The latter term is used to describe the selection by the arthritis sufferer of a certain treatment or combination of treatments from the total range of alternatives offered by both lay persons and various types of health-care providers. In the course of analyzing the survey results, two models of
treatment strategies were constructed. In construction of the first model the emphasis was upon the way in which respondents had combined treatments from each of the four broad arenas—that is, self, alternative, paramedical, and medical care. This resulted in the delineation of four treatment strategies. In the construction of the second model, in addition to source of treatment, attention was also directed to whether the self-treatments employed were more or less orthodox and to the numbers of each type of practitioner consulted. In this second analysis, treatments from the four arenas of care were subdivided into eleven dichotomous variables, a matrix of correlations (using Spearman's rho) between them was computed, and the results factor analyzed. On the basis of the factor analysis, seven treatment strategies were delineated. While there was not a one-to-one correspondence between the strategies within each model there was considerable overlap between them—with the second presenting a more fine-grained depiction of the first. Further, the analyses of the relationships between the strategies of each of the models and a range of independent variables produced essentially similar results. For these reasons and because of the parsimonious description it provides, the four category model of treatment strategies will be utilized in the analyses which follow.
In the four strategy model, thirty-three people fell into the category labelled "general practitioner and/or self-care." As the name of the strategy indicates, people in the category were generally those who had confined their health-care seeking activities to consultation with one or more general practitioners and, in two-thirds of the cases, to self-treatment. Variations in this general pattern included three people who had also consulted medical specialists and four people who had confined themselves to self-treatment only. In terms of the range and, to a lesser extent, the numbers of practitioners consulted this was the least inclusive of the treatment strategies. Also, most of those who had confined self-treatment to more orthodox forms of care were found in this category.

The second largest category was that containing those people who had used some combination of medical, paramedical, and self-care. There were twenty-four (31.6%) people in this category, of whom, ten used medical and paramedical sources of care but no form of self-treatment. It is of interest to note that only four people in this category had confined their health-care seeking activities amongst members of the medical profession to only one general practitioner and that ten of them had consulted a medical specialist. Thus, the category was made up of people who had made more inclusive use of orthodox health-care providers.
The third category was made up of nine (11.8%) people, none of whom had utilized treatments from all arenas but who had employed different combinations of them that were not included in the other three categories. Essentially, these people differed from those employing the previous strategy in that all but one had consulted an alternative practitioner. Also, most had not consulted paramedical health-care providers or medical specialists. The category also included three people who had not consulted a general practitioner. Again, in contrast to those who employed the first two strategies, there was also a greater use of unorthodox forms of self-treatment amongst these people.

The fourth category was comprised of ten (13.2%) individuals who had utilized treatments from all four health-care arenas. This category is essentially comprised of the "shoppers" for health-care. Eight of the people in the category had consulted more than one general practitioner, five had consulted a medical specialist, six had used both more and less orthodox forms of self-treatment, and four and three people, respectively, had consulted more than one type of paramedical and alternative practitioner.

To some extent, the people employing strategies one and two can be characterized as those who had confined their health-care seeking activities to more or less orthodox practitioners and forms of treatment. That is, they had
Table 33
Summary of Treatment Strategies

<table>
<thead>
<tr>
<th>Source</th>
<th>G.P. and/or self</th>
<th>Med &amp; paramed</th>
<th>Med &amp; alt</th>
<th>All sources of care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 33</td>
<td>n = 24</td>
<td>n = 9</td>
<td>n = 10</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Self-treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>36</td>
<td>46</td>
<td>44</td>
<td>-</td>
</tr>
<tr>
<td>More orthodox</td>
<td>30</td>
<td>17</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less orthodox</td>
<td>33</td>
<td>17</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>More &amp; less orthodox</td>
<td>-</td>
<td>21</td>
<td>11</td>
<td>60</td>
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<tr>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Alternative practitioner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>100</td>
<td>100</td>
<td>11</td>
<td>-</td>
</tr>
<tr>
<td>One</td>
<td>-</td>
<td>-</td>
<td>67</td>
<td>70</td>
</tr>
<tr>
<td>Two or more</td>
<td>-</td>
<td>-</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>100</td>
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<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Paramedical practitioner</td>
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<td>67</td>
<td>-</td>
</tr>
<tr>
<td>One</td>
<td>-</td>
<td>92</td>
<td>33</td>
<td>60</td>
</tr>
<tr>
<td>Two or more</td>
<td>-</td>
<td>8</td>
<td>-</td>
<td>40</td>
</tr>
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</tr>
<tr>
<td>General practitioner</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>None</td>
<td>12</td>
<td>-</td>
<td>33</td>
<td>-</td>
</tr>
<tr>
<td>One</td>
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<td>20</td>
</tr>
<tr>
<td>Two</td>
<td>27</td>
<td>42</td>
<td>-</td>
<td>30</td>
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<tr>
<td>Three or more</td>
<td>18</td>
<td>37</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td></td>
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<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Medical specialist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>91</td>
<td>56</td>
<td>67</td>
<td>40</td>
</tr>
<tr>
<td>One or more</td>
<td>9</td>
<td>42</td>
<td>33</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

(Errors due to rounding.)
consulted only medical and paramedical practitioners and fourteen of the thirty-four who treated themselves had confined their treatments to forms of care such as heat treatments or to forms of medication that must usually be prescribed by a medical practitioner. On the other hand, in categories three and four, all but one of the nineteen had consulted an alternative health-care provider and all of the fifteen people who had treated themselves had used the less orthodox (patent medicines, folk remedies, etc.) or both more and less orthodox forms of self-care. Also, those people who had consulted three or more general practitioners and those who had consulted more than one type of paramedical practitioner were proportionately over-represented in these latter categories.

SUMMARY.

Although there is no scientifically known cure for most forms of arthritis, at least the progression of both osteoarthritis and rheumatoid arthritis can, to some extent, be controlled and symptomatic relief can be provided. When the types and sources of treatments actually used by arthritis sufferers is examined, the most striking feature about them is their diversity. Substantial proportions of the present study population had sought treatments other than those provided by orthodox medical practitioners and a
sizable minority had made multiple use of the treatment sources available.

No overall figures are available, but according to the Arthritis Foundation, rheumatoid arthritis sufferers wait an average of four years between the initial onset of symptoms and the time they seek treatment (1978:6). In the present study, almost half of those interviewed claimed to have consulted some type of health-care provider within three months of the onset of symptoms. The average period of delay was a little under two years. Unfortunately, however, no independent corroboration of the accuracy of the respondents' recall of this is available. Only four individuals had not consulted any type of health-care provider (although they had treated themselves). Of those who had sought some kind of professional or semi-professional treatment, the vast majority had consulted a general practitioner. In those cases where individuals had consulted other types of health-care providers, the consultations tended to have take place at substantially longer periods after the onset of symptoms.

At the time the interviews were conducted, two thirds of those who had ever consulted a general practitioner had consulted more than one general practitioner about their arthritis. There was a marked relationship between the number of general practitioners consulted and the period of time that had elapsed since treatment was first sought. The
main reasons given for such changes were those of convenience or necessity. However, the overall health-care seeking behavior of a minority of these people suggests some "shopping" for treatment.

Only twelve people had relied solely on the treatments provided by medical practitioners. The most common supplement to the services provided by general practitioners was some form of self-prescribed treatment. This was particularly true of working class people. By far the most popular of these treatments were various forms of heat-treatment, including the use of liniments. However, assorted folk remedies, patent medicines, and diets were also employed.

Almost half of the respondents had consulted some type of paramedical health-care provider. While a small number had sought treatment from pharmacists, the majority had been treated by physiotherapists and a small number by qualified dieticians. Treatment by the latter two types of provider was mainly an adjunct to medical care as is attested to by the fact that most people had been referred to them by medical practitioners. In this respect, use of paramedical services resembled use of specialized medical services. Almost thirty percent of those interviewed had consulted either a rheumatologist or a surgeon; mainly as a result of general practitioner referral. However, despite the fact that both paramedical and medical specialist services were
supplemental to those provided by general practitioners, this did not rule out variations in the numbers of each type of practitioner consulted or the number of types of practitioner consulted.

As is common in many other types of chronic disease a substantial proportion of the research population, almost twenty-five percent, had made resort to the services of alternative health-care providers. Chiropractors were the most commonly used of these practitioners but the services of acupuncturists, naturopaths, iridologists, and a faith healer were also employed.

At the time the interviews were conducted, many people were not utilizing particular treatments or services that they had used in the past. The reasons for this are varied and are compounded by the intermittent nature of the diseases involved. In the case of self-prescribed treatments, greatest satisfaction was expressed with the various forms of heat treatment. On the other hand, the tendency was for many of the folk remedies to be used for short periods and then discarded because of their ineffectiveness.

Satisfaction with health-care providers and their services can be examined at a number of levels. At the level of particular treatments provided, chiropractic manipulation evinced most patient satisfaction. Almost seventy-five percent of those who had received this form of
treatment reported that it had some positive effect. This compares with favorable evaluations of a little over fifteen percent for various treatments provided by naturalistic healers and dieticians. Satisfaction with other forms of treatment provided by practitioners fell between these extremes. The expression of willingness to again consult a particular type of health-care provider was used as a measure of overall satisfaction. Interestingly, this was not simply related to satisfaction with the treatment provided. Whereas only about seventy percent of those who consulted general practitioners expressed satisfaction with the treatment provided, over ninety percent expressed a willingness to consult a general practitioner in the future. In general, although the percentages varied, this was a common pattern.

Although not explored in any great detail, two sources of influence on the choice of treatment or treatment services were noted. A little over eighty-five percent of the respondents indicated that they had discussed their arthritis with some other lay person. Usually, this lay conferral took place with relatives and friends and centered on general issues. However, over half of the study population said that a lay person had recommended some type of treatment or health-care provider (usually a folk remedy or a general practitioner) and many of these people said that they had followed or been influenced by that advice.
The other source of information about treatment was the mass media. Some fifteen percent of the respondents claimed to have used at least one form of treatment recommended or discussed in various media sources.

Respondents had combined forms of treatment and the services provided by different types of health-care providers in various ways. That is, they employed various treatment strategies. For the purposes of the present study, four broad strategies have been delineated. The first and least inclusive strategy was that which involved the use of general practitioner services and self-treatment. The second strategy was more inclusive but still confined to providers of orthodox medical care. That is, in addition to utilization of general practitioner services, many of these people had also consulted medical specialists and paramedical health-care providers about their ailment. The total range of health-care providers consulted by people employing the third strategy was more inclusive than that used by people in the second category. However, at an individual level, people in this category had not generally consulted as many paramedical practitioners and they had placed greater emphasis upon consultation with alternative health-care providers such as chiropractors. The fourth treatment strategy was the most inclusive of all. People employing it had made use—often multiple use—of practitioners from all arenas of health-care. In addition,
over half of them had made use of both the more and less orthodox forms of self-treatment. This latter group of people are those who are often referred to as "shoppers" for health-care. In the following chapter, these treatment strategies will be discussed in more detail and the reasons for the variations in health-care seeking behavior will be analyzed.
CHAPTER VII

DETERMINANTS OF ILLNESS BEHAVIOR

Having delineated a model of the treatment strategies employed by people in the survey population, the next stage of analysis was aimed at exploring the relationship between those strategies and the three main categories of independent variables. Those categories of variables were: the characteristics of the types of joint disease from which the respondents suffered, the various social and demographic variables, and the arthritis sufferers' intersubjective understandings of their illness (that is, the explanatory models they employed). Analysis using the model of treatment strategies as the dependent variable was carried out in several stages.

In the performance of the analyses several statistical procedures were employed, the major ones being discriminant analysis, rank order correlations, and simple cross tabulations. Discriminant analysis is a multivariate statistical technique used to analyze the relationship between a number of independent variables measured at the interval level and a dependent variable measured at the nominal level. As Kerlinger (1979:213 ff) and Nie et al (1975:435) note, the technique has both analytic and classificatory uses. Overall and Klett characterize it
thus;

The method of multiple discriminant analysis results in the reduction of multiple measurements to one or more weighted combinations having maximum potential for distinguishing among members of the different groups. The first canonical variable, or discriminant function is that single weighted composite, which of the possible weighted composites provides maximum average separation between the groups relative to variability within the groups. More precisely, the first canonical variate is that particular artificial composite variable on which the sum of squared differences among group means is maximally great relative to the within-groups variance for the same weighted composite (1972:280).

Using this technique the relationship between the various independent variables and each of the treatment strategies was examined.

As not all of the independent variables were measured at the interval level (a requirement of discriminant analysis) those that were not were "dummied" (Blalock 1972:498-502). In this procedure, all values except one of a nominal level variable are treated as separate variables and, depending upon the criterion used, each case is scored as one or zero on each particular dummy variable.¹ This gives each of the dummy variables the characteristics of an interval level variable. Nie et al indicate in their

¹ "Suppression" of one category of the nominal variable is necessary in situations in which more than one nominal variable is used. If this is not done the least-squares procedure used in analysis breaks down. In the event, no information is lost as the suppressed category forms a basis for comparison with the remaining categories (Blalock 1972:499).
discussion of dichotomous variables that the mathematical requirements of ordering and a distance measure based on equal-sized intervals are satisfied because either order of the variables is acceptable and because "... there is only one interval naturally equal to itself" (1975:6). Dummy variables can be utilized in procedures such as discriminant analysis and multiple regression analysis because as Blalock notes,

... the regression model does not place any restrictions on the ... (independent variables) in terms of their frequency distributions, although we may assume them to be normally distributed (1972:498).

As indicated, the analysis took place in several stages. Using step-wise discriminant analysis (Nie et al. 1975:447) each of the clusters of independent variables was separately examined for its relationship to the treatment strategies. An advantage of step-wise discriminant analysis is that if the independent variables are closely interrelated the computerized procedure will cause the variable which most clearly separates the groups under consideration (in this case the people utilizing the various treatment strategies) to be retained and the others to be deleted from the analysis. After each cluster of independent variables had been examined for its relationship to the treatment strategies, those variables from each cluster which explained a significant amount of the variance were selected out and used in a further discriminant
analysis of the model. The discriminant functions derived from this latter analysis explained the variance in health-care seeking behavior which was due to the combination of the most important variables from each of the major clusters.

Examined in the first stage of analysis were the relationships between treatment strategies and the etic diagnoses, the period of time since the onset of symptoms, the degree of disability an individual had incurred as a result of arthritis, the number of sites in which the individual had experienced arthritic involvement, and the specific clusters of sites ever involved. The latter two variables were included in the analysis on the basis of the reasoning that, logically, they may be independent of the degree of disability suffered but might affect the type of treatment sought. For the purposes of this analysis, the sites in which individuals had ever experienced involvement were divided into five clusters: those of the lower limbs, including the hips, knees, ankles, and the joints of the feet; the joints of the back; the joints of the hands and wrists; the joints of the upper limbs, that is, the elbows and shoulders; and other sites including soft tissue. In the process of analysis the number of sites ever involved was deleted in the calculation of the discriminant functions. That is, it did not significantly add to the
ability to "predict" the use of strategy when the other variables were taken into account.

In the second stage of the analysis, the relationship between various demographic and socioeconomic variables and the treatment strategies was examined. Those independent variables included age, sex, suburb of residence (as a proxy measure of access to, and availability of, health-care services), level of education, approximate per capita income, health insurance cover, and access to the use of a motor vehicle. Also included in this category of variables were social class, socioeconomic status, and religious affiliation. The latter variable has both ideational and social aspects; on the one hand it reflects a person's beliefs, and on the other, his or her membership in a broad category within society.

Variables from this category found to have little value in discriminating between people who had employed the different treatment strategies were: religious affiliation, level of education, approximate per capita income, suburb of residence, and health insurance cover. However, there were significant relationships between some of these variables and both social class and social status. Whether or not a person had health insurance cover was associated with his or her approximate per capita income ($\chi^2_{d.f.}= 4.06 \ p< .05$) which, in turn was significantly associated with social class ($\chi^2_{d.f.}= 7.51 \ p< .05$) and socioeconomic status.
Educational level was also significantly related to social class position ($\chi^2_{d.f.3} = 7.89, p < .05$). Like these other variables, suburb of residence was significantly associated with both social class ($\chi^2_{d.f.2} = 5.99, p = .05$) and social status ($\chi^2_{d.f.3} = 11.42, p < .05$). This means that using either social class or social status in analysis controls for the effects of these other variables.

In the next stage of analysis, the most important variables from each of the previous stages were combined along with dummy variables based on the explanatory models and a further discriminant analysis was performed. In the previous analyses, of those variables which were found to be correlated with the treatment strategies, not all of the dummy variables based upon them were included in the calculation of the discriminant functions. Thus for example, in the discriminant analysis using the disease characteristics, only one of the dummy variables derived from the variable diagnosis was included in the calculation of the functions. However in the final analysis which incorporated independent variables from each category, all dummy variables derived from a particular variable, such as diagnosis, were included.

The results of the discriminant analysis in which the independent variables from the three categories were combined are presented in Table 34. The variables listed in
the table are those retained after step-wise analysis had been completed and it is they which "explain" the most significant proportion of the variance in the dependent variable--treatment strategies. The canonical discriminant function coefficients which accompany the variables are standardized weights which indicate the positive or negative contribution that a particular variable makes to each of the discriminant functions. As Nie et al (1975:436) indicate, the interpretation of these coefficients is analogous to the interpretation of beta weights in multiple regression analysis.

Table 34
Discriminant Analysis of Treatment Strategies

<table>
<thead>
<tr>
<th>Funct.</th>
<th>Eigen value</th>
<th>% of Total</th>
<th>% Cum.</th>
<th>Can. corr.</th>
<th>After Wilk's lambda</th>
<th>Wilk's lambda</th>
<th>X²</th>
<th>D.F.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.64</td>
<td>50.4</td>
<td>50.4</td>
<td>.62</td>
<td>0</td>
<td>.36</td>
<td>68.01</td>
<td>36</td>
<td>.00</td>
</tr>
<tr>
<td>2</td>
<td>.51</td>
<td>40.4</td>
<td>90.8</td>
<td>.58</td>
<td>1</td>
<td>.59</td>
<td>95.02</td>
<td>22</td>
<td>.03</td>
</tr>
</tbody>
</table>

Standardized canonical discriminant function coefficients.

<table>
<thead>
<tr>
<th>Funct 1</th>
<th>Funct 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petty bourgeois class</td>
<td>0.38</td>
</tr>
<tr>
<td>Working class status</td>
<td>-0.16</td>
</tr>
<tr>
<td>Access to a vehicle</td>
<td>-0.31</td>
</tr>
<tr>
<td>Age</td>
<td>-0.35</td>
</tr>
<tr>
<td>&quot;Arthritis 1&quot;</td>
<td>-0.53</td>
</tr>
<tr>
<td>&quot;Arthritis 2&quot;</td>
<td>-0.45</td>
</tr>
<tr>
<td>&quot;Rheumatoid arthritis&quot;</td>
<td>-0.48</td>
</tr>
<tr>
<td>Disability score</td>
<td>0.36</td>
</tr>
<tr>
<td>Years since onset</td>
<td>0.65</td>
</tr>
<tr>
<td>Lower limb site cluster</td>
<td>-0.26</td>
</tr>
<tr>
<td>Upper limb site cluster</td>
<td>0.67</td>
</tr>
<tr>
<td>Diagnosis - osteoarthritis</td>
<td>0.71</td>
</tr>
</tbody>
</table>

Canonical discriminant functions evaluated at group means.

<table>
<thead>
<tr>
<th>Funct 1</th>
<th>Funct 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>General practitioner and/or self</td>
<td>-0.71</td>
</tr>
<tr>
<td>Medical and paramedical care</td>
<td>1.08</td>
</tr>
<tr>
<td>Medical and alternative care</td>
<td>0.05</td>
</tr>
<tr>
<td>All sources of care</td>
<td>-0.34</td>
</tr>
</tbody>
</table>
The categories of people employing the treatment strategies were not distinguished from each other on only one dimension or by one particular weighted combination of the independent variables. Thus, it was necessary (as is often the case) to compute more than one discriminant function to explain the variance. The first discriminant function is the one which accounts for most of the separation between the categories. The second discriminant function is that combination of the variables which then explains as much as possible of the remaining amount of variance accounted for by the variables under consideration. In Table 34, the eigenvalues and their associated percentages indicate the proportion of the variance explained by the independent variables which is associated with each function. Thus, function one accounts for 50.4 percent of that variance and function two for 40.1 percent. Another function could be calculated to account for the remaining variance explained by the variables but its contribution would not be statistically significant.

The canonical correlations shown in Table 34 are similar in nature to the value of "r" in multiple regression analysis. They are measures of the correlation between the treatment strategies and the discriminant functions. As in the case of "r" the squared value of the canonical correlation denotes the amount of variance in the treatment strategies that is "explained" by the particular
discriminant function. Thus, the first two discriminant functions derived in the analysis account for seventy-two percent of the variance in the treatment strategies (that is, \(0.62^2 + 0.58^2 = 0.72\)). As indicated by the value of Wilks' lambda (0.89) and its associated chi-square value (\(\chi^2_{d.f.10=7.61}\)), the remaining amount of variance in the treatment strategies explicable by subsequently derived combinations of the variables under consideration would not be statistically significant at the .05 level (sig .67).

Before describing and discussing the results of the statistical analyses, it is necessary to inject a note of caution. The apparent precision of mathematical analyses of sociocultural phenomena can sometimes be misleading. The precision of the results is a direct function of the precision of the measurement of the phenomena. As has been indicated, measurement of many of the variables in the present study is subject to some degree of error. For example, it was noted that the etic diagnoses made for the purposes of the study cannot be considered the equivalent of clinical diagnoses, and that some errors of classification may have occurred. Thus, results which are based upon measures which are subject to error are themselves subject to error. Attempts have been made to keep such errors to a minimum. However, it should be borne in mind that when it is stated, for example, that variables under consideration "explain seventy-two percent of the variance" in treatment
strategies, this should be regarded as a broad approximation, albeit a carefully considered one, rather than an exact description of the phenomena.

TREATMENT STRATEGIES.

General Practitioner and/or Self-care. As indicated in Chapter VI, category one in the first model of treatment strategies was comprised of those people who had confined their health-care seeking activities to consultation with general medical practitioners and/or had used some form of self treatment. Most people who employed this strategy were diagnosed as suffering from osteoarthritis. The major difference between these people and those who used the other treatment strategies was the smaller proportion of them diagnosed as probably suffering from rheumatoid arthritis—three percent compared to about 11.5 percent in the other categories.

The average amount of time that had elapsed since the onset of their symptoms was 14.1 (s.d. 11.3) years amongst people in this category. Thus, along with those respondents in the third category, who had utilized medical and alternative forms of care, they were the people who had suffered from arthritis for the shortest periods of time.
Table 35

Treatment Strategies by Etic Diagnoses

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Insuff info</th>
<th>Prob osteo</th>
<th>Indet or other</th>
<th>Prob R.A.</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self care</td>
<td>3</td>
<td>24</td>
<td>5</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td>-</td>
<td>19</td>
<td>2</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>All sources of care</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td>6</td>
<td>54</td>
<td>10</td>
<td>6</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 36

Treatment Strategies by Years Since Onset

<table>
<thead>
<tr>
<th>Strategy</th>
<th>LE 4</th>
<th>5--9</th>
<th>10--19</th>
<th>GE 20</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self care</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>11</td>
<td>33</td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>All sources of care</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td>17</td>
<td>13</td>
<td>16</td>
<td>30</td>
<td>76</td>
</tr>
</tbody>
</table>

Generally speaking, people in this category had less arthritic involvement in all clusters of joints or sites. Similarly, they had the lowest mean number of sites ever involved ($\bar{x} = 6.8$ s.d. 5.2). This minimal involvement of most clusters of sites was particularly marked with respect to the sites of the upper limbs; that is, the elbows and shoulders. Apart from the "other" category of site cluster involvement, the upper limbs were the sites of least
reported involvement amongst people who had used only "general practitioner and/or self-care." That there was a negative correlation between involvement of the upper limbs and membership of this category (see Table 34) and that this served to distinguish these people from people in other categories is a reflection of the lesser degree of severity that they suffered.

Table 37
Treatment Strategies by Clusters of Sites Involved

<table>
<thead>
<tr>
<th>Site cluster Strategy</th>
<th>Lower limbs</th>
<th>Back</th>
<th>Hands</th>
<th>Upper limbs</th>
<th>Other sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self care</td>
<td>24</td>
<td>18</td>
<td>22</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td>18</td>
<td>16</td>
<td>13</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>All sources of care</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>59</td>
<td>50</td>
<td>48</td>
<td>44</td>
<td>9</td>
</tr>
</tbody>
</table>

The people who restricted their health-care seeking activities to consultation with general practitioners and/or self-treatment were the least disabled by arthritis. They had the lowest mean score on the Index of Disability (10.3 s.d. 3.3). Of the thirty-three respondents in the category, nineteen (57.6%) experienced no disability at all and only one (3.0%) person suffered moderate to severe disability.
Table 38
Treatment Strategies by Index of Disability

<table>
<thead>
<tr>
<th>Disability Strategy</th>
<th>None</th>
<th>Mild</th>
<th>Mod to Severe</th>
<th>Totals</th>
<th>X</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self</td>
<td>19</td>
<td>13</td>
<td>1</td>
<td>33</td>
<td>10.30</td>
<td>3.28</td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td>7</td>
<td>9</td>
<td>8</td>
<td>24</td>
<td>12.04</td>
<td>3.25</td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>9</td>
<td>11.44</td>
<td>2.60</td>
</tr>
<tr>
<td>All sources of care</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>10</td>
<td>12.00</td>
<td>2.40</td>
</tr>
<tr>
<td>Totals</td>
<td>31</td>
<td>32</td>
<td>13</td>
<td>76</td>
<td>11.21</td>
<td>2.59</td>
</tr>
</tbody>
</table>

Table 39
Treatment Strategies by Age

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>LE 49</th>
<th>50--59</th>
<th>60--69</th>
<th>GE 70</th>
<th>Totals</th>
<th>X</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>16</td>
<td>33</td>
<td>66.2</td>
<td>14.5</td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>24</td>
<td>67.9</td>
<td>10.7</td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>9</td>
<td>59.2</td>
<td>12.6</td>
</tr>
<tr>
<td>All sources of care</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>56.6</td>
<td>16.7</td>
</tr>
<tr>
<td>Totals</td>
<td>12</td>
<td>12</td>
<td>21</td>
<td>31</td>
<td>76</td>
<td>64.6</td>
<td>13.8</td>
</tr>
</tbody>
</table>

The individuals in the present category comprised an older segment of the survey population. Their mean age was 66.2 (s.d. 14.5) years. Only four (12.2%) of the thirty-three were aged less than fifty; whereas eight (24.2%) were in the sixty to sixty-nine year age group and sixteen (48.5%) were aged seventy or over. As the effect of age in the choice of treatment strategy is of particular
importance in combination with other variables its significance will be discussed below.

There was a negative correlation between utilization of the "general practitioner and/or self-care" strategy and being a member of the petty bourgeoisie. Although, overall, the petty bourgeoisie made up 21.3 percent of the survey population they comprised only 9.4 percent of those employing this strategy. On the other hand, the proportion of working class respondents in the category (18 or 56.3%) was larger than the overall proportion of working class people. However, that proportion was approximately the same as the proportion in all the treatment strategy categories except the second; that is, except amongst those who used "medical and paramedical care."

Table 40
Treatment Strategies by Social Class

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Class</th>
<th>Petty Bourgeoisie</th>
<th>Managerial</th>
<th>Working</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self care</td>
<td>3</td>
<td>11</td>
<td>18</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td>9</td>
<td>9</td>
<td>6</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>All sources of care</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>16</td>
<td>24</td>
<td>35</td>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

With respect to socioeconomic status, there were two characteristics of this category of people. The first was
the under representation of people from the old middle class. Whereas people from the old middle class comprised twenty percent of the total population, only three (9.4%) of them were represented amongst people in the present category. Secondly, there was an over representation of people of working class status who had employed the strategy. Nine people or 28.1 percent were from the latter socioeconomic status level compared to 17.3 percent in the total research population.

Table 41
Treatment Strategies by Socioeconomic Status

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Upper middle</th>
<th>Old middle</th>
<th>Middle class</th>
<th>Working class</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self care</td>
<td>5</td>
<td>3</td>
<td>15</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td>5</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>All sources of care</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td>14</td>
<td>15</td>
<td>33</td>
<td>13</td>
<td>75</td>
</tr>
</tbody>
</table>

Unlike many other variables, such as suburb of residence and health insurance cover, there was no statistically significant relationship between access to use of a motor vehicle and either social class ($\chi^2_{d.f.2}=0.64$ p>.05) or socioeconomic status ($\chi^2_{d.f.3}=1.25$ p>.05). This is a reflection of the importance of private transportation in Perth which was discussed in Chapter III. Amongst those
people who utilized only "general practitioner and/or self-care," almost half (16 or 48.5%) did not have access to a motor vehicle. Thus along with those people in the second diagnostic category, they were amongst the least mobile segment of the research population.

Table 42
Treatment Strategies by Motor Vehicle Access

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Access</th>
<th>No</th>
<th>Yes</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. &amp;/or self care</td>
<td></td>
<td>16</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>Med &amp; paramed care</td>
<td></td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Med &amp; alt care</td>
<td></td>
<td>33</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>All sources of care</td>
<td></td>
<td>1</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>32</td>
<td>44</td>
<td>76</td>
</tr>
</tbody>
</table>

As the discriminant function coefficients indicate, a considerable proportion of those people who employed the model "Arthritis 1" to explain their illness were users of "general practitioner and/or self care." Essentially, the main characteristics of the beliefs of these people were orthodox views about etiology and uncertainty about the possibility of cure and control of their affliction. Also the three individuals who subscribed to the set of beliefs and knowledge characterized as "Rheumatoid arthritis" had all employed this strategy. Again, this was one of the more orthodox explanatory models in that while the knowledge of
these people was not extensive, it did include more or less orthodox beliefs about etiology and the possibility of cure and control. All of the other explanatory models except "Osteoarthritis 2" were elicited from the respondents who used this strategy. However, as was generally the case, none of the relationships between them appear to be particularly noteworthy.

Table 43

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Ath1</th>
<th>Ath2</th>
<th>Ath3</th>
<th>Ath4</th>
<th>Ath5</th>
<th>Ath6</th>
<th>G-A1</th>
<th>G-A2</th>
<th>R.A.</th>
<th>Other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P. self</td>
<td>9</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>Med &amp; pare</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>Med &amp; alt</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>All sourc.</td>
<td>3</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td>17</td>
<td>15</td>
<td>11</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>76</td>
</tr>
</tbody>
</table>

**Medical and Paramedical Care.** The second category was comprised of those people who had utilized the services of orthodox medical practitioners and paramedical health-care providers. Additionally, a little over half of the people in the category had treated themselves and a little less than half had consulted medical specialists. As in all but the third category of treatment strategies, the most common diagnosis was that of "probably osteoarthritis." Nineteen (79.2%) of the twenty-four people who used this strategy
were thus diagnosed. In contrast to the other treatment strategy categories, no one who had employed this strategy was included in the diagnostic category "mild or insufficient information." Also, the category had the smallest proportion of people in the "indeterminate" diagnostic category. That there was less difficulty encountered in assigning most of these individuals to one of the major diagnostic categories is a reflection of the relatively well developed nature of their diseases, both in terms of clearly patterned sets of symptoms and in terms of severity.

Amongst the people in this category the mean number of years elapsed since the onset of symptoms of arthritis was 19.5. This meant that, on the average, these people had suffered from arthritis for longer periods of time than those who had employed either the first or third treatment strategies. Although this average period was only a little less than the 20.7 year mean amongst those who had made use of "all treatment sources" there was a greater dispersion about the mean in the present category. Fifteen or 62.5% of the twenty-four people had suffered from arthritis for more than ten years. This was proportionately more than amongst those who used the first (54.5%) and third (55.5%) strategies but less than amongst those who utilized the fourth (80%).
As Table 37 indicates, the people in the present category generally suffered from greater involvement of the various clusters of sites than did those who relied solely on "general practitioner and/or self-care," but less than those in categories three and four. The mean score on the Index of Disability of people in this group was almost the same as amongst those utilizing "all sources of care." However, there was more dispersion of their scores about the mean and a larger proportion of them experienced no disability than did people who used the fourth strategy.

Category two was comprised of respondents who were, on the average, older than people employing the other treatment strategies. Their mean age was 67.9 (s.d. 10.7) years. Nineteen (79.1%) people in the category were more than sixty years old compared to twenty-four (72.7%) in category one and only five (55.5%) and four (40.0%) in categories three and four. Conversely, only one person in the category was aged less than fifty.

The combination of "medical and paramedical care" was the strategy favored by the petty bourgeoisie. Nine (37.5%) of the respondents who had employed the strategy belonged to that social class, compared to an overall proportion of 21.3 percent. These nine people made up 56.3 percent of that social class. Whilst there was also a slightly higher than average proportion (37.5%) of people from the managerial class in the category, the percentage of working class
respondents who utilized these sources of care was markedly smaller (25%). This pattern of social class involvement was reflected in the socioeconomic status of respondents in the category. There was a relatively high percentage (nine people or 37.5%) of old middle class people and proportionately lower numbers of middle mass (7 or 29.2%) and working class (3 or 12.5%) status respondents.

As were the people who used only "general practitioner and/or self-care," those using the present strategy were part of the less mobile segment of the survey population. Within the category there was an equal division between those people who had, or members of whose household had, regular access to the use of a motor vehicle and those who did not.

Like the respondents in category one, the people in category two used a wide variety of explanatory models to explain their illnesses. However, over half (54.2%) of the respondents held the set of beliefs that have been labelled "Arthritis 2," "Arthritis 3," and "Arthritis 4." The last is perhaps the most biomedically orthodox of the lay explanatory models of "arthritis" and, as indicated, is a model associated with better educated people from the higher class and status levels. The model "Arthritis 3," on the other hand, is one characterized by limited knowledge and is one that tended to be held by people with less severe cases of joint disease.
Medical and Alternative Care. The third category consisted of people who had used the services of medical practitioners and, usually, alternative health-care providers. The people in this category differed from those in category two in their use of the latter and their more restricted use of paramedical practitioners. The latter characteristic also served to distinguish them from people in the fourth category.

Although the numbers are small, it appears that one of the differences between this and the other strategies is the pattern of etic diagnoses with which it is associated. In proportionate terms, there were fewer people who were diagnosed as probably having osteoarthritis and more in the "mild or lack information" and "indeterminate" diagnostic categories. This is partly a reflection of the recent onset of joint disease amongst some of these people.

The mean length of time elapsed since the onset of symptoms amongst those who had used the strategy was 14.2 (s.d. 11.6) years. In this respect, the respondents were almost identical with those people who had used only "medical and/or self-care." However, although of relatively recent onset, seven of the nine respondents had experienced symptoms of joint disease in at least three clusters of sites. The most commonly involved of these site clusters were those of the back and the hands and wrists. Whilst the mean number of site clusters involved per person (3.1) was
slightly less than amongst people in the fourth category (3.3), the people in this category had the highest mean number of sites ever involved ($\bar{X} = 10.7$ s.d. 6.6). Six (66.7%) of the nine people in the category had experienced arthritic involvement at nine or more sites. This compared with 33.4, 50.0, and 40.0 percent of those in categories one, two, and four who had experienced similar levels of joint involvement.

Whilst respondents in the third treatment strategy category had experienced involvement of a broad range and large number of sites, this involvement had resulted in moderate levels of disability. The mean score of these people on the Index of Disability was 11.4 (s.d. 2.6). Three (33.3%) of the nine people in the category experienced no disability at all and four (44.4%) suffered only a mild degree. Thus, they experienced less disability as a result of their arthritis than did people in either category two or four. However, in this respect it must be remembered that generally their arthritis had less time to develop.

The mean age of the survey respondents in this category was 59.2 years (s.d. 12.6). Therefore they were a younger segment of the study population than those people who used the first and second treatment strategies. Although the average age of these people was more than that of the people in the fourth category, the range of ages was not as great as amongst people in that category.
Only one person from the managerial class utilized this treatment strategy. Thus, people of that class are, in proportionate terms, under-represented. However, given the small number of people in the category this is most likely to be a chance phenomenon. Apart from that, there are no marked differences amongst these people with respect to either social class or socioeconomic status.

As amongst the people who utilized all treatment sources, access to the use of a motor vehicle was an important element in the choice of the present treatment strategy. Whereas half of the respondents who had used the first two strategies had access to a motor vehicle, six (66.7%) of the nine people who used this strategy did so.

Six of the nine people who employed the treatment strategy used the explanatory models "Arthritis 1" and "Arthritis 2." The latter is perhaps the least orthodox of the explanatory models. As both Tables 34 and 43 indicate, people holding the latter views are proportionately over-represented amongst those utilizing the less orthodox forms of care: that is, amongst those who employed the present strategy and "all sources of care."

All Sources of Care. The final category in the four category classification of treatment strategies was comprised of individuals who had made use of orthodox medical practitioners, paramedical and alternative health-care providers, and both orthodox and unorthodox
forms of self-treatment. In addition, most had consulted several medical practitioners and some had consulted several (or several types) of paramedical health-care providers. It was in this category that those people who could be regarded as "shoppers" for health-care were located.

The ten people who used this strategy were distributed throughout the etic diagnostic categories in more or less the same proportions as in the research population as a whole. Seven of them were diagnosed as probably having osteoarthritis and there was one person in each of the other diagnostic categories.

The mean number of years elapsed since the onset of symptoms amongst people in this category was 20.7 (s.d. 14.1). This made them the group who had suffered from arthritis for the longest period of time. Although the mean period for people in this category was only 1.2 years longer than for people who used "medical and paramedical care," there was greater dispersal about the mean in the latter category. Thus, fifteen or 62.5 percent of people in category two had suffered from arthritis for over ten years compared to eight of the ten people in the present category.

As a group, the people who employed this treatment strategy had greater than average involvement of all clusters of sites except the hands and wrists. All of the ten had some lower limb involvement and eight of them had involvement of the joints of the vertebrae and/or sacrum.
Although this involvement was widespread in terms of location, in terms of the average number of sites ever involved (9.0) the involvement was similar to that amongst people in category two (9.3) and a little more restricted than amongst people in the third category (10.7).

While their mean score on the Index of Disability ($\bar{X} = 12.0$ s.d. 2.4) was similar to the mean of people in the second category (12.0 s.d. 3.2), their scores were less dispersed about the mean. Thus, although there were two people who suffered no disability, this group was generally the most severely affected as a consequence of arthritis.

The mean age of the people in this fourth treatment strategy category was 56.6 (s.d. 16.7) years. This made them, on the average, about ten years younger than the people in the first two categories. They were also slightly younger than the people in category three. However, there was a greater range of ages amongst people in this category. This meant that while a greater proportion of them were aged fifty or less, a larger proportion than in the third category were aged more than seventy.

Taking into account the small numbers, there appear to be no particular associations between use of this treatment strategy and either social class or socioeconomic status. People from the various classes and status groups had used the strategy in more or less the same proportions as they were found in the study population as a whole. The people
who had employed this widest range of treatments and treatment sources were also those who were the most mobile. Of the ten people in the category nine had access to a motor vehicle.

ANALYSIS.

In distinguishing between people who had employed the various strategies, characteristics of the joint diseases from which they suffered were of major importance. These characteristics were the type of joint disease (that is, the etic diagnoses), the period of time elapsed since the onset of symptoms, the particular clusters of joints or sites involved, and the degree of disability suffered as a result of arthritis.

The etic diagnoses were relatively important in discriminating between people utilizing the various strategies. However, as those diagnoses are only approximations of clinical diagnoses, care needs to be exercised in interpreting them as reflecting specific disease entities which contribute to the determination of treatment strategy. Based as they are on the reports of symptoms elicited from the respondents, the etic diagnoses are important summary measures of the reported disease characteristics. Actually, the etic diagnostic categories are as much a reflection of the severity of disease as they are of factors such as etiology and pathology. In fact, the
first of the "diagnostic" categories is not that at all. Rather, it is comprised of individuals who have had such mild and restricted symptoms that it was not possible to assign a probable diagnosis to their arthritis. Similarly, the third diagnostic category is comprised of individuals who had relatively more severe forms of arthritis but whose symptoms were of such an ambiguous nature that a diagnosis was not possible. In the case of the two categories of people who were given tentative diagnoses, those classified as probably having rheumatoid arthritis suffered more severely than those diagnosed as probably having osteoarthritis (see Table 16). This is partly reflected in Table 19 which shows that in each successive diagnostic category respondents experienced greater degrees of disability. Given, then, the imprecision of the first and third diagnostic categories and the close correspondence between all of the diagnostic categories and scores on the Index of Disability, in the interpretation of their relationship to health-care seeking behavior the diagnostic categories are probably best regarded as reflections of the severity of disease.

As well as the etic diagnoses, the actual clusters of sites in which they had experienced the symptoms of joint disease was of some importance in discriminating between the users of the strategies. Specifically, the fact that twenty (60.6%) of the thirty-three people who used the first
strategy had no arthritic involvement of the upper limbs and that all of those who used the fourth strategy had involvement of the lower limbs helped to distinguish between members of those categories. As indicated, this is in large part a reflection of severity. In addition to this, the mean number of clusters of sites involved increased from the least to the most inclusive of the treatment strategies.

The third disease characteristic which played a role in distinguishing the individuals who had employed each of the four treatment strategies was the level of disability incurred. There was a statistically significant correlation ($\tau = .24$ sig .01) between score on the index of disability and the choice of treatment strategy. That is, the most severely disabled tended to utilize the most inclusive strategies.

When considered in isolation, the relationship between the number of years elapsed since the onset of symptoms and the treatment strategy employed appears to be of little significance ($\tau = .12$ sig .10). However, as the value of its canonical discriminant function coefficient indicates, its role was nonetheless quite important. The reason for this is that the effect of this variable is modified by others. Generally speaking, the longer a person had suffered from arthritis, the wider was the range of treatments and treatment sources employed. However, this pattern is partly disguised by the fact that when onset was
abrupt and/or there was relatively rapid progression of a
disease people also made resort to more inclusive treatment
strategies. This latter situation is exemplified by the
people who employed the third treatment strategy—"medical
and alternative care."

As indicated in Chapter VI the number of general
practitioners consulted was associated with increasing
periods since the onset of symptoms and was largely a
consequence of practical necessity. That is, over the
relatively long periods involved many of the respondents had
changed their physician due to factors such as changes in
their place of residence or the retirement or death of a
physician. However, as the data presented above
indicates—especially amongst those people utilizing "all
sources of care"—there were reasons for such change that
were not verbalized by respondents. Some of those people
who had consulted several general practitioners (as well as
employing other sources of treatment) fall into the category
of people who are often referred to as "shoppers" for
health-care. This term sometimes invokes the negative
connotation of someone who, for no good reason, wastes the
time of already over-worked physicians. At least within the
present survey population, though, these "shoppers" appear
to be amongst those people with more severe cases of
arthritis—people hoping to find relief from a painful and
disabling problem.
It was certain characteristics of the diseases (that is, severity plus period since onset) which explained the greatest proportion of variance in the treatment strategies. When separate discriminant analyses were performed using those disease characteristics found to have the highest predictive ability in the original analysis, they were found to explain .34 of the variance in strategy.

In the course of analysis, a range of demographic, social and economic variables were examined for their association or correlation with the various treatment strategies. Using cross-tabulations and appropriate tests of significance (generally chi-square and lambda) and/or non-parametric correlation statistics such as Kendall's tau, the relationships of each of the variables to the treatment strategies were individually examined. These independent variables included; age, sex, religion, country of birth, suburb of residence, approximate annual income, level of education, access to a motor vehicle for transportation, whether or not the respondent was covered by health insurance, social class, and socioeconomic status.

Of these variables, sex religion, and country of birth showed no significant relationship to the patterns of treatment employed by the survey respondents. In the case of the simple dichotomous variable, sex, the sample size was sufficiently large for confidence to be expressed in the validity of the result. However, because many religious and
ethnic groups were not represented in the research population and because the numbers of some that were represented were small, the results are best regarded as inconclusive. The role of these latter variables would best be explored using a larger, stratified sample.

There was a significant negative correlation between age and the choice of treatment strategy ($\tau = -0.17$ sig .02). Generally speaking, the younger respondents had employed the most inclusive strategies. Thus, those utilizing the strategies "medical and alternative care" and "all sources of care" were from the youngest segment of the survey population. Alone, this variable explained .09 of the variance between strategies. However, in conjunction with those variables measuring the severity of joint disease and the period since onset, its role was of considerable importance.

There are both pragmatic and ideational facets to the role of age as a contributing factor to the use of particular treatment strategies. Two middle-aged respondents from Lockridge, for example, were particularly concerned about the threat that arthritis posed to their wage earning abilities. Their search for effective treatment was a response to this immediate threat to the economic well-being of their families who were dependent upon them. On the other hand, at a more general level, arthritis tends to be regarded as a disease of "old age" and
some of the younger respondents were concerned to have been stricken by it at what they considered to be an early age. To what extent such beliefs are rooted in concerns such as those specifically expressed by the respondents mentioned above and to what extent they are independent aspects of people's beliefs about "arthritis" it is not possible, at this juncture, to say.

The variable suburb of residence was included in the analysis as a proxy measure of proximity to treatment sources and services. There was little difference in the distances respondents from either suburb had to travel to obtain the services of a general practitioner or a physiotherapist. However, in order to consult a medical specialist such as a rheumatologist, or an alternative health-care provider such as a chiropractor or naturopath, Lockridge residents had to travel greater distances. Despite this, there was no strong direct relationship between suburb of residence and treatment strategy. Area of residence was, however, significantly associated with social class and socioeconomic status; both variables which were related to the types of practitioner consulted and which made an important contribution to the discriminant functions. As indicated in Chapter III, social class is an important determinant of where individuals reside in cities. What the relationship of these variables suggests is not that proximity played no role at all in the treatment
strategy a person employed to deal with arthritis, but that
this was a secondary aspect of social class position.
Further, its role was modified (as will be discussed later)
by whether or not a person had access to the use of a motor
vehicle; a variable which, at least in the survey
population, was not directly related to class position.

As in the case of suburb of residence, the rank order
correlations between education and income and treatment
strategy were not significant at the .05 level. However, as
would be expected, both education and approximate annual
income were associated with social class position.
Similarly, there was a statistically significant
relationship between income and socioeconomic status.²
Thus, like suburb of residence, the contribution of income
and education to treatment strategy is subsumed by social
class and status.

Whether or not a person had access to a motor vehicle
($\chi^2_{d.f.1} = 4.54 \ p < .05$) or had health insurance cover
($\chi^2_{d.f.1} = 4.06 \ p < .05$) were both significantly related to
approximate annual income. However, despite this
relationship, neither of these variables were significantly
related to social class or social status. This reflects the
fact that although income is related to both class and

² Education was one of the variables used to assess
socioeconomic status and therefore cannot be independent of it.
status, the relationships are not particularly strong. (In each instance the value of asymmetric lambda equalled .08 and .09.) This, itself, is a consequence of the situation in the survey population in which many of the respondents are retired and thus receive lower incomes than people of lower class or status position. The association between income on the one hand and class and status on the other was sufficiently strong, though, that in the calculation of the discriminant functions when class and status were taken into account neither income nor health insurance added anything significant to the ability to predict which treatment strategy a person would employ.

While access to the use of a motor vehicle was related to income in the same way that health insurance was, it played a more independent role. There was a statistically significant relationship between access to a motor vehicle and treatment strategy. Nine of the ten people who utilized "all sources of care," had access to a motor vehicle; as did six of the nine who employed the "medical and alternative care" strategy. These figures compare to seventeen (51.5%) of those relying upon "general practitioner and/or self-care" and twelve (50.0%) of those using "medical and paramedical care."

The rank order correlation between social class and treatment strategy ($\tau = .09$ sig .18) was not in itself significant at the .05 level. However, like the variable
years since the onset of symptoms, its role was confounded by other factors and in combination with other variables it did play a relatively important role in discriminating between individuals who employed the various treatment strategies.

The results of the discriminant analysis of treatment strategies—presented in Table 34—indicate that the dummy social class variable petty bourgeoisie had a canonical coefficient to .38 in the first discriminant function and -.17 in the second. As can be seen from the group means, there is thus a strong positive relationship between membership of that class and utilization of the "medical and paramedical care" strategy and a negative one between it and the "general practitioner and/or self care" strategy. Conversely, as Table 40 illustrates, when these two strategies are compared, working class respondents tended to employ the latter strategy while members of the managerial class fell between these extremes.

What these results indicate is that use of strategies one and two (that is, the most orthodox and/or least inclusive strategies) are class related. Amongst members of the petty bourgeoisie the tendency was to utilize all of the available orthodox forms of care. As a class, they had not restricted themselves to self-treatment or that provided by general practitioners. Respondents from the managerial class had used a more limited range of treatment sources
than had the petty bourgeoisie. A number of them had relied solely upon orthodox forms of self-treatment and consultation with one general practitioner. Others had used the full range of orthodox sources of care but, unlike respondents from the petty bourgeoisie, had consulted fewer general practitioners.

Significantly, the range of treatment sources employed by working class people was more restricted than that of either the petty bourgeoisie or the managers. The most important strategy employed by them was consultation with one general practitioner and use of the less orthodox (and generally less expensive) forms of self-treatment. Of all the social class groups, working class respondents formed the highest proportion using only self-treatment and consultation with a general practitioner. On the other hand there was a negative association between membership of the working class and use of strategy two; a strategy which generally involved both paramedical and medical specialist consultation.

When attention is focussed upon those strategies which make use of the services of less orthodox forms of self-treatment and alternative health-care providers the relationship to social class becomes attenuated. Generally speaking, the proportions of people from each of the social classes using strategies three and four are much more similar. This indicates that in those instances where
progression of joint disease is relatively rapid and severe or where it has been of long duration the tendency for people of all classes is to seek relief wherever it may be available.

As was discussed in Chapter III, social class and socioeconomic status are not congruent. The former is a measure of the economic and social power that an individual or category of individuals is able to wield. The latter is a reflection of class position and, thus, there is a great deal of overlap between them. However, an important dimension of socioeconomic status is the prestige accorded to individuals on the basis of factors such as occupation, education, income, and, in some situations, religious and ethnic affiliations. Status forms a basis for social groupings in which individuals interact and behave in similar ways despite some differences in social class. Thus, lower level professionals such as teachers may lead a life-style similar to that of people from the managerial or petty bourgeois classes even though they have an objectively different relationship to the means of production. This similarity is in part due to economic factors such as income levels above those of other workers and in part due to inter-subjective evaluations of factors such as "correct" ways of behaving. The results of the discriminant analysis of the treatment strategies indicates that, in this realm of social behavior, account must be taken of both class and
status considerations to achieve adequate explanation. That is, both account for variations in behavior that each alone cannot.

Analysis of the relationship between treatment strategy and socioeconomic status reveals a pattern which, in some ways, parallels that between strategy and class. That is, similar proportions of people from each status level employed the less orthodox strategies three and four. On the other hand, use of the less inclusive strategies which did not entail the use of alternative practitioners was more strongly status related. Nine of the thirteen people of working class status had utilized only self-treatment and consultation with one or more general practitioners. Although almost half of the respondents of middle mass status had restricted their health-care seeking behavior to consultation with a physician or self-treatment (see Table 41), a considerable proportion had also utilized paramedical health-care services. This use of a wider range of orthodox services was even more marked amongst members of the old middle class status group. Respondents from that social stratum were over-represented amongst users of the "medical and paramedical care" strategy and under-represented amongst those employing "general practitioner and/or self-care."

In part the role of socioeconomic status as a variable which distinguished between users of the different strategies was to make finer distinctions of an economic
nature than did social class. Thus, the people who were of working class status were, or were the spouses of, the less affluent unskilled members of the working class. Of all the socioeconomic strata that was the one with the smallest proportion of members who had utilized the services of paramedical health-care providers or the relatively expensive services of alternative practitioners. Amongst respondents of higher socioeconomic status there was a tendency to use the more inclusive orthodox treatment strategy. This itself is also a consequence of economic considerations. However, amongst those of upper middle class and old middle class status intra-group variations in strategy do not appear to be class related. This suggests that in some cases status considerations are of more importance than social class differences. Unfortunately, not enough information was available to clarify the nature of these relationships.

The most salient characteristic of the explanatory models that individuals used to characterize their illness was their sheer diversity. From the seventy-six respondents of the survey nine different explanatory models were elicited; yet, even so, there still remained seven individuals whose knowledge and beliefs about arthritis could not be encompassed by any of the nine models. As a result of this diversity, the internal inconsistencies of the models, and the fact that people were sometimes
attempting to explain different illnesses it was not possible to rank the models along any one dimension such as orthodoxy of belief. For this reason, in order to include the explanatory models in the discriminant analyses, the values of the categorical variable explanatory model were dummied.

As indicated in Chapter V, there was little relationship between the models people used to explain their illness and either social class or social status position. The minor exception to this was a small group comprised mainly of better educated professionals or their spouses who held the most orthodox of the explanatory models. Given this relatively low level of association between explanatory models and class or status position, it can be assumed that the influence of these ideational factors on health-care seeking behavior is largely independent of the material factors of which class and status are a function.

For the most part, the association between explanatory models and the treatment strategies people employed was not particularly strong. Although, in a separate discriminant analysis using the three dummy variables "Arthritis 1," "Arthritis 2," and "Rheumatoid arthritis" .19 of the variance between strategies was "explained." Three basic trends were discernable which enabled the discrimination of the users of the strategies. Firstly, as already mentioned, a small group of people employing the most orthodox of the
explanatory models ("Arthritis 4") utilized the most inclusive of the orthodox treatment strategies ("medical and paramedical care"). As indicated, this was class and status related. Secondly, two of the other more orthodox explanatory models ("Arthritis 1" and "Rheumatoid arthritis") were in large part held by people who used the orthodox treatment strategy "general practitioner and/or self-care." Conversely, the most unorthodox explanatory model ("Arthritis 2") was more than proportionately found amongst people who used the less orthodox treatment strategies. Thirdly, people who knew the least about their illness--people using the model "Arthritis 3"--were mainly those suffering from only mild cases of joint disease and all were people who employed strategies one and two.

These trends indicate that the relationships between belief and behavior are much more complex than the research design for the present study allowed. The converse of the relationship between "Arthritis 3" and the use of those strategies employed by people with the least severe cases of joint disease suggests that for some people (and perhaps partly for all) knowledge and belief are a consequence of the severity of disease and subsequent interactions with others in the quest for treatment. That is, the more severe the disease and the wider the circle of people dealt with, the more a person's knowledge (orthodox or otherwise) expands. In turn this relationship leads to the questions,
to what extent do those with relatively orthodox beliefs use orthodox strategies as a consequence of prior knowledge, and to what extent are the beliefs formed in the course of health-care seeking behavior which is determined by the characteristics of disease? Unfortunately, these relationships cannot be disentangled on the basis of data collected for the present study. Proper exploration of them would require a longitudinal study. Furthermore, these relationships render somewhat problematical the finding that explanatory models account for .19 of the variance in treatment strategies.

SUMMARY.

It is obvious from the results of analysis that there is no simple measure which enables prediction of the treatment strategy that a person suffering from arthritis will employ. Choice of treatment strategy is determined by a complexity of interacting variables. What the analysis does do, however, is provide a measure of the relative importance of these interrelated variables.

The most important set of factors determining choice of treatment strategy were certain characteristics of the disease itself and the period over which a person had suffered from it. In the analyses, a number of variables proved to be important "predictors" of health-care seeking behavior. These variables included diagnosis, the clusters
of sites involved, and the degree of disability that a person suffered. However, there was a high degree of inter-correlation between these variables and it appears that they are primarily measuring the severity of affliction.

As one might expect, the greater the severity of the disease the more inclusive was the range of treatment sources utilized. However, the role that this variable plays is modified by the effects of the period since the onset of symptoms and the arthritis sufferer's age. Thus, in those instances where joint disease developed late in life and became increasingly severe over long periods of time, respondents tended to have used a wider range of treatment sources. In general though, these sources were orthodox ones. For example, such a person may have consulted two or three different general practitioners and a rheumatologist, received physiotherapy, and utilized several forms of self-treatment. Often in such instances multiple general practitioner use was a consequence of the fact that, over the relatively long periods involved, a person may have moved to another area or his or her physician may have retired or died. If, however, a person had developed a moderate to severe case of arthritis over a short period of time and/or at a relatively young age, then the range of treatment sources was expanded to include alternative health-care providers and a wider variety of self-
treatments. Variables measuring severity and period since the onset of symptoms accounted for .34 of the variance in treatment strategy. As indicated, this made characteristics of joint disease the most important set of factors affecting choice of treatment strategy.

A number of material and demographic factors were examined for their relationship to choice of treatment strategy. Some of these, including sex, religious affiliation, and country of birth, showed no significant relationship to the use of the various treatment strategies. Of the demographic variables age was the most important. Alone, age accounted for .09 of the variance in treatment strategies. This single variable explained less of the variance than did disease characteristics, socioeconomic factors, or the explanatory models people had of their illness. However, as already mentioned, age had important consequences for choice of treatment strategy because of its interactive effects with other variables; particularly the severity of disease and the period since the onset of symptoms. What the relationship with the latter variable indicates is the importance of age at onset.

As was the case with most of the demographic variables, there proved to be no significant relationship between treatment strategy utilization and variables such as suburb of residence, approximate annual income, health insurance, and education. However, these variables were correlated
with each other and with social class and socioeconomic status. What this suggests is not that variables such as health insurance or suburb of residence are not contributing factors to the choice of treatment strategy. Rather, as a consequence of class and status, they are subordinate to them. Alone, each of these subordinate variables would seem to make only a minor contribution to the explanation of differences in the use of treatment strategy. However, cumulatively as aspects of class and status differences their influence is relatively important.

Analysis revealed that with increases in both social class and socioeconomic status there was a tendency to resort to strategies which included a wider range of medical and paramedical health-care providers. It was found that amongst those people who had utilized the more orthodox treatment strategies there was a tendency amongst working class respondents and those of lower status to use the least inclusive strategies. On the other hand, those of managerial and petty bourgeois social class and higher social status had used more inclusive strategies which included use of medical specialists, paramedical health-care providers, and a number of general practitioners. Importantly, however, in those instances where onset of joint disease occurred relatively early in life, or where its onset and progression were relatively severe these relationships broke down. In such instances, similar
proportions of people from each social class or socioeconomic stratum sought alternative forms of treatment.

Both class and status considerations affected choice of treatment strategy. To some extent status differentiation reinforced and/or made sharper economic distinctions than did social class. There were also instances in which people from the same social stratum behaved in similar ways despite class differences. The numbers of people from each class in each status group were too small, and insufficient data was collected to explain the nature of this relationship. However, the results of the analysis indicate that, at least with respect to this realm of human behavior, it is necessary to take account of both class and status relationships.

Access to the use of a motor vehicle was a material variable that was not related to either social class or socioeconomic status. Such access was correlated with the use of the more inclusive treatment strategies and to some extent it appears to have mitigated the consequences of distance from treatment sources faced by residents of Lockridge. Together with both social class and social status variables, access to use of a motor vehicle accounted for .30 of the variance in treatment strategies. Thus, after disease characteristics, socioeconomic factors were the most important determinants of health-care seeking behavior.
By and large, the explanatory models that people held about arthritis were only weakly related to social class and/or social status position. Amongst some of the high status, better educated members of the petty bourgeoisie or their spouses there was a tendency to hold more biomedically orthodox views. On the other hand, the knowledge and beliefs of skilled tradesmen and lower level managers or their spouses was quite limited, even in lay terms. Apart from that, however, there was no marked pattern of association between the wide variety of explanatory models and class or status position.

Two tendencies were evident in the relationship between people's knowledge and beliefs about arthritis and their health-care seeking behavior. In the first place, people whose knowledge and beliefs about their illness more closely approached orthodox biomedical views were among those who had used strategies which relied mainly upon medical and/or paramedical health-care providers. In contrast to this, there was some association between less orthodox belief and use of alternative health-care providers. Secondly, those with milder cases of joint disease had less knowledge (orthodox or otherwise) and used less inclusive strategies. In a discriminant analysis using explanatory models alone as the independent variables, the function derived from them explained .19 of the variance in the strategies. However, as indicated this relationship is problematical as the data
indicates that not only do people's beliefs influence their choice of treatment strategy, but in turn beliefs are influenced as a result of interactions in the seeking of health-care.

Overall then, in order of relative importance, the characteristics of the disease, socioeconomic factors, people's knowledge and beliefs, and their ages explained about seventy percent of the variance in health-care seeking behavior. Between all of these factors there are important inter-relationships. Although the results of discriminant analyses using each set of variables gives some idea of the relative importance of the contribution of each of these categories of variables, much of the variance which they explain is shared with each of the other categories. Unfortunately, because of the statistical techniques used, it was not possible to partition the variance in such a manner as to indicate what proportion of the variance was unique to each category of variables and what was shared. The results do not, however, contradict the hypothesis that material variables are more important than ideational variables as determinants of the treatment strategies employed by arthritis sufferers. The significance of these results and their implications for anthropological theory will be discussed in the following chapter.
CHAPTER VIII

SUMMARY AND CONCLUSIONS

This dissertation began by indicating that amongst practitioners within the sub-discipline of cultural anthropology there are major epistemological and theoretical disuations. At the epistemological level there are differences of opinion as to what constitutes the subject matter of cultural anthropology, the ways in which we can know about that subject matter, and--stemming from this--the methods and techniques that can be legitimately employed in the pursuit of knowledge. In order to place the substantive chapters of the dissertation in broader anthropological context and to justify the cultural materialist approach taken in the study an extensive comparison was made between that approach and the approach known as phenomenology.

Central to the phenomenological approach is the assertion that external reality cannot be objectively comprehended. In this view reality is socially constructed in terms of the shared inter-subjective understandings of social actors. For the phenomenologists, people do not act directly in response to environmental situations but in response to their perceptions of such situations. Behavior can only be understood in terms of the meanings and intentions of social actors. A concomittant of the view
that objectivity is not possible is that culture cannot be scientifically studied. Instead, the aim of phenomenological research is to describe culture in terms of the typifications that social actors themselves use. The major test of validity of such an approach is whether the actors would concur with the description.

In contrast to phenomenology, the cultural materialist approach seeks to explain human behavior in causal and functional terms. Human groups are viewed in ecosystemic context and the causes of behavior are sought in the material conditions of the natural and human environment. In the cultural materialist view the ideational and behavioral realms are analytically separable and, causally, the former varies in its significance for the latter. Thus, the actors' perceptions of reality are not, in themselves, adequate to explain human behavior. Following Popper (1959) it was argued that objectivity is possible and, hence, that human culture can be studied scientifically. Cultural materialist explanations are to be judged as adequate not by the social actors themselves but by the community of scientific observers. Although they are by no means the only theoretical approaches within cultural anthropology, the differences between cultural materialism and phenomenology encapsulate many of the more profound questions that anthropologists ultimately seek to answer.
As part of a wider interest in medical phenomena, medical systems have been one aspect of human culture that has received increasing attention from anthropologists and sociologists in recent decades. Not the least of the reasons for this has been the growing awareness that the pattern of ill-health within a society and people's response to it cannot be explained solely in biological terms. Numerous studies have demonstrated that such explanation also requires account to be taken of a wide range of economic, social, and cultural factors.

Medical systems have two major components: a disease theory system and a health-care system. The former includes people's beliefs about, the causes of illness, the processes involved in it, appropriate means of dealing with it, and its likely outcomes. A health-care system consists of the behavioral and organizational measures taken by the members of society to prevent illness and to care for those recognized as being ill. In most societies, medical systems are pluralistic. That is, there are different arenas--such as the professional and the popular--to which resort for care may be made. Additionally, groups of individuals--both practitioners and lay persons--interacting within these arenas share different perceptions and beliefs by means of which they explain illness episodes.

In the literature, disease theory systems, health-care systems, and the articulation between them have received
varying degrees of emphasis. In large part, differences in emphasis stem from the epistemological and theoretical issues referred to above. Even when studies have not sought to deal directly with those issues, they have necessarily been informed by such sets of assumptions. Studies of medical systems can be regarded as being ranged along a continuum. At one extreme of that continuum are those ethnomedical studies which focus almost exclusively upon aspects of a people's disease theory system. Such studies are usually based, either implicitly or explicitly, upon idealist assumptions. Like the phenomenologists, those conducting such studies have generally viewed culture as a shared system of beliefs, values, and meanings. They have described disease theory systems and imply that the behavioral response to actual illness episodes is primarily guided by these systems. At the other extreme of the continuum are those studies which have presented detailed descriptions of illness behavior or the organization of health-care and have sought to explain variation in them in terms of a broad range of factors. As well as disease theory systems, these factors have included economic, demographic, and geographical variables. Consistent with the theoretical orientations of cultural materialism, the approach taken to the study of health-care in the present work is closer to the latter end of the continuum.
In the late 1960's, a sociologist named Elder studied the behavioral responses of people to the symptoms of osteoarthritis. Her results demonstrated that there were variations in the use of home remedies, lay conferral, and consultation with non-medical practitioners and medical specialists which depended upon social class position. In addition, she showed that there were class related variations in belief about the cause of arthritis. Elder interpreted these findings as supporting the phenomenological view that reality is socially constructed (1973:37). That is, while indicating that some of this variation was the consequence of differences in the circumstances of these people, she emphasized their shared perceptions of those circumstances in her explanation of the variation in illness behavior. The present study is, in part, a replication of Elder's study. The aim was to record the health-care seeking behavior of arthritis sufferers in two suburbs of the Western Australian city of Perth. The main hypothesis to be tested was that objective environmental and socioeconomic variables are better indicators of illness behavior than are statements of belief about arthritis.

In 1979, staff from the Department of Community Practice in the School of Medicine at the University of Western Australia conducted a survey of unmet health needs in the Perth suburbs of Claremont and Lockridge. Households
in these suburbs were randomly selected and interviews conducted with the adult members of those households. The respondents who indicated that they suffered from arthritis or rheumatism formed the basis of the population amongst which the survey portion of the present study was conducted.

The character of the populations of Claremont and Lockridge are markedly different. These differences between the populations are the result of environmental and historical factors which affected the location and development of the suburbs themselves; demographic factors such as age and family structure; and the role the people play, and have played, in the Australian economy.

Generally speaking, Claremont is an affluent suburb. It is located close to the city on a desirable lower river location—a fact reflected in the cost of housing there. As an old established suburb it has a population which is somewhat older than the city-wide average and, related to this, has a higher ratio of females to males. A relatively large proportion of Claremont's population consists of highly educated people employed in professional and managerial occupations. As a consequence of its historical development and its affluent population, Claremont is well provided for in terms of shopping facilities and minor professional and health-care services. However, despite this general picture, the population of Claremont is not completely homogeneous. There are pockets of less affluent
single young people and elderly people living in high density rental accommodation within the suburb.

Lockridge is a more homogeneous suburb than Claremont. It is a public housing estate on Perth's north-eastern metropolitan fringe situated relatively close to areas of light-industrial development. The suburb was established to meet the increased demand for low cost housing that accompanied the State's mining boom in the late 1960's. The population of the suburb is relatively young and most of those who are in the workforce are employed as process workers or laborers. In addition, the population of Lockridge also includes members of several disadvantaged groups such as single parents, Aborigines, and the aged. In contrast to Claremont, services of all types are limited in Lockridge as is the availability of public transportation.

The samples on which the present study is based reflect both similarities and differences between themselves and the populations from which they were drawn. As the most prevalent form of joint disease (osteoarthritis) is one that occurs most frequently in middle and old age, both samples are older than average. Although, the mean age of the Lockridge sample is still less than that of the one from Claremont. Women predominate in both samples, this is related to the facts that women have a greater life expectancy than men in Australian society and that women suffer higher rates of joint disease than men. While, in
broad terms, both samples tended to reflect the educational and occupational characteristics of the populations from which they were drawn, Claremont was in fact a little more heterogeneous. Many of the differences between people in the two samples can be summarized in terms of social class. However in this respect, largely because of Claremont sample's heterogeneity, the suburbs were not completely polarized.

Amongst anthropologists and sociologists, apart from the view that it is basically an economic phenomenon, there is no generally agreed upon definition of social class nor the means by which social classes are to be distinguished. The most common approach is the functionalist one. According to this, society is divided into a series of hierarchical but interdependent levels. A major determinant of position in this hierarchy is occupation which is accorded status in terms of the training necessary to perform it and its value to society at large. In turn, high status occupations are rewarded by high incomes. To assess social class, or socioeconomic status as it is often called, those using the functionalist approach rank members of society in terms of occupation, education, and income (and occasionally other factors as well).

Amongst the criticisms that have been levelled at this view of social class are: it confuses objective (income and education) and subjective (social actors' assessments of
occupational ranking) criteria; occupation itself does not indicate the control an individual has over resources; and it tends to obscure the fact that different social classes have fundamental differences of interest dependent upon their relationship to the means of production. Despite such criticisms, however, the functionalist approach remains in common use. One reason for this is that class in these terms is a relatively easy concept to operationalize.

An alternative approach to the delineation of social classes has been taken by Wright (1976) who has sought to operationalize a Marxist definition of class which takes into account economic developments in the West in the past century. Central to this approach is a concern with the relationships of individuals to the means of production and the power they exercise over their own labor and that of others. These concerns are also basic to cultural materialist analyses of advanced industrial societies and Wright's approach can be taken without necessarily entailing acceptance of other elements of the Marxist viewpoint.

For the purposes of the present study, the samples from Lockridge and Claremont were classified according to both the functionalist and materialist definitions of class. It was believed that in doing so, and using both models in the analysis of health-care seeking behavior, it would be possible to assess whether objective socioeconomic
relationships (as entailed in the materialist model) or the actors' perceptions of those relationships (as reflected in the functionalist concern with status) figured more prominently in the determination of health-care seeking behavior.

Various studies have shown that there are dangers inherent in generalizing about illness behavior if account is not taken of the nature of different diseases. In recognition of this, it was considered important to distinguish between the different types of arthritis from which people in the survey population might be suffering. Preliminary investigations revealed that there was little correspondence between the labels arthritis sufferers employed to describe their illness and the diagnoses made by their physicians. Consequently, comprehensive case histories were elicited from each of the respondents.

On the basis of the case histories, the investigator and a physician "diagnosed" the types of joint disease from which the respondents suffered. Using the data collected, it was generally possible to distinguish those people with "probable osteoarthritis" and "probable rheumatoid arthritis." These people made up seventy percent and eight percent of the survey population respectively. In some other instances diagnosis proved problematic and it was not possible to assess whether the people involved were suffering from osteoarthritis, rheumatoid arthritis, or some
other form of joint disease. Such people were assigned to the category "indeterminate or other." Additionally, there was a small number of people who reported so few symptoms that it was not possible to attempt a diagnosis. These are the people in the category "insufficient information." The limitations inherent in this diagnostic procedure were clearly recognized but resources were not available to do otherwise. However, the evidence suggests that such assessments are a more accurate reflection of the types of joint disease from which respondents were suffering than were their own reports.

As well as attempting to diagnose the types of joint disease from which respondents suffered, an assessment was also made of the degree of disability they incurred as a result of arthritis. This was done using a modified version of a measure designed by Shanas and her colleagues (1968). The respondents were asked if they experienced difficulty in performing, or were unable to perform, nine basic activities of daily living. Responses to these questions were assigned scores of one for no difficulty, two for some difficulty, and three for inability to perform the activity. The cumulative score on these questions was then used as a measure of disability. About forty percent of the respondents experienced no disability or mild levels of disability respectively and the remainder suffered moderate to severe levels. Importantly, neither diagnosis nor degree
of disability were associated with either social class or socioeconomic status position.

In the New Haven study Elder found a significant relationship between lay etiological beliefs and social class position and suggested that these were of major importance in explaining class related differences in illness behavior. Etiological beliefs are, however, only one aspect of disease theory systems. It is reasonable to assume that if beliefs about illness affect illness behavior, then other dimensions of belief besides beliefs about etiology are implicated in that relationship. A means of taking these other dimensions into account is suggested by Kleinman (1978a) who has written that different segments of society entertain different "explanatory models" of illnesses. Such models embrace five major dimensions of belief about illness. They are etiology, mode of onset, pathology, prognosis, and treatment. Kleinman (1980) cautions that such models are often vague and inconsistent and this formulation directs attention to the diversity of belief about illness found within disease theory systems.

Employing an approach that is much more structured than Kleinman's, respondents to the survey were asked a series of questions pertaining to what have been outlined as the central elements of explanatory models. Using the statistical technique known as cluster analysis, the individual sets of responses to these questions were grouped
in terms of their similarity to each other. The purpose of the analysis was to construct a compound variable which would reflect the interrelation and interaction between a number of dimensions of belief about arthritis and which could be used to assess the combined effects of these beliefs on health-care seeking behavior.

There was a great deal of variation in the knowledge and beliefs respondents had about their illness and summarization tends to obscure this. At the most general level, there was common agreement that arthritis was an illness characterized by stiff and/or aching joints. Beyond that, this realm of knowledge was marked by extreme diversity. The range of beliefs about etiology was as varied as that uncovered by Elder in New Haven; however, there were differences in the relative frequencies with which they were expressed. When beliefs about etiology were ranked in terms of orthodoxy, they showed no correlation with social class or status position. This is in contrast to the situation in New Haven where more orthodox etiological beliefs were associated with higher socioeconomic status. There is nothing in the raw data which suggests why these differences occur in the two study populations.

The knowledge lay people had of the pathological processes involved in the forms of arthritis from which they believed they were suffering was quite limited. Only about
a quarter of the respondents claimed to have any knowledge about this aspect of their illness and almost all of their explanations were unorthodox in biomedical terms. While most people were of the contrary opinion, thirteen people thought that their illness was curable (by a variety of methods). In some cases such a view appeared to reflect a hope for, rather than a knowledge of, cure. In other instances, people who thought that their illness could be cured, like some of those who did not know, were people who had developed joint disease relatively recently and knew little about it in general. With respect to knowledge about control of the progression of joint disease there was less unanimity. Again, most people said that control was possible but larger numbers said that it was not or that they did not know. Less than forty-five percent of the respondents expressed concern about the possible consequences of their arthritis. Most of these people had more severe cases and generally were worried about restriction of some valued or necessary activity rather than severe crippling.

In order to further explore their knowledge and beliefs about their illness, respondents were asked if they could name any other form of arthritis and, if so, how it differed from their own. Approximately forty percent were able to name another type—usually rheumatoid arthritis or osteoarthritis. About half of those people were able to
give some kind of explanation of the differences. This usually took the form of a general contrast between rheumatoid arthritis and osteoarthritis or "arthritis" in which the former was described as having muscular manifestations.

There was little obvious inter-relationship between these various beliefs. Thus for example, a person with orthodox beliefs about etiology would not necessarily have orthodox views about such matters as the cure and control of the illness. Furthermore, there was little relationship between the labels employed to describe an illness and other dimensions of knowledge and belief. Two people who described their illness as "osteoarthritis," for example, might have diametrically opposed views about what that term implied. The diversity of knowledge and beliefs is reflected in the number of explanatory models they cluster to form. In all, six models of "arthritis," two of "osteoarthritis," and one of "rheumatoid arthritis" were delineated. In addition, the beliefs of seven individuals did not conform to any of these patterns. It was concluded that in a larger population an even wider range of lay explanatory models would be uncovered.

As a consequence of the diversity of beliefs and the internal inconsistencies within the explanatory models that people held it was not possible to unequivocally rank them in terms of orthodoxy of belief. For the most part there
was little to choose between many of the models in these terms. However, at the extremes some more and less orthodox explanatory models could be distinguished. Also, one of the explanatory models was characterized by a lack of knowledge about "arthritis." The latter model was generally held by people who had developed joint disease relatively recently and who had only mild cases. This indicates that, in part, people's knowledge and belief are a function of the severity of their illness. That is, the more severe the illness the more likely people are to have acquired information about it. Importantly, however, such knowledge is not necessarily orthodox knowledge.

With one minor exception, explanatory models were independent of class and status position. The exception was that the most orthodox of the explanatory models was held by a small group of well educated professional people, or their spouses, who were members of the petty bourgeoisie and of upper middle or old middle class status. The more orthodox beliefs of these people appear in part to be a consequence of both their education and their interaction with medical people of similar status.

While it is possible to distinguish one or two explanatory models that are more orthodox than the others, it is important to note that these are still markedly different to the biomedical models outlined in Chapter IV. Leaving aside the fact that not all medical practitioners
are necessarily aware of the most recent scientific findings about joint disease, this has important implications for doctor-patient communication. While a physician and his patient may use the same term to describe a disease or illness, what it means to each is generally completely different. Astute general practitioners need to be aware of this and to frame their discussions with arthritis patients accordingly.

Anthropologists of most theoretical persuasions have generally stressed the holistic nature of cultural systems. That is, they have emphasized the fact that elements of culture are interrelated. Lieban made this point when he wrote that the study of medical phenomena can shed light on other aspects of a culture (1973:1034). In the present study, one aspect of this inter-relationship can be seen with respect to the moral imperative some people attached to their illness. In some segments of Australian society great emphasis is placed upon individualism. Entailed in this is the view that people should act independently, take responsibility for their actions, and be stoical in the face of adversity. These values were applied by some respondents in their assessment of their illness itself and their assessment of the correct response to it. Thus, while from an orthodox point of view the onset of joint disease cannot be prevented, almost twenty percent of the respondents at least partly blamed themselves for their illness.
Furthermore, amongst those who were intensively interviewed, as well as amongst the survey respondents, the view was commonly expressed that it was improper to discuss the discomfort caused by illness. However, it was noted that although some people paid lip service to this value of stoicism it did not prevent them from reciting their ills. While this highlights one aspect of cultural integration the latter example also points to the disparity between belief and behavior of which some idealist studies fail to take sufficient account.

In Chapter VI it was pointed out that there is no known cure for most forms of arthritis. The main thrust of orthodox medical treatment is to alleviate symptoms and to control progression of joint disease. To this end: medication is prescribed to suppress pain and/or inflammation; dietary measures may be prescribed to promote general health or to reduce weight and, hence, stress on weight-bearing joints; exercise is utilized to maintain range of motion in affected joints; and heat-treatment may be used to provide symptomatic relief. In many instances treatment may be provided by a general practitioner alone. However, in more severe cases, patients may be referred to paramedical health-care providers such as physiotherapists and dieticians or to medical specialists such as rheumatologists and orthopaedic surgeons for more specialized treatment.
At the time the Department of Community Practice's unmet health needs survey was conducted, seventy percent of the 129 people who reported symptoms of arthritis had sought treatment for it. When the present study was undertaken, almost two years later, amongst those interviewed this figure had risen to ninety-five percent. In addition to orthodox sources of medical care, substantial proportions of the study population had treated themselves and used the services of alternative health-care providers.

Sixty-four percent of the respondents had used some form of self-treatment for their arthritis. Heat-treatments, including the use of liniments, lamps, and warm baths were the most common forms of self-treatment. Other more-or-less orthodox self-treatments included the use of aspirin and some forms of medication usually only available on prescription a medical practitioner. Less orthodox forms of self-treatment included the use of patent medicines, special diets, and various folk remedies. Of all these forms of care, heat treatments were judged to be the most efficacious. The other remedies were generally found to be ineffective and people had usually tried them once and abandoned them. Despite experiences of the latter type, however, many people expressed a willingness to experiment with similar treatments. Amongst these people there was a pragmatic orientation to trying anything that might possibly be effective.
With one or two exceptions the self-treatments used were readily and conveniently available and were relatively inexpensive. While there was little class related difference in the type of treatment which was self-prescribed, there were marked differences in whether or not self-treatment was utilized at all. Eighty percent of working class respondents had treated themselves compared to sixty percent from the managerial class and forty percent of the petty bourgeoisie. Given that there was little difference in the distribution of explanatory models across social class boundaries, this variation in the use of self-prescribed treatment is interpreted as a reflection of the more limited resources available to working class respondents and an attempt to maximize treatment from relatively inexpensive sources. In addition to factors such as these, Elder and Acheson attributed the higher frequency of lower class use of self-prescribed treatments to "greater lower class susceptibility to advertising claims" (1970:494). However, in the present study population there was no significant difference in the numbers from each class who acknowledged using a treatment they had learnt about from media sources.

Alternative practitioners were defined as those health-care providers whose theories of illness and its cure fall outside the bounds of orthodox biomedicine. Almost a quarter of the respondents had employed the services of such
practitioners. Chiropractors and acupuncturists were the most commonly consulted but others included naturalistic healers (such as naturopaths and iridologists) and a faith healer. Generally, alternative health-care providers were not the practitioners of first resort and in only one instance was an alternative practitioner the only practitioner consulted. In this regard the findings of the present study were similar to those of Maddox (1977) in the Melbourne suburb of Ringwood. Furthermore, use of an alternative practitioner was a relatively recent occurrence for most people—having taken place only within the previous five years. In part this is a reflection of the recent increases in popularity of chiropractic and acupuncture.

Just as there was little correspondence between the explanatory models of arthritis sufferers and orthodox biomedical theory, there were gaps between the theories of alternative practitioners and their patients. Amongst those consulting chiropractors, there was little awareness of chiropractic theory. Instead, chiropractors were generally regarded as being a kind of specialized physiotherapist. In the case of the one naturalistic healer whose theories were examined, they seemed to be an amalgam of popular beliefs welded into a pseudo-scientific framework that bore no resemblance to their isolated expression amongst lay persons. At one extreme a small group of people who held the least orthodox of the lay explanatory models tended to
have also used the services of alternative practitioners. However, the relationship did not appear to be a particularly strong one.

Chiropractors were regarded as the most effective of the alternative health-care providers. In fact, a greater proportion of patients expressed satisfaction with chiropractic services than did the patients of any other kind of health-care provider. An important reason for this appears to be the symptomatic relief provided by manipulation. In contrast, the treatments provided by acupuncturists and naturalistic healers were much less highly regarded. Despite this, however, people who had consulted an acupuncturist usually expressed a willingness to do so again. In part, this appeared to be an attempt to justify prior use of this alternative from of care.

Although the services of alternative health-care providers were more expensive than those of general practitioners, there were no class or status related differences in utilization of their services. The reason for this was the fact that many of those who used these services were people who had experienced relatively rapid onset and progression of joint disease at a relatively young age. Under these circumstances the common response was to seek treatment wherever it might be available with little concern for cost.
Paramedical practitioners were a source of treatment for almost half of the people in the survey population. The majority of those people had utilized the services of a physiotherapist; although dieticians (that is, qualified nutritionists or their equivalent) and pharmacists were also consulted. Pharmacists as prescribers of treatment (in contrast to their role as fillers of prescriptions for medical practitioners) were only a minor source of paramedical care. In all, six people had consulted a pharmacist and in four instances were provided with some form of liniment or aspirin.

The services provided by both physiotherapists and dieticians were primarily an adjunct of medical care. In most instances these health-care providers were consulted as a result of referral by a general practitioner or medical specialist. As might be expected, people referred to these paramedical health-care providers were those with the more severe cases of joint disease. There was a highly significant relationship between such usage and score on the Index of Disability.

There were also statistically significant relationships between paramedical consultation and social class and social status position. The greater usage of paramedical services by people of higher class and status position cannot be explained in terms of differential rates of severity because, as previously indicated, there was no relationship
between either class or status and the degree of disability incurred as a result of arthritis. There is no readily apparent reason for this relationship. However, a number of factors appear to have a bearing upon it. Firstly, there are fewer physiotherapeutic services available in the Lockridge area where many of the working class respondents lived. Secondly, more of the working class respondents were still in the workforce and had less opportunity to use such services. Thirdly, and perhaps quite importantly, there appears to be some difference in the referral practices of medical practitioners which favors the chances of people of higher class or status position to be referred. That is, it appears that general practitioners may be less likely to refer people who might not have the resources (financial or otherwise) to make use of more specialized services.

In general, there was less satisfaction with paramedical services and less expressed willingness to utilize them in the future than was the case with respect to those of alternative health-care providers. The reason for this appears to be the fact that the treatments provided by dieticians and physiotherapists generally have a long term goal of limiting progression whereas patients are often seeking immediate symptomatic relief. In addition, these treatments often required more participation on the part of the patient. That diets and exercises are often onerous is also reflected in this dissatisfaction.
The most commonly used health-care providers were general medical practitioners. A little over ninety percent of the survey population had consulted a general practitioner and for all but six of those who had consulted any kind of health-care provider the general practitioner had been the provider of first resort. However, for about a quarter of these people the consultation at which they first discussed their arthritis was not specifically for that complaint. This is a reflection of the insidious nature of the onset of much joint disease and the not unwarranted view (at least in the case of osteoarthritis) that it is an inevitable accompaniment of aging.

According to Arthritis Foundation estimates, arthritis sufferers wait an average of four years between the onset of symptoms and consulting a physician about them. In the present study population this reported average period of delay was approximately two years. However, there appears to be a problem of recall involved here and in all probability the figure is an under-estimation due to the fact that many people claimed there was little or no delay in seeking treatment. Although such delays might sometimes have repercussions with respect to progression of disease, they may not be as unusual as is sometimes implied. Recently, Eisenberg and Kleinman have argued that the bias of clinical samples hides the fact that, apart from cases of severe trauma or overwhelming infection,
... what doctors choose to call "delay" is the rule in patient behavior rather than an aberration (1981:14).

Of those who had consulted general practitioners about a third had consulted two of them and another third had consulted three or more. The number of physicians consulted was associated with the period of time since the initial consultation. In most instances people reported that change of physician was due to convenience or practical necessity. That is, they had changed their place of residence or their physician had retired or died. In a small number of cases, the change was attributed to dissatisfaction with treatment or a personality conflict with the doctor. In general, this same pattern of reasons was given for consultation with more than one health-care provider of other types. In the majority of cases, these reasons were no doubt quite accurate. However, in a not insignificant number of instances the respondents' behavior indicates that there are other, unstated, reasons for such change. These are the cases in which individuals exhibit the behavior that has been described as "shopping" for health care. That is, where people consult several practitioners in the hope of obtaining cure or relief that previous practitioners were unable to provide. Whether or not those engaging in such behavior are consciously aware of it is difficult to ascertain--certainly it is not openly expressed. In any case, this highlights the disparity that is sometimes found
between what social actors say and what they actually do, and emphasizes the importance of not making idealist assumptions of the unity of thought (or expression of it) and action.

In addition to general practitioners, a little over twenty percent of the respondents had consulted a rheumatologist and about twelve percent a surgeon. In all but one instance, these consultations were the result of referral by another medical practitioner. The services provided by these medical specialists were not as highly regarded as those of general practitioners. This appears to be a consequence of the pragmatic approach respondents exhibited in their quest for treatment and their expectation that "specialists" would be able to provide more effective treatment than other health-care providers (in a short-term sense). Although it was not significant at the .05 level, there was an obvious trend for medical specialists to be consulted by proportionately greater numbers of people of higher class and status position. The reason for this appears to be essentially the same as for the unequal access to paramedical services.

The treatment strategies people used to deal with their arthritis were defined as the selection of a certain treatment or combination of treatments from the total range of alternatives offered by both lay persons and various types of health-care providers. In the process of analysis
two models of treatment strategies were constructed. The first of these models emphasized the ways in which people had combined the treatments or services from the four broad arenas of care—self-treatment, alternative, paramedical, and medical. Four strategies were delineated in this model. The second model additionally emphasized the numbers of each type of practitioner consulted and whether self-treatment was of the more or less orthodox varieties or both. This model provided a more fine-grained depiction than the first and delineated seven strategies. Essentially, however, the results of analyses using the two models were the same. Consequently, for the sake of parsimonious description, only the results of the analysis using the four strategy model were presented.

The four strategies of the first model have been named after their most salient characteristics. "General practitioner and/or self-care" was the most commonly used strategy. Thirty-three of the respondents had employed it. As the name implies, most people in this category had consulted one or more general practitioners and a little over sixty percent of them had treated themselves. In terms of the range of treatment sources employed this was the least inclusive strategy.

"Medical and paramedical care" was a strategy utilized by twenty-four people. Like the first strategy, this relied upon orthodox forms of medical care but was more inclusive
in terms of the type of personnel consulted. In addition to consultation with general practitioners, all had consulted paramedical health-care providers, and about forty percent had consulted medical specialists.

The third strategy, "medical and alternative care," was distinguished from the second in terms of usage of alternative practitioners and lesser reliance on paramedical health-care providers. Nevertheless, the total range of sources of care that these people had utilized was broader than that used by people in the second category. Nine people had employed this third strategy. The fourth strategy was one which utilized "all sources of care." In addition, the people who had consultations with more than one practitioner from each arena were over-represented in this category.

The research design called for the assessment of the role of three categories of independent variables in determining the variation in employment of the treatment strategies. These categories of variables were: disease characteristics, including type of joint disease, level of disability, clusters of sites involved, and mode of onset and progression; sociodemographic variables including age, sex, suburb of residence, class and status position; and, thirdly, the models respondents used to explain their illness. The relationship between these categories of
variables and treatment strategies was analyzed using the statistical technique known as discriminant analysis.

Importantly, no single variable was found which would enable unambiguous prediction of the treatment strategies people would employ. However, the analysis yielded a number of variables which, in concert, explained approximately seventy percent of the variance in strategy. As a consequence of the mode of analysis, estimations of the individual contributions of all of the variables are not available. Although, separate analyses did provide measures of the contributions of each category of variables. Some of this variance was shared with that explained by other categories but, again, because of the technique employed it was not possible to partition the variance. However, the canonical correlations associated with each category of variables do provide an indication of their relative importance.

The most important category of variables for explaining variance in treatment strategy was the characteristics of disease—themselves important material factors. In this category, the important variables were the etic diagnoses, the clusters of sites involved, score on the Index of Disability, and the period of time elapsed since the onset of symptoms. As indicated, the etic diagnoses were somewhat imprecise and they were strongly associated with the level of disability. Given these facts, the diagnostic labels
were interpreted as being indicators of a dimension of the severity of disease rather than as diagnoses per se. Similarly, the patterning of the clusters of sites associated with the various strategies suggested that people were responding to another dimension of severity rather than to consequences inherent in the involvement of particular sites. In a discriminant analysis using these variables alone, they explained .34 of the variance in strategy.

Essentially, the more severe was the disease involved, the more inclusive was the treatment strategy employed. However, the relationship was qualified by two other variables--the period since onset and the person's age. In those instances where onset occurred later in life and progression of the disease was relatively slow, people would generally confine their health-care seeking activities to the least inclusive and most orthodox treatment strategies. Thus, people with the least severe cases of joint disease tended to be those who had used the strategy "general practitioner and/or self-care." Amongst those people who had developed more severe cases but over long periods of time the preferred strategy was "medical and paramedical care." The strategy "medical and alternative care" was used by those people who had experienced relatively rapid onset and progression of joint disease at a relatively young age. This was a strategy used by concerned or worried people who sought treatment wherever it might be available. The
relatively recent onset of arthritis amongst these people explains why, as individuals, they had not consulted as many health-care providers as those who utilized the second and fourth treatment strategies. People who employed the fourth strategy—"all sources of care"—were those who had the most severe cases of joint disease and tended to be people who had suffered from it for long periods of time from a relatively young age. In some respects, these findings are similar to those of Lieban who, in a non-Western setting, found that amongst the clients of urban Filippino healers that it was the persistence of an illness that led to "... resort to an increasing number of alternative therapists" (1981:226).

Next in importance in explaining variation in treatment strategy were sociodemographic variables. A broad range of these was examined, many of which showed no relationship to choice of treatment strategy. Included here were such variables as sex, religion, and country of birth. It was pointed out, however, that the study population included only small numbers of people from the minor religious and ethnic groups and thus that such findings can only be regarded as tentative. Another sub-set of variables from this category showed no direct relationship to the use of treatment strategy but they were associated with each other and with both class and status position. This sub-set of variables included suburb of residence (as a proxy measure
of the availability of services), income, health insurance, and level of education. These variables were interpreted as being a function of class position. That is, a person's relationship to the means of production in society determines such factors as income, place of residence, and at a further remove, availability or use of services such as health insurance.

Four sociodemographic variables were found to be of major importance in determining choice of strategy. These were social class position, socioeconomic status, access to a motor vehicle, and age. In a discriminant analysis using only the first three of these variables, .30 of the variance in strategy was explained. As a consequence of its interactive effects with other variables and its demographic nature the role of age was analyzed separately and alone explained .09 of the variance.

The relationships between social class and socioeconomic status and treatment strategy were not linear. Reflecting the findings with respect to the utilization of various types of health-care providers and forms of self-treatment, use of the strategy "general practitioner and/or self-care" was a strategy associated with members of the working class or people of working class status. Conversely, there was a high degree of association between being a member of the petty bourgeoisie or of upper middle or old middle class status and use of the "medical and
paramedical care" strategy. However, this relationship between class and strategy breaks down when attention is focussed upon the other treatment strategies—which were used in more-or-less equal proportions by members of all class and status groups. What this relationship suggests is that where joint disease is relatively rapid in onset and progression and persistent in its effects, class related constraints upon the seeking of care are subordinated to the search for effective treatment. In this respect, the findings are similar to those of a study reported by Suchman (1965).

It was suggested that the worth of models of social stratification based alternatively upon either relationships to the means of production or considerations of the status accorded to individuals lay in their ability to predict behavior. In this regard no firm conclusions can be made about the class and status models used in the study. Both were of importance in distinguishing between users of the first and second treatment strategies. One important reason for this is the considerable overlap in what they are measuring. Socially accorded status is based largely upon the same socioeconomic factors that objective measures of class are. That is, discrepancies between class and status are the exception rather than the rule and where such discrepancies occur they tend to involve small segments of society.
In the present study, much of the difference between what is explained by class and status is based upon the fact that the status model separates the less affluent members of the working class into a separate socioeconomic stratum. In those instances where their arthritis is less severe than that of those utilizing the third and fourth strategies, these people are constrained from utilizing the "medical and paramedical care" strategy. Thus material factors also figure prominently in the status model. However, in some instances it was noted that individuals behaved in the same manner as those people accorded similar status even though their objective class position differed. This indicated that shared social values also play some role here. Given the considerable overlap between class and status position and the small number of people in the survey population, it was not possible to clearly indicate the role played by the ideational and material components of socioeconomic status. However, the strong negative relationship between working class status and the use of the "medical and paramedical care" strategy suggests the greater importance of the material dimension.

The age factor interacts in an important way with two other variables. As already indicated, where onset of symptoms occurs at a relatively young age—especially when progression is also rapid—people are inclined to use more inclusive treatment strategies. There appear to be both
pragmatic and ideational factors involved in this relationship. On the one hand there was concern amongst younger people with dependent families that their ability to provide for those families would be restricted. On the other hand, "arthritis" is generally believed to be a disease of old age and this perception causes disquiet amongst people who are subject to it in early middle age or before.

Age also interacts with another important material variable--access to a motor vehicle. This latter variable was shown to be unrelated to class or status position and to be more common amongst younger people. Access to a motor vehicle enabled people to utilize the services of alternative practitioners who are widely dispersed in the community. This also mitigated against the greater isolation from such services faced by people living in Lockridge when compared to those in Claremont. Amongst those people who employed the "medical and alternative care" and "all sources of care" strategies there were higher proportions of people with access to a vehicle. Thus can be seen a confluence between the effects of more severe cases of joint disease in a younger segment of the population who also have the means to seek care further afield.

The results of a separate discriminant analysis indicated that differences in explanatory models "explained" .19 of the variance in treatment strategies. The
relationship between explanatory models and treatment strategies was not a simple one nor was it as strong as those between treatment strategies and the other categories of variables. Despite this, two trends were evident in the relationship. Firstly, the most orthodox and least orthodox explanatory models were respectively held by those employing the more and less orthodox treatment strategies. However, there was little to choose in terms of orthodoxy between most of the models and they were held by people who had utilized all of the treatment strategies. Secondly, those people who held the explanatory model characterized by the least knowledge of "arthritis" were also the people who had the least severe cases of joint disease and who used the least inclusive treatment strategies. This second relationship renders the interpretation of explanatory models as independent variables somewhat problematic. It indicates that, in part, the models people use to explain their illness are built up in terms of their experience of the disease and the social interactions they have in the course of seeking treatment. Thus it would seem that explanatory models explain even less of peoples' health-care seeking behavior than the above canonical correlation suggests.

This latter problem of explanation points to a limitation of the present study. That is, its synchronic nature. Given both time and money, what is ideally required is a
longitudinal study which would not suffer from the limitations inherent in utilizing participants' recall. Such a study could trace the individuals' prior knowledge of joint disease, follow the development of joint disease and its manifest symptoms in detail, follow the stages of health-care seeking behavior, record changes in belief and knowledge, and examine the inter-relationship of these factors through time.

The findings of the present study also point to a weakness in the original research proposal—one that has characterized many medical anthropological studies. That is, the importance of disease processes were underestimated. In the formulation of the major hypothesis, the role of disease characteristics as a set of major variables in their own right was down-played. They were regarded as a set of confounding variables which were of secondary importance to socioeconomic and ideational ones. Almost fifteen years ago Mechanic wrote that,

... much of the behavior of sick persons is a direct product of the specific symptoms they experience; their intensity, the quality of discomfort they cause and the like (1968:141).

Soon afterwards, Fabrega (1972:186) berated anthropologists for treating all illness as if it were a psychiatric phenomenon and, more recently, Eisenberg and Kleinman (1981:18) have suggested that it is often difficult for physicians to recognize the correspondence between social
science accounts and clinical reality. The results of the present study serve to emphasize the importance of these points of view. Generally speaking, though, it would seem that social scientists have not been completely oblivious to these factors. Rather, they have aimed to redress a past overemphasis on the biological aspects of disease to the neglect of sociocultural factors. However, some have gone to an extreme which does a disservice to their discipline and the contribution it can make to both social epidemiology and the study of medical systems.

Anthropologists and sociologists of an idealist persuasion have argued that there is an important intervening factor between the manifest symptoms of disease and illness behavior. That is, the perceptions individuals have of their symptoms. Thus, for example, in a classic study Koos (1954) suggested that members of different social classes perceived the same symptoms differently and consequently behaved differently in response to them. However, at least in the present situation, people in similar class and status positions behaved in similar ways despite differences in perceptions—as these were reflected in the models the used to explain their illnesses. This argues against the idealist interpretation and lends support to the view that in order to explain human behavior it is necessary to have an objective understanding of material factors. In this case, the characteristics of the diseases
from which people are suffering and those factors which relegate them to different social classes. It must be stressed that this is not to reject the role that subjective or inter-subjective factors play. The findings of this study show that such factors do influence behavior. Rather, what is being stressed is that these factors must be viewed in the right perspective.

In conclusion, the results of the present study do not refute the hypothesis that objective environmental and socioeconomic variables are better indicators of illness behavior than are statements of belief about arthritis. The most important determinants of the treatment strategies used by these arthritis sufferers were the characteristics of disease—themselves an important set of material variables—and variables related to social class and status position and use of a motor vehicle. The explanatory models people held about their illness were of lesser importance. To that extent, the findings justify the cultural materialist emphasis on seeking the causes of human behavior in the material conditions of existence before turning attention to the ideational realm of culture.
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