AN EVALUATION OF THE CLAIM THAT PSYCHOLOGICAL FACTORS ARE CAUSALLY ASSOCIATED WITH CANCER

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ABSTRACT

The claim has been made that psychological factors may contribute to the etiology of cancer. This thesis presents an examination of the difficulties of providing adequate evidence to support this claim from psychological studies of cancer patients. Although it has been reported that cancer patients differ psychologically from others, there is little agreement as to how they differ and little evidence that any observed differences are significantly associated with cancer. Moreover, were that association to be shown, there would still be nothing in it of any known etiological importance.

The literature cannot preclude the view that the results so far obtained are merely by-products of faulty design and methods. Two studies are reported here on the basis of this view. The first study tests an alternative explanation of results reported by Le Shan and Worthington. They identified cancer patients correctly from a mixed group (cancer and non-cancer) on the basis of three personality characteristics found from responses to a projective test. It is hypothesised here that direct clues available from responses to this projective test would suffice for the identification of cancer patients without the aid of personality characteristics. Some support is provided for this hypothesis but the results of the study are inconclusive.

In the second study it was possible to show statistically significant differences between answers of cancer patients and non-cancer subjects (peptic ulcer patients and healthy persons) to a simple personality questionnaire. Further analysis of results shows no difference between

answers of cancer patients and peptic ulcer patients and no psychological characteristics common to a majority of cancer patients. This study demonstrates that statistical manipulation can provide spurious evidence for the existence of differences between cancer and non-cancer subjects which has little psychological significance.

It is concluded that with psychological techniques now available it would be difficult to establish a correlation between personality and cancer. Also, with the present inadequacy of personality theory it is impossible to describe personality characteristics in physiological terms, and certainly not ones which could be linked with somatic dysfunction. For these reasons it is argued that psychosomatic research should be concerned with psychosomatic processes. Specific diseases can only be described as psychosomatic when these basic processes are better understood or if psychological treatment is helpful in removing or at least significantly relieving symptoms.

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INTRODUCTION

> Much has been written on the influence of mental misery, sudden reverses of fortune and habitual gloominess on the deposition of carcinomous matter. If systematic writers can be credited, these constitute the most powerful causes of the disease.
> (Walshe, 1846, (68))

> As further research is published it appears probable that a consistent picture of the personality structure of the cancer patient will emerge. We still, unfortunately view these patients through the confusion of semantic and methodological differences which seem to characterise the first stages of research on any new psychosomatic syndrome.
> (Le Shan and Worthington, 1956, (43))

These two statements summarise the claim which is the subject of this thesis; that psychological factors contribute to the etiology of cancer. The statements also indicate the nature of the evidence upon which this claim is largely based; psychological evidence and in particular the "personality structure of the cancer patient". Use of the term 'claim' requires some explanation. Most writers have formally stated no more than a tentative hypothesis. Nevertheless Le Shan and Worthington are confident enough to write of a "new psychosomatic syndrome". There are many indications in the literature that writers are stating an hypothesis which they believe to be true. In this sense the hypothesis may be called a claim.

Prior to 1950 relatively few attempts had been made to study cancer from the psychosomatic standpoint. Several eighteenth and

nineteenth century physicians and surgeons had noted the frequency of grief, despair and depression in the histories of their cancer patients. A few impressionistic studies were reported in the early years of this century, but cancer was scarcely mentioned in the psychosomatic literature. Since 1950 psychosomatic studies of cancer have increased in number and have achieved some scientific respectability with the use of psychometric techniques, control groups and statistics. They have even reached the popular press, with a review of some of the literature in a weekly magazine under the headline Cancer: Is It Emotional? (29)

Medical observations, both of patients and of pecularities in the disease process, appear to have provided the basis for a psychosomatic approach to cancer. The quotation from Walshe typifies the conclusions drawn from observation of patients. More recently unexplained variations in the disease process have raised the question of psychological influences. There is a little anecdotal evidence linking psychological factors with remissions and exacerbations, and in particular, attention has been focused on long term remissions, cases of apparently spontaneous recovery and the incidence of incipient cancer in which the malignant cells do not spread. In such cases the growth disturbance appears to be self-controlled and eventually disappears. There is evidently resistance in these cases and it has been hypothesised that emotional states may strengthen or weaken this resistance.

The question which these observations raise has been effectively stated by Bacon, Renneker and Culter (4). "What are the factors that trigger the change from cellular order to cellular chaos? Is an emotional force the finger on the trigger?" Other writers, more explicitly accepting multi-causality, might prefer to ask whether an emotional force influences the pressure of the finger on the trigger. However the question is phrased, it clearly raises extremely complex problems.

The complexities are not always acknowledged in research reports, or if acknowledged are not always respected. One difficulty in this field of research arises from the rather crusading spirit with which some investigators have approached their work. There are suggestions of a defensiveness against medical scepticism which is not conducive to objective evaluation of results. In 1926 Elida Evans introduced her Psychological Study of Cancer (17) with a rather violent attack on her potential critics. "There is no truth to be found in the prophylaxis of disease by continually dodging facts because they are difficult or disagreeable ..... There seems to be a love of contradiction among investigators and innovators are not welcome". She attempts to disarm her critics, stating that "these views (her own) are offered to the public with the hope that the critics will not attempt a criticism of what they do not understand".

Evan is an extreme example of defensiveness, but West in 1956 (70) adopted a similar though rather more reasonable position.

> Perhaps some of our psychologists can tell us why cancer is such a 'hot' subject, so hot in fact, that it is almost impossible to approach it from a new angle. Why is it that fossilized, unfruitful and admittedly inadequate concepts of this disease are so stubbornly defended?

No doubt there is some unreasonable medical resistance to the psychosomatic approach to cancer, but the burden of proof is on the psychosomatic research. Reasonable criticism is not to be rejected because some of the opposition is prejudiced. Weinberg has provided a sound caution on this matter.

> Those who engage in research directed towards the control of cancer must be especially guarded in their enthusiasm and must not be irked or impatient with those who are adversely critical. If their reasoning has merit it will prove itself in spite of unfavourable criticism. (69)

Weinberg is concerned about the dangers of using unproven hypotheses as the basis of therapy, with the possibility of "causing great harm to the unfortunate victim of cancer". One might also apply his caution to the magazine article referred to above. There are obvious dangers in popularising a theory which is unproven, particularly on a problem of such emotional significance as cancer.

> Those who pursue this particular investigation should do so with the full realisation of the responsibilities placed upon them in order that they do not arrive at conclusions which are without proper foundation. (69)

Cancer is a 'hot' subject and because of this there is on the one hand a danger of over-enthusiastic, defensive adherence to an

illfounded hypothesis, and on the other hand a need for extreme caution in interpreting results. To the extent that research is plagued by the former it is largely incapable of the latter. The central problem for the psychosomatic approach to cancer is that such a conflict is possible. It should not occur if there were a clearly defined 'proper foundation' upon which conclusions could be based. Weinberg implies that there is such a foundation, but there is room for disagreement in defining it, and it is with that problem that this thesis is concerned.

The simple answer to the question of proper foundations is proof. That is, the proper foundation for a conclusion about the psychogenesis of disease should be proof of a causal relationship between psychological processes and somatic dysfunction. An almost equally sound answer could come from the practical sphere, in terms of treatment. If psychological treatment were successful in removing symptoms and preventing their recurrence there would be very good reason to assume that psychological factors influence the recurrence and possibly the occurrence of the illness. However, neither of these answers is available nor at present perhaps even conceivable. With present knowledge of interactions among psychological and physiological processes and with available techniques for studying them proof is a distant prospect. It is obviously impossible to experiment with psychotherapy on cancer patients, and in any case psychotherapeutic techniques are not sufficiently reliable to provide the necessary evidence.

Regarded in the light of the evidence which is available, what is 'proper' appears to be largely a matter of opinion. Proper in this context means acceptable and clearly there can be as many acceptable foundations as there are differing opinions. Four reviews have been published examining the evidence for the hypothesis that cancer is psychogenic. Three of these (Le Shan, (38) Kowal, (33) Le Shan and Worthington, (43)) find support for the hypothesis, while not claiming that it is proven. The fourth (Perrin and Pierce, (55)) finds the evidence inadequate. The conclusion reached by Le Shan and Worthington has already been quoted. They write without qualification of a new psychosomatic syndrome. The concluding remarks of Perrin and Pierce make a sharp contrast.

> Although it is possible that a relationship exists between the development and growth of cancer and the life history or psychological characteristics of the individual, the studies attempting to show such a phenomenon are unconvincing. If indeed such a hypothesis is true it cannot be shown from the available research. The data could be interpreted about equally well to show that there is no such relationship.

Such differences of opinion are certainly not peculiar to this field of research, nor are they necessarily more extreme. It has been suggested that the emotional significance of cancer makes the conflict more exaggerated but if so it differs only in degree and not in kind from clashes of opinion in other fields of psychological and psychosomatic research. However, the fact of being commonplace does not make the position any more satisfactory, nor make a solution

any less necessary. This can only be achieved by defining Weinberg's 'proper foundation' so as to off-set the effects of uncritical enthusiasm and give an appropriate criterion for assessing the results of research. The present study is not an attempt to provide such a solution, but is intended to bring into focus some of the major problems and perhaps suggest where a solution might be found.

CHAPTER 1.

LITERATURE REVIEW

1.1 Historical Survey.

The hypothesis that psychological factors are a contributary cause of cancer has been traced back to the eighteenth century. Kowal (33) has reviewed the history in detail, but uncritically. Early suggestions of possible psychogenesis were based largely on clinical impressions, some lhysicians and surgeons noting that cancer patients secured frequently to have experienced grief, despair and depression. Gendron, an 18th century physician stressed the importance in the history of cancer patients of "disasters in life as occassion much trouble and grief". He cited a number of cases in which the loss of a close relative was followed by "great affliction" and the development of cancer. Richard Guy, surgeon, wrote in 1759 that cancer appeared most often in women subject to hysteric and nervous complaints. In 1783 Burrows noted as a cause of cancer "the uneasy passions of the mind with which the patient is afflicted for some time". Walshe wrote that there seemed to be general agreement that "women of high colour and sanguinous temperament were more subject to mammary cancer than those of a different constitution". Sir James Paget wrote "the cases are so frequent in

which deep anxiety, deferred hope and disappointment are quickly followed by the growth and increase of cancer, that we can hardly doubt that mental depression is a weighty addition to the other influence favouring the development of the cancerous condition". In 1854 Amussat concluded that "The influence of grief seems to me in a general way the most common cause of cancer".

Herbert Snow was extremely interested in the gathering evidence but was aware of the shortcomings of such impressionistic reports as had hitherto been published. He was himself convinced that emotion could cause a loss in vitality and weaken the individual's ability to resist cancer, but he had doubts about the data upon which earlier conclusions had been based. He reports that in a study of 140 patients 103 were said to have given an account of previous mental troubles, hard work or other debilating agency. These results were based on answers to the questions "Did you suffer from mental trouble?" and "Was there anything particularly to weaken you before the tumour appeared?". To improve on this method he set out to collect detailed case histories from 250 patients. In 156 of these he found there had been "immediately antecedant trouble, often in a very poignant form as in the loss of a near relative". Thirty two spoke of hard work and privation and 43 had histories permitting a suspicion of mechanical injury. In 19 no causation history was found.

> We are logically impelled to enquire if the great majority of cases may not own a neurotic origin? ... We find that the number of instances in which malignant disease of the

> breast and uterus follows immediately antecedant emotion of a depressing character is too large to be set down to chance, or to that general liability to the buffets of illfortune which the cancer patients, in their passage through life, share with most other people not so afflicted. (65)

In contrast, Perrin and Pierce report a statement made by Williams in 1908.

> Some authors attach great importance to grief, anxiety and mental stress as causes of cancer. With regard to this I can only say that the majority of cancer patients whose life history I have investigated appeared to me to have been less exposed to depressing influences than most women of corresponding age in the general population. (74)

1.2 Systematic Psychological Studies

Elida Evans (17) was the first to apply modern psychological theory and techniques in a study of cancer patients. She reported a study by depth psychology of 100 patients. It is not clear from her book who her subjects were. Apparently not all were cancer patients, or not all the cancer patients she describes had been studied directly. The theories she advances are the result of fifteen years of study "collecting what data I could, during my work with nervous patients whenever their associations brought a reference to cancer, collecting the history of each association as fully as possible." Histories of patients who had had "direct or indirect experience with the disease" were collected in greater detail, "itemising the events of their life, filing away the data

of their idiosyncracies as given by themselves, their family or friends, in short their psychic history". A good deal of her evidence appears to be based on dreams and associations about cancer, rather than on systematic direct examination of cancer patients themselves.

Evans concludes that the cancer patient is typically an extrovert, who must have "an objective attachment, deeply rooted, on which to feed life's most vital satisfactions". If the attachment is lost and cannot be replaced, as she claims happens in the case of cancer patients, the detached psychic energy turns inward and in expressing itself through a primitive erotic outlet brings the cancer into existence. This work can only be regarded as speculation within a framework of Jungian theory, and as a possible source of hypotheses for more objective and rigorous investigation. Much of her material appears to have been gathered at second hand, she gives no concrete evidence and the interpretations which form the major part of the bock are questionable by anyone who does not fully accept Jungian theory.

The first application of psychometric techniques was reported by Tarlau and Smalheiser in 1951. (67) They were interested in the fact that half the cases of cancer in females occur in the primary and secondary sex organs, and studied two groups of patients, 11 with cancer of the breast and 11 with cervix cancer. The aim was to determine whether there were any similar underlying personality

patterns in the two groups. Techniques were a 1 - 2 hour interview covering "factors influencing psycho-sexual development", the Rorschach and Drawing of the Human figure. Subjects are described in terms of age and length of illness, education level (grade school education) and are said to have "similar social background". For a comparison with the Rorschach scores of their cancer patients they used some 'normal' responses from a study by Brussell and Hitch, of 18 - 30 year old military recruits.

Rorschach protocols were analysed in detail and comparisons made between specific scores. With only 11 subjects in each of the cancer groups and normative data derived from young male subjects, it is doubtful whether such comparisons are justified. It is generally considered that single Rorschach scores have little meaning in isolation and experts are constantly warning against misuse of test results in this way. Furthermore some of the conclusions are drawn from slight differences and no statistical analysis was done. The authors note a striking difference between the cancer groups in the use of CF. Seven breast patients did not use any CF while only one cervix failed to. "Similarily, in the C category ten breast patients failed to use it while only eight cervix ignored it." The conclusion from these results is that the breast patients are generally severely inhibited in expressing any emotional reaction to stimuli from the environment. From comparisons between the three groups, Tarlau and Smalheiser conclude that both groups of cancer patients show greater impoverishment (fewer responses),

a rejection of the female role (seeing more males than females in the blots) and greater repressive forces (fewer human movement responses).

Their general conclusions, apparently based largely on interview data, were that in the majority of cases (20) the mother was the dominant figure in the family, and that both breast and cervix patients show a general disturbance in sexual functioning. Breast patients are said to have made a superficial adjustment. They had no premarital sex experience, no divorces and were married later than the cervix group (mean age at marriage 26). Of the cervix cases three had premarital sex experience, seven had been divorced and the mean age at marriage was 19.

In 1952 Bacon, Renneker and Cutler published results of a study of 40 patients with breast cancer. (4) No control group was used. The age, religion, and marital status are given and it is stated that in socioeconomic status the women ranged from "upper lower to lower upper with the mean about the middle middle". These status levels are not defined. Results were derived from "dynamic evaluations of anamnestic material" and the personal observations of the interviewer.

The common characteristics of these women are described as;

i. a masochistic character structure (35 patients)

ii. inhibited sexuality (39 had no adequate sex education, 35 were virgins prior to marriage, 5 were unmarried and remained virgins and 25 had never experienced orgasm)

iii. inhibited motherhood (14 married women had no children, of 20 mothers only three had consciously wanted children)

iv. inability to discharge aggression (30 had no adequate techniques for discharging aggression and most denied having been angry)

v. an unresolved conflict with the mother handled through denial and unrealistic sacrifice. (30 cases)

Five case histories are presented, presumably as illustrations of these patterns, but there is very little information about the source of the results. Three of the described characteristics are not defined (i., iv., and v.) The authors were cautious about the conclusion of inhibited sexuality from the facts available, but justify it on the basis of a clinical impression that the percentage (of sexually inhibited) was distinctly higher than they normally observed in clinical investigations of neurotic women patients. It is interesting to note that Tarlau and Smalheiser considered their breast patients to have made a superficial adjustment on the grounds that they had not had premarital sex experience whereas Bacon, Renneker and Cutler regard the same fact as indicating significant disturbance. However, at least in this case the facts are available for the reader to evaluate.

A further finding which the authors consider to be important was that those patients who did fit the 'typical' patterns, were in all cases the older subjects. This they tentatively relate to the view that everyone might eventually have cancer but some die first of something else.

The authors found that the majority of their patients had delayed seeking treatment. Twenty eight were considered to have shown neglect, in having delayed for two weeks or more.

Finally, the authors suggest that within a two year period prior to the diagnosis of cancer many of the patients had experienced an important emotional trauma. These experiences are classified as follows:

Death	of mother	3
	of sibling	1
	of husband	5
Marriage	of patient	1
	of son	1
	of daughter	2
Birth	of own unmanted child	3
	daughter's child	2
	sibling's child	2
Physical trauma associated with	child	3
	a man	1
	a woman	1
	self	5
	an inanimate object	1

This classification is somewhat bewildering, at least without knowledge of the particular significance of the experience to the patient concerned. It is difficult to accept without further evidence that the birth of a child to a sibling should be an important emotional trauma, or that a physical trauma associated with an inanimate object should have any significance for the development of cancer.

Wheeler and Caldwell (72) set out to repeat the Tarlau and Smalheiser study with the intention of overcoming its main weaknesses. They used three groups, 20 breast cancer patients, 20 cervix cancer patients and a control group of 20 women suffering from other diseases. The diagnoses of the control group patients are not given but it is stated that they were not suffering from malignant, endocrine or psychiatric disorders. Subjects were selected for diagnosis, marital status and race. Description of the subjects in terms of age, education, and socioeconomic status (classified according to McGuire's scale) are given for the total sample only. The Kent EGY Test was administered to indicate intellectual level and again only the mean for the total sample is given. However, the authors state that "all three groups were comparable for age, education, socioeconomic status and intelligence". All were out-patients and none was on heavy sedation. Tests used were the Rorschach, drawings of the human figure and the Rosenzweig Picture Frustration, together with a Family Preference Rating and a directed interview which was designed to cover the same areas as the Tarlau and Smalheiser interview. As the authors point out, their interview could only be generally similar to that used in the earlier study since Tarlau and Smalheiser gave no precise detail of theirs.

Wheeler and Caldwell found no "dramatic divergencies" between their three groups and state that "the women were more alike than they were different". A fairly detailed presentation of results

shows this conclusion to be justified. However, they go on to discuss "significant tendencies" and "suggestive differences" based on the few significant differences they did produce. No differences were found from the drawing test or the Rosenzweig P-F. From the interview data they found eight out of forty nine factors significantly different at above the 10% level of confidence, eleven Rorschach scores differentiated between the groups at the 10% level and 9 at the 5% level or better. Wheeler and Caldwell's conclusions based on these few differences were that cervix patients are less controlled than the breast and non-cancer patients in sexual and emotional responsiveness; they show little controlled affective responsiveness. They are also possibly more preoccupied with sexual and bodily ideation and tend towards over-generalisation in intellectual approach. Their family background is more disturbed. The breast patients had a more adequate childhood, with a slight suggestion of closer mother-daughter ties. They have less inner drive and have inhibited sexual expression.

It appears that the only conclusion fully justified by the results of this study was that the women were more alike than they were different. The trends and suggestive differences mentioned in the latter part of the report are very slender evidence. The authors carried out a large number of significance tests on each section of the data and some significant differences would obviously have occurred by chance. A significance level of .10 is hardly an adequate basis for conclusions. Wheeler and Caldwell emphasised

in their introduction that studies must be rigorous and it unfortunate that they did not apply this conviction in their discussion of 'significant' results.

They compare their results with those reported by Tarlau and Smalheiser and also with those of Bacon, Renneker and Cutler. Their material does not support most of the conclusions of the earlier studies but they outline areas of agreement which should receive further investigation. It is an interesting commentary on the generality of agreement that the areas mentioned are i. early childhood environment, ii. parental attitudes, and iii. sexual attitudes and behaviour.

Stephenson and Grace (66) used a questionnaire type interview with 100 patients with cervix cancer and 100 controls with cancer of "non-sexual sites". The age range and mean age of each group is given (cervix 28 - 76, mean age 53.1, controls 21 - 71 mean age 59.5) The questionnaire is published in full and the authors state that answers were accepted at face value with no attempt being made at analysis or other interpretation. The questions covered general details, history of menstrual functioning, sexual and marital functioning, trauma and personality functioning.

The only significant result obtained was that sexual adjustment was much poorer among the cervix patients than the controls. This was concluded from a higher incidence in the cervix group of i. failure to achieve orgastic satisfaction in intercourse, ii. divorce,

separation and unfaithful husbands, iii. extra-marital intercourse. The authors state only the number of differences found to be significant (5% level) but do not give the total number calculated. It is thus not clear that the five significant differences found from the questionnaire were a significant proportion of the total number calculated.

Reznikoff reports a careful study of patients with breast cancer. (58) His sample included 50 women attending a breast clinic who were interviewed and tested before diagnosis. Subsequently 25 were found to have cancer and 25 to have non-malignant tumours. As a further control he studied 25 women who had passed the examination at a cancer detection centre. This was a promising sample but Reznikoff presents very little information about the subjects. The criteria for selection was that they spoke English and were still menstruating. No other facts are mentioned. Furthermore it seems reasonable to doubt that of 50 patients seen without knowledge of diagnosis, exactly 25 should fall into each tumour group, malignant and benign, but the author does not mention any selection.

Techniques used were Schaffer's Case History Outline, Murrey's Family Relations and Childhood Memories, Levy's Inventory of Maternal Behaviour, the Thematic Apperception Test (analysed by the Eron method) and a Sentence Completion test. The author describes methods and results fully. From the questionnaires he found significant differences among all three groups, the greatest differences being

between cancer and 'normals', the next largest between cancer and benign and the smallest between benign and 'normals'. Significant differences between cancer and benign groups were more frequent deaths of siblings at birth in the malignant group, more siblings in the malignant group and more frequent deaths of parents in the malignant group. There was only one significant difference between these groups on the T.A.T., the number of nurturing themes. The cancer patients perceived maternal figures as consoling less often than did the other patients. From the Sentence Completion test he found only two significant differences at the 5% level. Cancer patients appeared more ambivalent towards heterosexual relations, and the benign patients showed more positive family attitudes. In the comparisons between cancer patients and 'normals' the same differences appeared but in some cases they were greater. It should be noted that in dealing with the questionnaire data, Reznikoff analysed 70 items, and found only 5 significantly different at the 1% level.

Results from the questionnaires are obviously interrelated. For example, if cancer patients had more siblings than the other two groups the chances are greater of their having more who died at birth. As with the Stephenson and Grace results, failure to control important variables makes it difficult to accept differences as being significantly related to cancer. In particular the Reznikoff results concerning siblings, both numbers and deaths might well be affected by socioeconomic status, and numbers might also be

influenced by religious affiliations.

Le Shan and Worthington and Le Shan (36, 42, 43, 44) have published several papers reporting results obtained from interviews and a projective test known as the Worthington Personal History. This test is described as a blank resembling a personnel form. Items cover areas such as family, school and occupation history, hobbies interests and aims. Responses are interpreted within a psychoanalytical frame of reference together with some of the concepts of the Warner-Davis-Havighurst approach to social class in America.

In their first study Le Shan and Worthington used 152 patients with various types of cancer and a control group of 125 persons with "other or no known disease". Only the Personal History was used to study these groups. The authors found three factors which statistically differentiated between the groups. Most frequently found was what they call "the loss of a major cathexis to some individual or group of individuals". This is said to have occurred within ten years before diagnosis of cancer. "This type of lost cathexis was observed in 12% of our control group and 72% of our experimental records". In the cancer group 56% showed a loss in relation to children or spouse and 16% in relation to peer groups or to "a loss in the occupational area". Le Shan and Worthington also found cancer patients more frequently had difficulty in expressing hostility towards other people. This was observed in 47% of cancer patients and 25% of controls. The third factor was tension over the death of a parent, found in 38% of the cancer

records and 11% of the control records. To test these results a further 28 records were obtained, from 15 cancer patients and 13 controls, and these records were analysed blind, presumably by the two authors though this is not stated. Correct predictions were made in 24 out of the 28 cases.

In a second study using the Personal History Le Shan and Worthington report similar results. In this investigation 250 cancer patients and 150 age-equated controls were tested and some subjects were also interviewed. The original three factors were again found to differentiate between the groups and a fourth factor added. Seventy nine percent of the cancer patients were found to show marked self dislike and self distrust as compared to 34% of the controls. The authors also described in this paper a life history pattern which links the four factors together, found in 62% of cancer patients and 10% of controls. The cancer patient has experienced a trauma in his developing ability to relate to others. He thus becomes capable of only superficial relationships but the personality development before the trauma occurred was such that he had a need for warm relationships. Later in life he finds it both possible and safe to develop a close relationship and pours into it all the relationship need he has carried since the original trauma. He then loses the relationship through death or in some other way, and the loss is particularly severe because of the intensity of his attachment.

Le Shan (36) has also reported a study of a group of patients

with Hodgkins disease, 9 women (aged 27-44, mean age 32, and 19 men (aged 23-53, mean age 26). Three control groups were also examined, 35 patients with other forms of malignant disease, 100 subjects with no known disease who had passed the examination at a cancer detection centre, and 200 patients with a wide variety of cancers. The first two control groups were equated for age and social class with the Hodgkins disease patients. It is not clear from the report how the two cancer control groups differ, except that the smaller group was matched with the Hodgkins disease group. Subjects were "in the main" outpatients. The Hodgkins disease patients were interviewed for an average of two to four hours, but eight were seen "far more intensively". One hundred and seven of the controls were interviewed for "varying numbers of hours", (24 in the first group, 20 in the second and 63 in the third). The nature of the interviews is not described at all. Le Shan found a similar life history pattern in 90% of the patients with Hodgkins disease. This pattern appeared in 20% of the subjects in control group 1, 4% of control group 2, and 22% of control group 3. Le Shan describes three phases in the typical life history. The first phase consists of a childhood and adolescence marked by strong feelings of unworthiness and much psychological stress. "During this period the individual appeared to function normally but never related himself to others with any great intensity". In later adolescence or early adulthood the second phase begins with the discovery of a peer group with similar goals and orientation.

The individual finally feels accepted and pours a tremendous amount of energy into the activities of the group. "His level of outwardly expressed physical activity increased very markedly to a degree that is far above normal". The third phase starts with the loss of the relationship to this group for reasons beyond the control of the individual, such as graduation from school, and induction into the armed services. He now feels isolated and alone and because of his early development cannot establish relationships with other groups. Three case histories are described to illustrate this life history pattern but Le Shan does not describe how the total results, ie. percentage of cases with typical life history pattern, were arrived at. In this paper Le Shan speculates at some length about possible physiological interventing variables, attempting to describe the possible effects of each life history phase on the pymphatic system. It would perhaps be reasonable to suggest that such physiological speculation be left until further, more precise studies have been done of the personality and life history of these patients.

Le Shan, Marvin and Lyerly present evidence to indicate that patients suffering from Hodgkins disease are of above average intelligence. (40) They examined 408 clinical records of Army personnel who had received the diagnosis of Hodgkins disease during the period 1942 to 1945. Scores on the Army General Classification Test were available for 97 of the Hodgkins disease cases. The mean score for these patients was 110.1 as compared with the mean of 100

for the total Army population. Pre-war occupational status was also examined for 209 men with the disease. As a basis for comparison they used a study by Stewart of the relationship between pre-war occupation and AGCT scores in which median AGCT scores are listed for 227 occupations for a random sample of 81,533 men. Le Shan et al found a highly significant difference between the proportions of their sample in each category and those in Stewart's sample, that is the greater proportion of pre-war occupations of the Hodgkins disease group were found to be in those occupational groups whose median AGCT scores were highest. They found no significant relationship between AGCT scores and severity of disease, as indicated by duration or histological type. The authors make no interpretation of these findings nor do they attempt to account for them, possibly because it is very difficult to see what their significance, if any, might be.

Fisher and Cleveland have approached the personality of the cancer patient from the point of view of the body image concept, using their Rorschach 'barrier score'. (18) Their approach to cancer patients developed from the hypothesis that persons with internal cancer would be likely to have a low barrier score while with external cancer would have a high barrier score. In the first part of the investigation they did a blind analysis of Rorschach protocols obtained from six patients with external cancer (melanoma) and 11 patients with internal cancer (cervix). They were able to identify all but two correctly by means of the barrier score. In

the second part of the study 59 external cases were used and 30 internal cases. The external group comprised one cancer of the skin, six melanomas and 52 breast cancer patients, the internal group three colon, two lung, one stomach and 24 cervix. Analysis of the Rorschach protocols of these patients showed a statistically significant difference on the barrier score. Finally the authors selected randomly ten cases, five internal and five external and had three psychologists analyse the records blind. One of them got all correct and the other two 8 out of the 10.

In order to show that these results were not due to pain and other sensations giving particular significance to the affected part of the body, they tested a control group of patients who had had a colostomy performed ten years previously. It was assumed that if experience of pain or discomfort led to a concentration on the affected part then these patients would differ from recent colostomies by being more concerned with the affected area, and would therefore have lower barrier scores. They found no significant difference between the ten year colostomies and the recent cases. Although this line of reasoning might be sound it is doubtful whether the authors were justified in assuming, without evidence, that the longer one has to live with a colostomy the more important the affected area becomes. Another rather doubtful aspect of this study is the authors' classification of 'internal' and 'external' cancers. It has been pointed out that the criteria used by Fisher and Cleveland for their classification bear a minimal

relationship to the usually recognised three primary germ layers. Furthermore their case would have been stronger had the groups been matched more closely (age was the only variable controlled), and had they not included several different types of cancer in each group.

West, Blumberg and Ellis carried out an interesting study comparing patients in whom the disease developed rapidly with those who lived longer than average. (71) They undertook this research as the result of having observed personality differences between fast and slow developing cases. They describe their initial observations as having given them a 'clinical feeling'. Accounts of this research have been published in slightly different form in two places. Blumberg, West and Ellis (1954) state their aim as being to relate personality characteristics of cancer patients to the clinical course of their disease and tentatively hypothesise that the "very development of cancer might conceivably result from the physical effects of long continued inner stress which has remained unresolved by either outward action or sucessful adaptation". They state however, that they are not presenting evidence of causative factors.

Their sample comprised male patients suffering from inoperable cancer; lymphoblastomas, leukemias, and cancer of the lung, prostate and testicle. All had been told of their diagnosis. The methods used were the Rorschach, the Thematic Apperception Test, the Minnesota Multiphasic Personality Inventory (M.M.P.I.) and the Weschler-Bellvue

Intelligence Scale. In the first section of the study 15 of the most contrasting patients with respect to disease activity, survival period and ease of control with irradiation and chemotherapy were tested. The results of the M.M.P.I. showed significant differences between the fast and slow progressing cases. Specific scores found significantly higher in the fast developing cases were; highly negative F-K values (-12 or more) indicating a high defensiveness and a strong tendency to appear serene in spite of inner stress; D values 55 and over without increase in Hs and Hy, indicating unrelieved anxiety and depression; and low Ma scores (under 60) indicating abnormal lack of ability to decrease anxiety through outward corrective action. These results led the authors to extend the group to include 50 patients and the results of the tests were related to a clinical distinction between the fast and slow cases. The criteria used to establish who were the fast and slow cases were based on clinical data relating to the life of the average patient suffering from each particular type of cancer. Any patient surviving 50% less than the average time was classed as fast and those surviving over 50% longer than the average were classed as slow. Predictions based on M.M.P.I. results were correct in 68% of the slow cases and 86% of the fast cases. The Rorchachs were analysed by Klopfer and results are said to have confirmed those obtained from the M.M.P.I. although there was only one statistically significant difference between the two groups, out of 15 calculated.

In one report of the study it appears that the original 15

patients were included in the later 50 but Blumberg (7) states that they were not included in the second part of the study. If they were included the results would be affected and this point should have been made quite clear. Another weakness of the study, to which Perrin and Pierce have drawn attention, is the method used to calculate the percentages of fast and slow cases correctly identified by the test results. This seems to have been done by relating the number of fast and slow cases in which guesses from the M.M.P.I. were in line with clinical data, to the number of fast and slow cases as selected by the M.M.P.I., instead of to the number of fasts and slows as clinically determined. Calculating on this latter basis and excluding the original 15 cases from the sample, the percentage of slows correctly identified by the M.M.P.I. drops to 54% and the percentage of fasts rises to 89%. Two other points of weakness in this study have been criticised. Ziskind, in discussing the research, considered that more attention should have been paid to the relation between growth rate and the location of the lesion and the method of treatment. Ziskind also drew attention to the difficulties of classifying cases into fast and slow on the basis of the clinical criteria used in this study. It is not, in fact, made quite clear in the reports of this research just how the division of patients into the two categories was made.

Klopfer has discussed the Rorschach protocols obtained in this study (32) but his paper is primarily a consideration of a personality theory based on his experience with this projective test, and does

not contribute independant evidence of personality factors associated with cancer.

Krasnoff (34) arranged a repetition of this study. His design was similar but there were some important differences. Patients were both male and female and all were suffering from the same disease, malignant melanoma. They were not inoperable and some had been subjected to various surgical procedures. The patients' knowledge of their diagnosis varied, this having been left to the discretion of the individual physician. Krasnoff used epidemiological criteria for selecting fast and slow cases, based on normative survival data provided by Nathanson and Welch. The criteria for fast cases was survival time from the time of the first appearance of symptoms until the time when 25% of their sample had died, this being 18 months. The slow cases were those who survived for longer than the 75th percentile, 72 months. Seventy patients were seen initially. Of these only 22 qualified as either fast or slow, but because of the rapid development of this disease only 6 cases could be included in the fast group. Krasnoff applied the Mann-Whitney U test to the background data for his sample. There was no significant difference between the fast and slow cases in chronological age but the fast group were significantly lower in socioeconomic background and in their score on the Weschler-Bellvue vocabulary test. Only the Rorschach and M.M.P.I. were used, the Rorschach again being interpreted by Klopfer. Rorschach results failed to discriminate between the two groups. Of the 6 fast cases, 2 were

correctly identified three were identified as slow and one was doubtful. Of the 16 slow cases, 7 were selected correctly, three identified as fast, 5 as doubtful, and one as doubtful but more likely fast.

From the M.M.P.I. results, three of the six fast cases were identified as fast and three as slow. Of the slow cases 11 were identifed as fast and five as slow. Krasnoff's study therefore completely failed to support the results obtained by Blumberg, West and Ellis. His sample was small but the results were clearly negative.

Several of the studies reported above made reference to stress experiences at some time prior to the onset of the disease. The loss of a significant figure or a major cathexis, and emotional trauma have been reported as occuring from less than two years to ten years prior to onset or diagnosis. Obviously such evidence cannot be very definite since studies have all been retrospective and it is difficult to be precise about the time of onset. The evidence is particularly doubtful when the specific stress experience is traced back ten years. William A. Greene has concentrated his attention largely on this aspect of the subject in his studies of patients with lymphomas and leukemias. He has reported two such studies of patients of all ages and both sexes. (21, 22) In the first of these (1954) the subjects were 20 men and boys aged from 3 - 71. Greene found that in all cases the disease developed while the patient was having to adjust to a loss of support.

Seventeen cases were adjusting to varying degrees of separation from the parent figure and this was combined in some cases with injury, operation, retirement, change of work. Results are based on anamnestic material and summaries of all 20 case histories are provided.

This type of approach to the problem presents perhaps greater difficulties than the personality studies since the loss of support must be evaluated with reference to its emotional effect on the individual concerned. It does appear that there are dangers in interpreting the significance of such losses too freely. In some of Greene's cases the loss of support could have had a quite devastating effect on the patient but in other cases the incidents he considers significant appear rather trivial, such as a change of school and the loss of a chum. Greene discusses the question of control groups and admits that control data should be provided. He considers however, that the only suitable controls would be the "same individuals in relation to time and interpersonal setting". This is no doubt strictly correct but it is never possible to find exactly comparable subjects for a control group. An approximately matched group should however be examined for comparable experiences of 'loss of support' and if, as seems likely, persons not suffering from these diseases were found to have had similar experiences, a more detailed study of the two groups could be undertaken to compare the reactions of different individuals to a loss of support.

In this first study Greene is cautious about the interpretation of his results and states that much further research is needed before any conclusions can be drawn about the significance of these findings for a psychosomatic theory of lymphomas and leukemias. In the second report (22) Greene, Young and Swisher give the findings of a similar study of women with the same disorders. Thirty two women were interviewed intensively and some were followed throughout the course of their illness. Interviews with other members of the family were also conducted in some cases. Greene et al found no single personality profile but describe three main personality types; 1. What they call a 'mothering' type, characterised by extreme pleasantness and 'goodness', and an attempt "to out-mother the mother". (This group they label P). 2. The 'manly' type with an "obviously extreme masculine identification", (W). 3. An ineffective, dependent group (D) and a sub-group of this last type who in addition to being ineffective and dependent, were isolated, (D1). Their hypothesis is that object relations and separation from objects may be of significance in the etiology of the diseases and he points out that the P and D groups would clearly have more satisfactory object relations than the W and D1 groups. With regard to loss of objects, Greene et al found that 24 had experienced major losses or separations in past life. These included death, separation or divorce of husband or parent. The authors consider that this would not be significantly different from a random group of subjects. The reactions of the women to these losses is described as varied.

Some reacted with sucessful transient grief, while others (12) went through a period of prolonged unresolved grief. The most common mechanism of adjustment was "by identification with or introjection of the lost object, with denial of the affect of grief". Concurrently the women projected both the significance of the loss and the affect on to another figure who had experienced the same loss - a reaction of "I feel sorry for Mother who lost Father".

Greene classifies the stresses to which the women were subject as loss of persons, menopause, and the loss of home or work, (for example a rented house being "sold out from under"). Sixteen of the patients are said to have suffered three or more losses, nine two losses and five only one. Four other aspects of the case histories were analysed, the symptoms prior to apparent onset, reactions to the disease, the possible effects of stress during the course of the disease on remissions and exacerbations and the relation of personality types to the length of survival. The latter is of interest in relation to the West, Blumberg and Ellis and Krasnoff studies. They found that the two groups with more satisfactory object relations (P and D) survived longer than the two groups with less satisfactory object relations (W and D1). Fifty percent of the former groups survived 30 months while 50% of the latter groups survived only three months. The authors also briefly mention two characteristics apparently common to a majority of the patients. Most would be considered masochistic, although they do not say why or by whom, and in most cases there appeared to

be an underlying unresolved attachment to the mother.

This is a very detailed report and difficult to summarise adequately. Greene Young and Swisher have provided a number of suggestions which could be formulated in testable hypotheses for further research, but such research would need to be on a more rigorous level than interpretations of anamnestic data.

Le Shan and Reznikoff have explored the possibility that cancer patients experienced a psychological trauma in early life. (41) Their hypothesis was apparently based on Le Shan's findings that an early emotional trauma affected the individuals ability to relate to others; and Reznikoff's finding that significantly more cancer patients than controls had had a sibling die in childhood. The hypothesis is that the birth of the next youngest sibling occurred earlier in the lives of cancer patients than in those of controls. This seems to be more or less directly related to Le Shan's findings but it is difficult to see the relevance of Reznikoff's results.

Two sets of figures were used. 1. Results presented by Jacobsen in his data on patients in Copenhagen hospitals. Subjects used were members of Jacobsen's families who had cancer, excluding youngest siblings, twins and only children. Controls were other offspring of the same families; 2. Results provided by Reznikoff's study of 25 women with breast cancer, and control groups of 25 women with benign breast tumours and 25 with no breast pathology. No background information is given about the Jacobsen sample. It is stated that Reznikoff's groups were approximately matched for

age, (they were all still menstruating) and that there were no group differences in the average number of siblings. The additional rather confusing information is given that "cancer subjects significantly less frequently had two or fewer siblings". Presumably some controls came from very large families and so brought up the average number of siblings in the control group.

Results of a chi-square analysis of the Jacobsen data show a significant difference between the cancer patients and controls with regard to their age at the time the next sibling was born. It is noted, however that the difference falls almost entirely in the period 10 - 23 months and only 27% of cancer patients and 9% of controls fall into this group. The majority of both groups were between 10 and 47 months old when the next sibling was born. (Results: 10 - 23 months; cancer 27%, controls 9%: 24 - 35 months, cancer 36%, controls 40%; 36 - 47 months, cancer 17%, controls 24%).

From Reznikoff's data an analysis of variance showed a significant difference ($P < .01$) and comparison of the three groups two at a time resulted in a significant difference between the cancer patients and non-cancer controls ($P < .02$) but no significant difference between cancer and benign or benign and 'normals'. The mean interval separating the cancer patients from the next sibling was 26.53 months, though the Jacobsen data showed no differences between cancer patients and others when the interval was from 24 to 35 months.

It would seem likely that factors such as size of family, the position of the cancer patient in the family and anything that would influence family size (for example religion, and socioeconomic status) could have influenced the Reznikoff results. Also we are told that in the Jacobsen sample "other offspring of the same family" were used as controls but it is not stated whether all other offspring were included.

Kissen has been engaged in a large scale study of patients with lung cancer. This research is not completed, but two reports have been published so far (30, 31). His subjects were patients admitted to the nontuberculous wards of two surgical and one medical chest units in three hospitals. Subjects were unselected and were tested and interviewed before the diagnosis was known. The short form of the Maudsley Personality Inventory was used, together with interviews related to general life history and medical history. Only the medical history and the M.P.I. data have been published, but some details of life history material have been presented as a paper to the Psychosomatic section of the Royal Medical Society in London.

In the analysis of medical history Kissen concentrated on the incidence of psychosomatic disorders in the histories of his subjects. The subjects were divided into three groups on the basis of diagnosis, lung cancer (212 males) non-cancer controls admitted for non-psychosomatic complaints (199 males), and psychosomatic controls, admitted for psychosomatic and neurotic complaints (47 males). In classifying psychosomatic disorders, Kissen "in

general" followed Halliday's criteria (25). He considered that the incidence of psychosomatic disease in the histories of lung cancer patients might be relevant "to the question of whether or not there is a psychosomatic factor in the etiology of lung cancer".

Results are analysed in detail with respect to the history of particular psychosomatic conditions. Kissen found that differences between cancer and non-psychosomatic controls were confined to the age group 45 - 54. In this group it was found that peptic ulcer was common in the histories of cancer patients, and also that cancer patients more frequently had histories of other psychosomatic disorders, particularly nonarticular rheumatism, dermatitis and neuroses. More of the patients with adenocarcinomas had had peptic ulcers than patients with other histological types of lung cancer, but there were few adenocarcinoma patients in the group, which as Kissen says, "prevents satisfactory comparison". He also found that lung cancer patients showed a "broad similarity" to the psychosomatic controls in the incidence of past psychosomatic disorders, but the cancer patients had had rather more peptic ulcers and rather less other psychosomatic disorders. Kissen discusses other evidence suggesting an association between peptic ulcer and chronic lung conditions, including lung cancer. He concludes that "the statistical association of lung cancer with peptic ulcer is more consistent with, though not proof of, a possible psychosomatic factor in the etiology of lung cancer than with other theories". This conclusion is apparently based on the view that certain people

develop different psychosomatic symptoms at different times, and that since lung cancer patients have more frequently had psychosomatic disorders in the past it is likely that the lung cancer is also psychosomatic. This is clearly not a very strong argument for a psychosomatic factor in the etiology of lung cancer.

Results from the M.P.I. are given for 116 male cancer patients and 123 male controls. Mean extraversion score for the cancer patients was 7.59 and for controls 7.09. Mean neuroticism scores were 3.37 for cancer patients and 5.09 for controls, this difference being significant at beyond the 1% level. These results are considered to provide general support for the clinical hypothesis that "cancer patients have a significantly diminished outlet for emotional discharge". It is by no means clear that the cancer scores do support this hypothesis, but nevertheless the significant difference in neuroticism scores must be considered. Some of the data which Kissen has presented from his interview material suggest that the control group he used included a rather high proportion of 'disturbed' persons. For example, Kissen records data relating to childhood behaviour disorders and found that a total of 41.4% of the control group as compared with 26.1% of the cancer group had behaviour disorders as children. Of these patients, 36.2% of the controls and 24.2% of the cancer patients had a history of enuresis. These results certainly suggest that the control group was not a 'normal' one, or at least not representative of the general population. The lower neuroticism score for cancer patients

might therefore be related to the possibility that Kissen used an abnormal control group. However, the neuroticism score for cancer patients is lower than that for the general population, reported by Eysenck.

It is of interest to consider the possible relationship between the two sets of results reported by Kissen. That is it would be relevant to his conclusions to know whether or not peptic ulcer patients obtain M.P.I. scores similar to the cancer patients. Sainsbury (61) has published a study of patients with a variety of psychosomatic diseases (psychosomatic disease being defined for the purpose as disorders given as a chapter or paragraph heading by two to six recognised authorities on psychosomatic medicine). He reports M.P.I. results (using the full inventory) for these patients and for control subjects who were patients with non-psychosomatic diseases, including cancer. Sainsbury included 22 peptic ulcer patients in the psychosomatic group, and although he found significant differences between psychosomatic and non-psychosomatic patients on the neuroticism score, the peptic ulcer patients alone did not differ significantly from the controls. Mean scores for controls (including cancer) were neuroticism, 18.4 and extraversion, 25.7; for peptic ulcer neuroticism 21.4 and extraversion 24.6. Cancer patients (16 cases with variety of sites) obtained mean scores of 22.1 for neuroticism and 21.7 for extraversion. Neither cancer nor peptic ulcer differed significantly from the non-psychosomatic subjects. It is not possible to compare these results for cancer patients with those of Kissen, since they were not all

lung cancer cases, but it of interest to note that peptic ulcer patients did not differ from controls nor show scores similar to the Kissen lung cancer group. It would seem that further evidence would be required before Kissen's conclusions could be accepted, particularly his argument that an association between peptic ulcer and lung cancer indicates a psychosomatic factor in the etiology of lung cancer. In particular there is clearly a need for further investigation of the bases for classifying a disease as 'psychosomatic'.

Schrifte reports a study designed to test a general hypothesis derived from the results suggesting an association between personality and the rate of progress of cancer. (63) From a review of the findings of previous studies she concluded that a "logically sound synthesis" could be made in the form of the hypothesis that "massive unresolved unpleasant feeling tension is the psychological factor that may be related to host resistance to cancer".

Subjects were indigent women between the ages of 30 and 60 with cancer of the cervix who had undergone hysterectomy and were out-patients at the time of testing. The Rorschach test was used, analysed by the De Vos system (analysis of affective components). Subjects were divided into two groups two years after testing on the basis of their recovery or death. That is, patients judged to be clearly free of cancer recurrence were classed as 'good' (15) and those who had died of cancer were classed as 'bad'. (7)

Examination of Rorschach results for the two groups showed no differences in factors considered relevant to the hypothesis.

"Neither extent nor quality of underlying unpleasant feeling tension was a discriminator between those whose cancer was arrested and those whose cancer had continued". Schrifte found, however, that there appeared to be a difference between the 'good' and 'bad' subjects in what she calls "the unpleasant feeling quality of bodily preoccupation". The good group showed "noticeably higher concentration of this than the bad". She therefore returned to the Rorschach records with the intention of examining not only affective tendencies but the whole pattern of psychological functioning. She reports the following impressions.

1. Good cases appeared to be more self-contained and cautious in their approach as opposed to a more reckless, more ambitious or more extravagent approach in the bad cases.
2. Bad cases showed a generally greater expenditure of energy.
3. Good subjects showed a generally greater exploitation of the environment.
4. Good patients tended generally to project bigger animals in their nonmovement percepts and smaller animals in their movement percepts whereas the bad cases showed the reverse.

Schrifte attempted to combine these impressions into a form which could be quantified and tested statistically. She considered the findings could be expressed as a relationship between intake and output (consumption and expenditure) of vitality. Consumption would be measured by what one takes from the blot (form, colour, shading) and expenditure by what one puts into the blot (movement) and vitality by percepts of intact, warmblooded animals and humans. The results were examined from the point of view of the ratio between

the number of nonmovement intact full grown mamals and the number of movement intact full grown mamals. Using this ratio, Schrifte found that the majority of the bad group had a ratio of expenditure greater than consumption and the good group expenditure less than or equal to consumption. (Significance of difference .005) The two groups did not differ in respect of each side of the ratio considered separately, indicating that only the relationship between expenditure and consumption was important.

These results led Schrifte to state a new hypothesis. "If an individual's investment in moving is stronger than his capacity to be moved his resistance to cancer will be lower; and if his investment in moving is less strong than his capacity to be moved his resistance to cancer will tend to be higher".

The Rorschach expenditure consumption ratio was cross validated on two other groups, 14 women who had undergone hysterectomy for benign tumours, and 13 men with various kinds of malignant tumours. The women showed results similar to 'good' cancer patients and significantly different from the 'bad', whereas the men with cancer showed results similar to the 'bad' cancer women and significantly different from the 'good'.

Schrifte does not publish details of the actual responses given by her 'good' and 'bad' subjects, nor does she present the actual figures used in her ratios. (These are presumably included in her unpublished dissertation of which the paper is a summary.) Since the hypothesis as stated appear untestable without knowledge

of the actual responses and how they were evaluated it would seem that these data should have been published. Schrifte's analogies from economics, investment, consumption, expenditure, and also her concept of vitality are perhaps useful as a shorthand method of expressing Rorschach results, but mean very little without knowledge of the results themselves. It does not appear to be very useful to arrive at an hypothesis from a study of this kind if the concepts used are not clearly defined.

One other personality study has been reported but only a brief outline of this can be given here because it has not been published. (13) Beatice Cobb tested 100 cancer patients with questionnaires, projective tests and interviews with the aim of finding out reasons for delaying in securing treatment. From the results of these tests she concluded that there were some characteristics common to all her patients. They are described as regarding emotional involvements as dangerous and show an absence of cathectic attachments. They also showed more and stronger negative reactions to their families than were found in either the general population from which they were drawn or in an equated group of colitis patients.

Finally brief mention should be made of results reported by three other authors. Bulter studied a small group of cancer patients as part of an investigation of the value of hypnosis in the reduction of pain. (11) His conclusions regarding a 'cancer personality' are largely speculative and were incidental to the main purpose of the study. He states, however, that "from a very

intensive study of these cases, either an inhibited individual with repressed hostility, hatred and jealousy, or a good person consumed by self-pity may be the prototype of that (ie. cancer) personality".

Sheldon found that of 200 women, half with cancer of the breast and half with uterine cancer, the majority were endomorphic mesomorphs, almost bovine in character. (64) Sheldon concludes that cancer patients tend to be extroverted, open, objective and cerebrophrenic. However he also reports that the body type of the population from which these women were drawn was similar, and that this build is also frequently found in peptic ulcer patients.

Dunbar (15) states that she and others have found that males with excessive female hormones and females with excessive male hormones tend to develop cancer. She does not quote the evidence for this statement.

1.3 The Effects of Stress on Tumour Growth in Animals

Four animal studies have been reported which have some bearing on the possibility that cancer is a stress disease. Any suggestion that the effects on animals of electric shock or forced swimming are comparable to the possible effects on humans of lost objects or repressed hostility must be treated with extreme caution. However, these animal experiments should be considered as having some relevance to the general hypothesis that cancer is psychosomatic,

since they examine the possibility that cancer is related to experiences which, at least on an authorpomorphic interpretation, would appear to be psychologically stressful.

Reznikoff and Martin undertook an investigation of the effects of stress on mammary cancer in mice. (59) They used two groups of 50 mice each, the groups being of the same breed except that one group (CC2) carried the milk factor, a predisposition to mammary cancer, and the other (CC1) did not. Twenty five of each group were subjected to stress in the form of electric shock and the other twenty five, in most cases litter mates of the experimental groups, served as controls. The mice were placed in the experimental boxes when they reached the age of four months and had had one litter. The experimental mice were shocked intermittently for 24 hours a day, 7 days a week, without interruption. Control mice lived in identical boxes. When a tumour developed the affected mouse was removed, "sacrificed", weighed and autopsied. The research was terminated when those left were at least 350 days old. At this point all were sacrificed and autopsied. It was found that the shocked mice weighed significantly less than the controls and this was not the result of age discrepancies at the time of death. The authors suggest that the effect of stress on weight should be controlled in future studies of this kind. Results were negative. No tumours developed in either of the CC1 groups - stressed and non-stressed. In the CC2 groups 19 of the experimental animals and 22 of the controls developed tumours. On the average the

tumours appeared 27 days earlier in the experimental group, but the difference was not statistically significant.

Rashkis (57) suggests that since the known effects of stress are largely catabolic it might be expected that the growth of tumours would be hindered rather than abetted by stress experiences. His hypothesis was that organisms under stress will show less tendency to develop experimentally induced tumours than will normal controls.

In the first part of the study he used 50 young adult male Swiss albino mice, forced swimming as stressor and the acites tumour as experimental neoplasm. All the animals were injected with 0.15 mg of a fluid acites tumour in a 1:4 dilution with normal saline. At the time of innoculation 25 of the animals had been subjected to forced swimming in glass jars containing water at room temperature, 6 to 8 mice in each jar. In 19 days they had swum for a total of $48\frac{3}{4}$ hours in daily sessions increasing from $1\frac{1}{2}$ to $4\frac{1}{2}$ hours. Following innoculation, swimming was continued for the experimental group for 34 hours over 14 days, the time being decreased each day. By the 14th day after innoculation 10 of the control group and three of the experimental group had died. After swimming stopped the experimental group developed tumours at an accelerated rate. The mean survival time of the experimental group was 20% longer than that of the controls.

In the second part of the study 76 mice were used and a neoplasm of much longer latency, to test the effects of varied amounts of stress. The animals were injected subcutaneously with 1 mg of

methylcholanthrene in .25mg of mineral oil. The animals were divided into four groups. Thirty five swam to exhaustion for from five to twenty six days before and after injection, 12 only prior to injection, 7 only after injection and 16 both before and after. Forty one mice did no swimming, but were deprived of food while the experimental mice swam. The animals were housed individually and swam individually.

Two types of tumour developed, a papilloma or epithelial tumour and a typical substaneous sarcoma from methylcholanthrene. The principal results can be summarised as follows:

No. days after injection	Tumours developed		Animals dead	
	Experimental	Control	Experimental	Control
100	50%	72%	1	9
132			5	7
165			38	34

Modal survival time was 139 days, the majority surviving from between 138 and 142 days. Seven experimental animals survived longer than 142 days and these were animals who has been subjected to the least amount of swimming. The first two experimental animals to die were of the group subjected to the greatest amount of swimming. The author concludes therefore that there may be an optimal amount of stress affording maximal protection against tumours. His results, however, do not appear to show clearly that any amount of stress provides such protection.

MacMillan (48) reports results of research done by Ivanov-

Smolensky and other Russians of the Pavlovian school. They found that cancer of the internal organs developed spontaneously in dogs subjected frequently and for long periods to experimental neurosis. The Russians also found that the possibility of carcinogenic substances producing skin cancer in dogs and mice was realised only when experimental neuroses had been produced. Finally, they found that natural or artificial sleep reduced the effects of carcinogens and transplanted malignant tumours. The details quoted by MacMillan are insufficient to allow of any appraisal of this Russian work.

1.4 Differential Cancer Incidence - Statistical Studies

Comparison of cancer incidence in different populations could theoretically provide evidence of a psychological factor in the disease etiology if the psychological characteristics of the population were pre-defined. Differential incidence in different cultural or subcultural groups has aroused some speculation about psychological influence. For example, Levin is reported to have attributed a low incidence of cancer in the American Indian to "diminished nervous and mental irritation". (46) Meyer thought that the restful life of the Indian prevented "vagotonia", a state he considered important in the development of cancer. (52) Some of the personality studies reported above have noted racial and religious incidence factors (for example low incidence of cervix cancer in Jewish women) but have not attempted to account for them

in psychological terms. The interesting and largely unexplained cultural variations in cancer incidence have, however, not yet roused the interest of psychologists or psychologically oriented anthropologists. It would be difficult at present to go beyond the Levin and Meyer type of speculation.

Le Shan and Worthington attempted to use various statistical studies to support the clinical hypothesis that the loss of a significant relationship affected cancer patients prior to onset of the disease more often than could be accounted for by chance. (44) From this they derived five specific hypotheses which could be tested by reference to statistical reports of cancer incidence.

i. Cancer rates in women should be related to their marital status. Of the four marital groups, cancer rates should be highest in widows, then divorced, then married and lowest in single women.

ii. Married individuals with children should have lower cancer mortality rates than married individuals without children.

iii. Second generation Americans should have a higher cancer rate than either first or third generation.

iv. Paranoid schizophrenic patients should have an abnormally high cancer rate.

v. Countries at war in which the general population feels emotionally involved and in general agreement with the conflict should show lower cancer rates during war time. Countries which are emotionally disrupted by war in which there is widespread disagreement as to which side, if any, to join should show an increase in cancer mortality rate.

The authors quote only those studies which support their hypotheses, claiming that there were none they could find which did not support them "in a reasonably careful search of the literature". In support of the first hypothesis they quote figures from five reports relating to marital status, all of which show the results predicted. They do not, however, refer to figures showing a higher incidence of breast cancer in single women ( ). Since breast cancer is the most frequently occurring type in females its greater frequency in unmarried women would seem an important fact to consider. In support of the fourth hypotheses they quote from three studies, ignoring at least two (Buel and Erentheil, mentioned below) which did not find a higher incidence in paranoid schizophrenics. The remaining three of the hypotheses are supported by only one or two studies and in view of the complex problems arising in dealing with statistics of this nature one would like to see further evidence before accepting these results. In particular Le Shan and Worthington's fifth hypothesis requires many assumptions concerning emotional involvement in war which might be very difficult to establish.

These authors claim that they have contributed a new methodological approach to the cancer problem, predicting incidence rates from a clinically derived hypothesis. In theory this is a sound method, but in fact the authors must know what data are available and what differences are shown. Their method is therefore not essentially different from seeking hypothetical explanations, after the event, for known findings. Le Shan and Worthington are most insistent

that they did not do this, possibly too insistent. However, one might reasonably ask why they selected these particular hypotheses, all of which could be supported by available figures. The third, fourth and fifth of their hypotheses in particular arouse doubts about the method, because it is far from clear that the predictions made do derive from the general "loss of significant relationships" hypothesis. The authors make assumptions in reaching these predictions which suggest that they were in fact developing a hypothetical explanation for known data.

Studies reporting a higher incidence of cancer in psychotic patients in general and paranoid patients in particular have been quoted in the literature on psychosomatic aspects of cancer (62, 55). These studies are discussed below. Le Shan and Worthington have gained nothing methodologically by linking a selection of results from these reports to a loss of relationship hypothesis, particularly when so little is known about the etiology of the psychoses. Their "prediction" requires the assumption that paranoid schizophrenics are more likely to have had a strong relationship prior to the onset of psychosis than other types of schizophrenics (ie. catatonic and hebephrenic) but they give no evidence to support this.

Studies of cancer incidence in psychotic, or mental hospital populations have been published intermittently for many years. The literature has been reviewed briefly by Scheflen (62) and Erentheil (16) and in detail by Perrin and Pierce. (55) These authors draw attention to many problems confronting researchers in

this field, few of which have been solved. Some of the early studies wasted much labour by taking an incorrect measure of cancer incidence. That is, many of the reports have compared the proportionate mortality rate from cancer in mental hospital and general populations, thereby not considering the effects of epidemics and the fact that mental hospital patients are not subject to the same epidemic risks as the general population. Perrin and Pierce point out that at the time most of these studies were done mental hospital patients were exposed particularly to tuberculosis and syphilis. Scheflen reports that the total death rate in Massachussets mental hospitals was 7 times higher than that in the general population of the State. He states that a similar difference in death rate has been reported in other parts of the United States and in Great Britain. Hence the proportion of cancer deaths would be expected to be lower in this population than in the general population. This was indeed shown to be the case. Results from the proportionate mortality rate studies are summarised below (after Scheflen).

Author	Incidence % in Psychotic Population		Incidence % in General Population
Pool	3.7		12.0
Board of Control Commissioners for Lunacy	3.4		12.4
Hahnemanns	5.5		15.1
Buel	6.5		13.0
Warren & Canavan	4.3		13.1
Chevens	7.0		-
Lucksch	2.7		3.7
Lord & McGrath	3.9		13.5
Ospahl	3.5	Males	11.4
		Females	12.57

A number of reports have been published comparing the cancer death rate in mental hospital and general populations. These have shown the opposite trend, that is more deaths from cancer in mental hospitals. Lord and McGrath reported figures based on cancer death rate in addition to those quoted above for proportionate mortality rate. (47) Figures were obtained from British mental hospitals for the period 1920 to 1928, a total of 51,513 patients, and control data from general population figures for England and Wales. The rate of cancer deaths per 1,000 was 3.1 in the mental hospital population and 1.8 in the general population.

Ospahl analysed the figures for 17 Norwegian mental hospitals, a total of 7,000 patients. (53) He presents both proportionate mortality rate figures (see above) and cancer death rate figures. The latter were broken down into age and sex groups, giving the cancer death rate per 1,000 in each group.

	Psychotics			General Population		
Age :	40-50	50-60	60-70	40-50	50-60	60-70
Cancer Death Rate :	1.24	3.3	6.39	1.00	2.4	5.2

General population figures were based on Norwegian Vital Statistics 1929.

Peller reported on 2,665 cases in the St. Elizabeth Hospital in Washington in the period 1930-39. (54) He reports the incidence of cancer deaths for this mental hospital population, broken down into Caucasian - 125 and Negro - 64. From the New York cancer rates Peller predicted the expected incidence of cancer deaths in the

same age groups:- Caucasian - 150.2 and Negro - 59.8.

Rudolph and Ashby used a weighting system based on age groupings for their comparison of mental hospital and general population cancer deaths in England and Wales. (60) The periods covered were 1907-13 and 1921-27. Their aim was to weight according to a figure representing the magnitude and importance of each age group in the general population. The figure used was the total number living in each age group, summing for all years, both sexes and the whole population.

	Mental Hospital		General Population	
	Males	Females	Males	Females
Weighted Death Rate	.588	.772 (1907-13)	.428	.535 (1907-13)
	.521	.612 (1921-27)	.458	.512 (1921-27)

A number of papers have attempted to show differential cancer rates for various types of psychosis. These have indicated a higher rate of cancer in paranoid cases, but the evidence is inconclusive. Freeman (19) found that of 1,000 mental hospital deaths, autopsies showed 4.0% of deaths from cancer were schizoid patients and 13.6% were paranoid patients. Moore (51) found "paranoid trends" in 75% of 700 patients in whom autopsy had revealed cancer, but he does not record what proportion of the total number of autopsied cases (ie. including non-cancer cases) had shown paranoid trends. Pollack (56) believed that paranoid patients had a high incidence of both cancer and hypertrophic changes in the endocrine glands, but he reported only 16 cancer cases in 200 autopsies of paranoid patients. Buel (10) reported that of 76 autopsied cancer

cases 41 were schizoid, 1 paranoid, 11 manic depressive, 10 senile and 13 "other". Chevens (12) found that 15% of 101 paranoid patients died of cancer but his figures also show that 32% of these patients died of cardiac disease. White (73) has suggested that the higher incidence of cancer in paranoids (if it exists) may be due to the increased age at which paranoid patients die.

A few authors claim to have found higher incidence in psychotics of certain types of cancer. Hahnemanns (24) found a slightly increased incidence of cancer of the tongue and pancreas in his group of patients, and no fatal skin cancer. Lord and McGrath found higher incidence of cancer of the pancreas in British mental hospitals. Ospahl reports that 48% of the cancer cases in his sample of Norwegian mental hospitals had stomach cancer and 6.7% cancer of the pancreas.

The two most recent and most careful studies (Scheflen & Erentheil) failed to find a statistically significant difference between mental hospital and general populations.

Scheflen analysed the cancer death rates in the Worcester Hospital Massachussets for the period 1928-42, the total number of deaths being 3,640. For the total psychotic population the cancer death rate was significantly higher than would be expected on the basis of control data (general population statistics for Massachussets, excluding psychotics). (62) However, further analysis showed that this differences was largely due to the high cancer incidence in

psychosis with cerebral arteriosclerosis and senile psychosis. Many of the patients in these two groups already had advanced cancer when admitted to the hospital. Scheflen therefore excluded them and when this was done no significant difference appeared between psychotic and non-psychotic groups.

Scheflen was also interested in earlier findings which suggested a higher cancer rate in paranoid patients. His figures supported these findings, showing a significantly higher cancer death rate in paranoid schizophrenia and paranoid conditions.

	Expected Cancer Death Rate	Actual Cancer Death Rate
Schizophrenics - all types	3.5	4.2
Paranoid types	3.5	9.9
Hebephrenic & catatonic types	2.0	2.5
Paranoid conditions	6.2	10.1
Manic depressive & involutional Psychoses	4.8	3.8

Scheflen did not find any specific types of cancer to be more common in the psychotic group.

Erentheil wished to check previous results based on cancer mortality rates by studying annual incidence of cancer among mental patients, that is the number of cases first diagnosed each year. He gathered data from the Veterans Association Hospital, Boston for a period of two years. (16) The actual incidence of cancer was 44 cases and the expected incidence calculated from U.S. Public Health figures for the White male population was 33.6. The difference is

not statistically significant. Erentheil attributes the slightly higher rate in the hospital population to more constant medical attention resulting in earlier detection of cancer. He also broke down the figures to investigate differential incidence in the various psychotic types.

	Actual Incidence	Expected Incidence
Paranoid	10	7.4
Catatonic & Hebephrenic	13	12.1
All Schizophrenic (excluding Paranoid)	20	15.0

None of these differences is significant, and thus Erentheil's study failed to support the results reported in previous research.

1.5 Remissions and Exacerbations.

Several authors have quoted unusual case studies in which unexplained developments have occurred, apparently pointing to the influence of some psychological factors on remissions and exacerbations. There are a number of examples of patients who, according to medical criteria, should have died long since but who continue to live for years. This type of patient has apparently never been carefully studied with the intention of establishing whether or not personality factors may play a part in keeping the malignancy at bay. One interesting case is reported in some detail by Klopfer (32). Mr Wright was a terminal lymphosarcoma patient at the time when a new 'wonder' drug was announced. He had developed

a resistance to all known palliative treatment and his doctors did not expect him to live more than a few weeks at the most. Mr. Wright, however, remained optimistic and grasped at the new drug, Krebiogen, as the miracle cure he had been hoping for. He was given the drug and in three days his doctors were astounded at the changes. The tumour masses were reported to have "melted like snowballs on a hot stove" and were reduced to half the size. Other patients who had received the drug were unchanged or worse. After some time of renewed health Mr. Wright read reports in the papers that the wonder drug had not proved sucessful. His condition deteriorated rapidly and since nothing else could be done for him his doctor decided to try an experiment. The patient was told that the newspaper reports were incorrect and that he would receive treatment from a new super-strong preparation of the drug. After this explanation and an injection of water he again showed remarkable improvement. Unfortunately the final results of the trials with this drug were headlined in the papers as a complete failure. Mr. Wright's condition immediately deteriorated and he died very soon afterwards. This patient was one of the group tested by Blumberg, West and Ellis and was one of the cases whom Klopfer could not identify as fast or slow from his Rorschach.

Meerloo (50) describes the case of a girl with sarcoma of the jaw who was referred to him for therapy because she refused an operation. Treatment was unsucessful in persuading her to undergo the operation but during the course of therapy the growth completely

disappeared. Meerloo does not claim that this cure was achieved by therapy nor does he attempt to relate it to any emotional disturbances. He quotes the case to explain why he became interested in the possibility that personality factors may have some effect on malignancy.

Le Shan and Grassman (39) report a case of girl with Hodgkins disease whose fiance broke off their engagement when he heard about her illness. She immediately got worse but improved markedly when the fiance decided that he would marry her after all.

Greene, Young and Swisher (22) put forward some suggestions relating to the effects of psychological factors on remissions and exacerbations, but their material is purely speculative. There appear to be no systematic studies which relate specific experiences to remissions and exacerbations in terms of personality characteristics. This would require very intensive study but if systematic studies could be done the results might be very rewarding.

CHAPTER 2

EVALUATION OF RESEARCH

From the research discussed in the previous section it is possible to identify five specific experimental hypotheses which have been tested.

i. Certain personality characteristics are distinctively associated with cancer; either cancer in general or in specific sites.

ii. Prior to the onset or diagnosis of cancer, patients have experienced a significant stress experience.

iii. Personality characteristics are distinctively associated with the rate of progress of the disease; that is the length of the period from diagnosis to death.

iv. The incidence of cancer differs in mental hospital populations from incidence in the general population.

v. Stress experiences influence the development of animal cancer.

A sixth hypothesis has also been mentioned, namely that personality characteristics or emotional experiences are associated with remissions or exacerbations in the course of the disease. This has not however, been systematically investigated.

The common aim of all the studies is to show an association between psychological disturbance and cancer. Basically two

'psychosomatic' hypotheses are being considered: (cf. Bacon, Renneker & Cutler p.)

a. that chronic psychological dysfunction may create a favourable physiological environment for the development of cancer. Emotional disturbance in some way produces a chronic physiological or biochemical dysfunction which directly or indirectly causes uncontrolled cell growth.

b. a major emotional trauma may produce physiological or biochemical changes precipitating uncontrolled cell growth.

Obviously none of the evidence cited gives any direct support to the psychosomatic hypotheses. It therefore appears necessary to make a distinction between the psychosomatic and experimental hypotheses for the purpose of evaluating the evidence. The evaluation to be made in this thesis will be concerned first with the five specific experimental hypotheses listed above, considering how far these have been supported by research. The psychosomatic hypotheses present a theoretical rather than a research problem; a consideration of whether or not the experimental hypotheses in any sense relate to etiology. This will be discussed later.

Evaluation of the research evidence is taken here to involve both a critical discussion of methodology and an experimental test of results. The discussion which follows has therefore the dual aim of assessing the evidence so far available, and defining the problem for an experimental test of results to be reported in the two following chapters. Greater attention is paid to the research involving direct psychological studies of cancer patients, since these make up the major part of published evidence.

In approaching the correlation of psychological factors with cancer, researchers have two major problems to contend with; control and assessment techniques. It is quite clear from the literature review that these researchers have come no nearer to solving the problems than their predecessors who attempted similar studies of other diseases. In fact in many respects they are further from a solution, and some do not seem even to be aware of the problems. There are, of course, special difficulties involved in dealing with cancer patients which limit the range of appropriate assessment techniques and complicate the selection of control subjects.

2.1 Control.

The problem of control is perhaps the more difficult one. In the psychological studies of cancer patients it should be approached not only in selecting a matched control group but also in the selection of cancer patients. A most important difference between these patients and any group of non-cancer controls is the effects of a very serious and probably fatal illness and all its attendant experiences. Some attempt could be made to lessen this difference by selecting cancer patients who are in the early stages of the disease and who have not been through the many stressful experiences of radiotherapy, surgery and other treatments. Reznikoff and Kissen have achieved better control than any other authors in taking their subjects from out-patients clinics, before diagnosis

and subsequently selecting the groups on the basis of diagnosis. Most authors appear to attach very little importance to this aspect and very few have mentioned at what stage of illness their subjects were or what treatments they had received.

Comparison of patients with cancer of different sites eliminates the illness factor to a large extent though there may well be differences in treatment experiences between the groups and these should be considered and noted. There may also be differences resulting from the site of the neoplasm, a factor which is particularly obvious in Fisher and Cleveland's study of body image, but might also be of importance in comparing cases of breast and cervix cancer.

Another variable which has usually been ignored is the patients' knowledge of their diagnosis, since most studies have apparently been done after diagnosis. This is a very difficult problem where medical opinion is opposed to telling all but a selected few that they have cancer. Ideally subjects should be chosen who have been told and who have accepted the information. The study by West, Blumberg and Ellis is exceptional in this respect. The psychological effects in these cases would at least be available to the investigator whereas in the case of patients who have not been told or who refuse to believe there is no way of knowing about resultant personality disturbance. However, as long as cancer remains a horrible threat to most people there can be no satisfactory solution. Choice of patients who have been told would at present introduce a major bias

since only a very highly selected group would have been informed. In this country it would be difficult to find a large enough group. The relatively large numbers of patients who apparently refuse to accept the diagnosis when told would also complicate the issue. If knowledge of diagnosis cannot be controlled it should at least be acknowledged as an important variable and one might reasonably expect authors to include some reference to it in their description of subjects. In comparisons between cancer of different sites it might well be of some importance if, for example, breast cancer patients were more likely to have been told than those with a less favourable prognosis. It is also probable that patients suspect cancer more readily if their disease is sited in one of the more common areas, for example breast or lung.

Selection of a control group to eliminate status variables of all kinds should present no greater difficulty for this research than for any other of a similar nature. There are, however, few studies which have adequately controlled status variables. Some have not used a control group at all. Many studies have failed to match their control subjects even for age, or at least fail to mention it if they have done so. In some cases information about control is obscured, as for example in Wheeler and Caldwell's report which gives details for experimental and control subjects combined, an extraordinary procedure in an ostensibly scientific report. Socioeconomic status may be controlled automatically in selecting all subjects from the same hospital or clinic but few authors have

explicitly stated that this was the case. Reznikoff's groups of women were selected only on the basis of speaking English and menstruation. The principal findings of the study, relating to family size and death of siblings, could be associated with social class, religion or race. It might be assumed that the two groups were comparable in these respects but his results would be more convincing if the facts were specifically stated. Sub-cultural variations are obviously of extreme importance in analysis of life history data. Stephenson and Grace's study is open to the same criticism. Krasnoff is the only author who has provided information as to how status variables are likely to have affected results.

In the statistical studies of cancer incidence in mental hospitals control problems are different but no less difficult. One major difficulty arises in studies making use of statistics collected for a different purpose (e.g. census data) for which factors important in the particular study have not all been taken into account. Thus diet, occupation, family history, economic conditions and exposure to noxious agents should ideally be controlled but it would be difficult if not impossible to break down general population statistics to control all these factors.

The establishment of cause of death has presented another problem. Most studies have autopsy figures for the mental hospital groups but for only a small proportion of the general population. Scheflen made the assumption that the occurrence of cancer in cases of death without autopsy would be proportionably the same as cases

with autopsy. This may be correct but it is impossible to establish. Erentheil maintains that his method (that is taking actual incidence as diagnosed each year) has the advantage of avoiding the cause of death problem, but it is open to criticism on the grounds that some cancer cases are not diagnosed and diagnoses can be mistaken.

Some of the earlier incidence studies failed to select from the varieties of disorders leading to placement in mental hospitals, taking together schizophrenia, mental deficiency, neurosyphilis and ever including brain tumours.

In the animal studies control is not a problem and these studies stand out in the literature for this reason.

2.2. Techniques

The central problem in selecting assessment techniques has been summed up by Barendregt in his discussion of test methods in psychosomatic research (6). "The psychologist must choose between knowing much badly or comparatively little well", refering to the choice between clinical and statistical methods. Barendregt is confident that researchers will choose the latter and that this is the right choice.

Disregarding for the moment Barendregt's judgement of good and bad techniques it is pertinent to consider his distinction between much and little. A common defence of clinical methods is that

they provide for a fuller and deeper analysis of personality dynamics than do the superficial statistical techniques. One would therefore except that clinical studies of cancer patients would show up any important characteristics associated with the disease. The most fruitful studies have indeed been those using clinical methods, fruitful that is in the relative amount of information produced. Evans, Bacon, Renneker and Cutler and Greene in particular have provided very full descriptions of the psychology of cancer patients. However, it is only the interview which has been fruitful. Projective tests have produced surprisingly little evidence that cancer patients differ from other people in any respect. With the exception of Klopfer's speculative discussion of the West, Blumberg and Ellis data, and the Fisher and Cleveland barrier score, the Rorschach has not shown expected differences. The T.A.T., sentence completion and drawing tests have been even less sucessful. Only the rather dubious Worthington Personal History has provided positive results of any importance. (See Chapter 3 and Appendix B) It might be that personality characteristics associated with cancer are not of the kind which the Rorschach and T.A.T. probe, though this seems unlikely. It would seem reasonable to argue that if there are such characteristics these techniques should find at least some of them consistently. Altogether, with the exception of the few studies employing intensive interviewing, the clinical research has produced no more than the statistical.

Of greater importance in assessing research results is

Barendregt's distinction between bad and good techniques. As it stands his judgement is open to argument. He contends that the validity of clinical methods has not been established and that norms are not available. This of course is an important criticism, but when research is designed to compare two groups with the simple objective of determining whether or not they differ, validity and norms are of less importance. Validation is a very confused concept in the field of personality assessment and one cannot make categorical pronouncements about it. A more crucial factor would seem to be communication. Substitution of "communicating" for "knowing" in Barendregt's statement moves the emphasis from what the psychologist himself knows, which may be much well in his own opinion, to what he can describe to others. This is a more satisfactory guide for research because it lifts the standard out of the realm of opinion. A distinction can be made objectively between good and bad research in terms of description and definition, or communication.

It is quite clear from the literature review that description and definition of method and results leave much to be desired. Interviews and the analysis of projective data are difficult to describe fully and for this reason they can be considered unsuitable techniques for research. Nevertheless it is possible to systematise interview and projective analyses and to define results clearly. Reznikoff's paper illustrates very well that it can be done. Most of the clinical studies have made no attempt to do so. Method is

simply described as an interview, with perhaps some vague indication of content (as for example "factors influencing psycho-sexual development") and many socalled results are interpretations of undescribed responses. Evan's work is the most blatant example of communication failure. Bacon, Renneker and Cutler present three characteristics which they fail to define and Green's reports are a mass of undefined interpretation. Le Shan and Worthington have not only failed to describe either Personal History analyses or interviews, but also make no distinction between the two techniques in their presentation of results.

Le Shan has himself drawn attention to two special problems which may arise in interviewing cancer patients. (37) He maintains that many patients rather eagerly grasp at any suggestion that emotional factors have contributed to their disease and may therefore provide the kind of information the interviewer is seeking. He also suggests that since the cancer patient is typically co-operative and anxious to please the likelihood of obtaining the 'right' answers is further increased. If Le Shan is correct then the general weakness of the interview as a research method may well be exaggerated when it is used with cancer patients. Le Shan's advice could be of help to researchers in this field but it is regrettable that neither he nor the other authors have given any indication as to whether such factors appeared to be influencing their results.

The presentation of case histories is the usual method of

over-coming clinical communication problems. A number of authors have published case histories, either for all subjects (Greene only) or for a selection of subjects. Selection of case histories obviously raises the question of bias in that there is likely to be a temptation to select the most 'typical'. It is limited also by the common practice of selecting only histories of the experimental group and ignoring the control subjects. These are minor problems and case histories can, if well presented, provide a clear picture of the data from which classified results were obtained. However, they fail to solve the basic problem of communicating the method used to secure the information in the first place.

The clinical case is very much strengthened by blind analyses and these have given impressive support to the findings of studies in which sucessful blind predictions were made (Fisher and Cleveland and Le Shan and Worthington). It is surprising that this method has not been employed more often and that the two studies mentioned restricted blind analyses to very few of the total number of their subjects. Reznikoff, Kissen and Schrifte had ideal design for a blind prediction study and it is unfortunate that they failed to use it with interview and projective material. Had all the clinical investigations been extended to include a test of results by blind analyses the value of the research would be much increased.

Results have all been presented in quantified form and when control groups were used, [redacted] statistical tests have been applied. Quantification of interview data is obviously necessary, but some

caution is also necessary in presenting such quantified results. When a finding is expressed as a number it may subtly achieve an undeserved 'scientific' status. It could be argued that a discursive account of interview and other similar material may be of greater value than the adding together of a series of possibly illfounded intuitive deductions. The attraction and possible danger of numbers is well illustrated in literature reviews such as Le Shan (38) and James (29) where raw figures and percentages are quoted without reference to the nature of the data quantified.

Quantification of projective test data presents similar problems and also some different ones. Rorschach experts have frequently warned against the use of single scores for statistical comparison. Not only do individual scores mean little in isolation, but significant differences between groups on one or two scores could occur by chance, considered in relation to the total number of scores in the Rorschach system. Cronbach (14) has discussed the question of quantification of Rorschach scores for groups of subjects and has indicated the problems of such analyses. In particular confusion arises as to whether a particular score should be considered in relation to the individual record in which it occurs or to all records for the group.

The significance of differences occuring in series of significance tests has also been ignored by those using other techniques. The most common fault is failure to state the total number of items tested for significance, thus obscuring the true significance of

those items which apparently differentiate between groups. In most studies only a few significant differences have occurred out of a rather large number calculated and while these may represent real differences between the groups, in view of the information provided they may not.

The inappropriate method used in incidence studies taking proportionate mortality rate in comparing mental hospital and general population has already been discussed. Obviously comparisons of proportionate mortality rates are valid only if the total death rates are comparable in the two populations. Since this is not the case these studies must be disregarded.

2.3 Consensus of Results.

With relatively few studies published, each using somewhat different methods and few testing specific hypotheses, one could not expect a high measure of agreement between results. There ought, however, to be some consistent pattern emerging if personality characteristics and life history are associated with cancer. Le Shan and Worthington wrote of "a confusion of semantic and methodological differences" and this is indeed an accurate description. As a result points of agreement can only be stated in general terms. The principal characteristics of cancer patients, taken here to be those described by three or more authors, can be summarised as follows:

a. a traumatic experience at some time prior to diagnosis

b. difficulty in expressing hostility, or repressed hostility

c. some degree of disturbance in relationship with one or both parents.

d. disturbance in sexual functioning (reported only in patients with cancer in sexual sites)

e. extraversion, variously defined.

Agreement of results from different studies could be considered as cross-validation and hence provide evidence that these characteristics are associated with cancer. In view of the criticisms noted above however, one hesitates to draw this conclusion. It is of interest to note here a field of research with rather similar problems. Bowlby (8) in his review of the literature on maternal deprivation concluded "What each individual piece of work lacks in thoroughness or precision is largely made good by the concordance of the whole. Nothing in scientific method carries more weight than this". Barbara Wootton has rather sharply attacked this conclusion. (76) "This seems a decidedly dangerous doctrine, inasmuch as it comes near to an assertion that it does not matter if all the work is slipshod, so long as all the answers are much the same". She is more inclined to accept Bowlby's alternative conclusion that "relatively few studies taken by themselves are more than suggestive". (76) Precisely the same conclusions could be drawn from the cancer studies and Barbara Wootton's comment is equally applicable. One might also take up Bowlby's reference to scientific method. Concordance, as he says, carries much weight,

but the method must have been scientific initially in order to give it this weight. Methods which are susceptible to criticism for lack of thoroughness and precision can hardly be called scientific. In personality research the weaker methods are those in which lack of standardisation and objectivity paves the way for interpretations to be influenced directly or indirectly by results of previous studies, and hence produce a spurious agreement.

One might look for agreement within studies using several techniques for cross validation. Here also semantic and methodological differences intrude and it is practically impossible to find agreement between the results obtained from different methods. Translation of Rorschach terminology for comparison with interview data, for example, is hardly possible. Few authors have selected techniques the results of which can be directly compared, and many have made no attempt to make any comparisons (eg. Le Shan and Worthington). This possibly reflects a weakness in research design, but, perhaps more important, it reflects the general inadequacy and confusion of personality assessment techniques.

2.4 Conclusion.

Basically this evaluation has been concerned with two questions;

a. have cancer patients been shown to differ either from other people or from patients with cancer of different sites.

b. have they been shown to differ in the ways described?

The foregoing discussion implies a negative answer to both questions. Three aspects of the studies are relevant to the questions; control, assessment techniques and consensus of results. In general the first two are considered here to be quite inadequate to support a positive answer to either question. Some of the individual studies have been carefully designed and methodologically sound but all are susceptible to some criticism. None is more than suggestive. Agreement between studies is also suggestive, but the characteristics upon which they agree seem unlikely to have any special significance in relation to cancer. It is hardly necessary to quote evidence that none is peculiar to cancer patients. It might be that the presence of all five personality characteristics or life history patterns is associated significantly with cancer, but a summary of results derived from various studies cannot demonstrate such an association. Considered as a whole this research has not established that either personality characteristics or stress experiences are associated with cancer. However, there are some specific findings which cannot easily be dismissed. It has been implied here that the published results are merely by-products of the design and techniques used in these studies but this remains to be established experimentally.

Although it is easy to find faults in the literature it is less easy to correct them. Many of the deficiencies mentioned here are built in to this type of research and at present cannot be avoided. For example, obtaining a control group for a study of

personality characteristics associated with cancer is a practical impossibility. Nevertheless, accepting certain limitations, further research should be designed to throw more light on the two basic questions stated above. Few of the studies published have been repeated and few specific results have been tested by other methods. If any degree of consensus is to be achieved repetition and specific testing are clearly necessary. However, in view of the criticisms made and the generally negative conclusions reached it would be difficult to justify a direct follow-up of any particular study or studies. The negative conclusion implies a negative hypothesis for further research. The problem thus becomes one of establishing that the findings reported are by-products of the design and methods used and do not represent psychological characteristics significantly associated with cancer. It would obviously not be possible to set up a general negative hypothesis of this kind, since there is no adequate way of testing it. However an attempt could be made on the line suggested, by correcting research faults as far as possible, and by testing alternative explanations of published findings.

It was decided to follow up the research of Le Shan and Worthington in this way. Their research stands out in the literature for several reasons. It has a broader scope than most of the other studies, in considering all types of cancer. Results are positive and clear-cut and were confirmed in a repetition. Moreover they are given strong support by the blind prediction experiment.

It has been argued (55) that research should be confined to a specific type of cancer since so little is known about the disease and so many varieties are identifiable. However, Le Shan and Worthington's findings, related to neoplastic development in general, provide their own justification for adopting this approach. Thus it was considered that Le Shan and Worthington appear to have a strong case for their contention that psychological factors are associated with cancer, and that being an apparently strong case it would be the most appropriate one to investigate.

However, a closer examination of the studies reveals a number of weaknesses. In fact they illustrate many of the most serious faults for which psychological studies of cancer patients were criticised in the previous section. Le Shan and Worthington's non-cancer subjects constitute a control group in only one respect; they did not have cancer. In the first study the groups were not matched even for age and sex and in the second for age only. No background information is published about any of the subjects except for the age, sex and diagnosis of nine cancer patients in the second study. The assessment techniques used are perhaps more obscure than usual. The Personal History test has never been published and very little is known about it. Examination of available evidence suggests that it is not a suitable technique for this research. (See Appendix B) Interviews were used in the second study but the authors state only the length of time spent on interviewing and evidently consider content to be unimportant. Results

TABLE 1.

Factors found by Le Shan and Worthington to differentiate between their cancer and non-cancer subjects.

Differentiating factors	Percentage Cancer Subjects		Percentage Non-Cancer Subjects	
	1st Study	2nd Study	1st Study	2nd Study
Loss of important relationship	72	77	12	14
Difficulty in expressing hostility	47	64	25	32
Tension with parents	38	38	11	12
Feelings of unworthiness	--	79	--	34
Typical life history pattern	--	62	--	10

are stated directly in terms of the percentages of each group found to 'have' certain personality characteristics but no indication is given as to how the data were quantified. Only brief reference is made to the derivation of results from basic data. For example, cancer patients are said to have difficulty in expressing hostility because they failed to list any school subjects they disliked and did not admit to disliking any aspect of their jobs. That is not very convincing evidence, particularly when validation data on the Personal History are not readily available, and when examined appear quite inadequate. (See Appendix B) In the second study data from the Personal History and from interviews are not distinguished in presenting results. It is thus not shown whether or not the interviews confirmed Personal History results.

In view of these defects it is difficult to accept the authors' conclusions, either that there are personality characteristics specifically associated with cancer, or that the patients studied really possessed the particular characteristics described. Confirmation of results in the second study provides little support since the procedure was not improved. This leaves the blind prediction experiment as the only objective evidence Le Shan and Worthington have offered.

Twenty eight new subjects were used; 15 cancer patients and 13 controls. All Personal History records were obtained at an outpatients clinic by a receptionist. The authors state that none contained clues in the health area of the questionnaire or elsewhere

which would reveal the diagnosis. The control group comprised five persons with no known disease, three hyperthyroid patients, and one each with arteriosclerosis, allergy, psoriasis, dermatitis, and obesity. The cancer group comprised four patients with skin cancer, three with breast cancer and one each with cancer of the thyroid, stomach, rectum, tongue, colon, uterus, cervix and lymph nodes. Predictions were made "solely from the presence or absence of the three psychological factors mentioned", this is, the loss of an important relationship, difficulty in expressing hostility and tension over the death of parents.

Le Shan and Worthington report that they identified 24 out of the total 28 subjects correctly as cancer or non-cancer. The four mistakes occurred in identifying one arteriosclerosis, one allergy and one hyperthyroid patient as having cancer, and one skin cancer patient as non-cancer.

The result of this experiment appears at first sight to constitute impressive evidence that the described characteristics do differentiate between cancer and non-cancer subjects. However, apparently the cancer and control groups were not matched for age and sex, variables which might be of considerable importance in such an experiment. The authors do not give any indication of how they actually arrived at their decisions about the subjects. This important process is treated as vaguely in the report of the blind prediction experiment as it is in the other reports. Some method must have been used to quantify the analyses and weight the three crucial factors but this

is not mentioned. (Le Shan was asked specifically for some information about the method used but has not yet answered the question.)

It is claimed that there were no clues in the health area of the Personal History which would reveal the diagnosis, yet it seems likely that there would be some difference between the state of health reported by subjects with no known disease and those who were ill. Since there were five healthy subjects in the control group, this might at least give the authors a good start in making correct choices. Furthermore, Le Shan has stated that records were selected so that there were no health clues available. There must, therefore, have been some prior selection of the 28 records used but this is not mentioned in the published report. If the selection had been by either Le Shan or Worthington it is possible that, without necessarily being aware of it, they selected those records which appeared most 'typical'.

Finally, it seems surprising that having been so successful in one blind prediction experiment the authors did not attempt this test of their results again in the second study. It is also interesting that in their review of the literature (43) these authors describe their own studies but do not mention the blind analysis, although it is the best evidence they have to offer.

This discussion suggests two lines of investigation. The blind prediction experiment should be repeated under improved conditions, and the specific results used as 'predictors' should be tested, [redacted] using improved methods and controls. These problems formed the

basis of the two research projects to be reported in the following chapters.

CHAPTER 3

A BLIND PREDICTION EXPERIMENT

Two views can be taken of Le Shan and Worthington's blind prediction result. It could be held, as Le Shan and Worthington maintain, that the successful blind predictions provide additional support for their results. On the other hand it could be argued that the weaknesses in the research as a whole make the blind predictions suspect. In fact, if one doubts the foundation on which the original results were based, it becomes difficult to accept that these results were the determining factor in the blind predictions. Taking the extreme position, this would amount to saying that cancer and control subjects did not really differ in the described characteristics, and therefore these characteristics could not have been the basis of successful blind predictions. This does not imply disbelieving the blind prediction result. It does, however, give rise to the hypothesis that the authors were distinguishing between cancer and control subjects on the basis of something other than the psychological factors described.

It is possible that they distinguished between the groups on the basis of simple clues contained in answers to the Personal History. For example, failure to match the groups might allow for clues such as age or possibly marital status to help in identifying

cancer patients. The constitution of the group of control subjects, some healthy and others with a variety of disorders, might also help in isolating cancer patients. It seems likely that a test of this kind could contain many direct or indirect clues that a subject was suffering from a particularly serious disease, even though he might not have been acutely ill at the time of doing it. Le Shan and Worthington state in a footnote that many cancer patients only partially complete the Personal History, providing sparser records than healthy subjects. They ascribe this to depression accompanying the illness. Records of cancer patients used for the blind analysis might be expected to be less complete on the whole than those of the controls. It is also possible that more subtle clues were available to the authors, who had previously analysed at least 152 Personal Histories completed by cancer patients.

The following study was designed to investigate the general hypothesis that simple direct clues could have been used to identify cancer patients.

3.1 Design

Two methods were available to test this hypothesis.

a. Le Shan and Worthington agreed to a repetition of the blind predictions using a carefully matched control group. Such a repetition would attempt to exclude the possibility of clues such as age, marital status, or state of health being used to identify

the cancer patients.

b. A group of independent judges was asked to examine the same records without knowledge of the Personal History analysis method or of the Le Shan-Worthington results. This provided for a direct investigation of clues which might isolate cancer patients.

3.2 Modification of the Personal History

It was necessary to make several minor alterations to the Personal History, removing American expressions to make the questions intelligible to English subjects. These alterations were approved by Le Shan before the forms were used.

To avoid any direct reference to illness the Physical Data section of the Personal History was not included in the modified form. (The original and modified forms of the Personal History are included as Appendix A.)

3.3 Subjects

a. Cancer Patients.

Cancer subjects were patients living in three Homes run by the Marie Curie Memorial Foundation. A total of 43 patients made an attempt to complete the Personal History. Patients approached were selected initially by the Matrons of the Homes as being well

enough to attempt the task. Of the 43 records obtained, 20 were too incomplete to be used. The final group comprised 23 patients, 9 men and 14 women, suffering from a variety of types of cancer. (See Table 2)

The Marie Curie Memorial Homes provide accommodation and nursing care for cancer patients who do not need to be in hospital but are not well enough to take care of themselves and have no-one to care for them. They are all persons who for some reason cannot be looked after at home, and in this respect the group was a biased one.

The patients used for this study had been ill for periods ranging from 6 months to five years. All had received treatment for the disease and 19 had had surgical treatment. It was not possible to discover how many of the patients knew their diagnosis. Two of them, one man and one woman, had been told by their own physicians, and five others were probably aware of it although they had not actually been told. The staff of the Homes believe that the majority of their patients do not know they have cancer, and also believe that it is better for them not to know.

For obvious reasons it was not possible to explain the exact purpose of the study to the patients. A brief and simple outline of the possible psychogenesis of illness was presented and they were told that the study was concerned with psychological differences between sick and healthy persons. Because the Personal History is not obviously a psychological test and consequently did not seem to

the patients to be relevant to the study, they were told about the blind prediction experiment as a somewhat mysterious achievement in identifying sick and healthy subjects. All patients approached appeared to accept the explanation offered and only three refused to complete the Personal History, saying that they were not feeling well enough.

b. Controls.

It was decided that the control group for this study should be patients suffering from an illness serious enough to have disturbed the pattern of their lives. A group of pulmonary tuberculosis patients was selected as being most suitable. These 19 patients were seen at the Bromley Hospital Chest Clinic and at the Chest Unit of the Farnborough Hospital. Nine were outpatients and ten in hospital. Twenty six patients were approached, four refused to complete the Personal History and three were not used because they were too young as compared with the cancer patients.

At the Clinic, patients were selected by the Sisters in Charge, primarily for age but also to some extent by some criterion of suitability such as co-operativeness. It was not possible to determine excatly how the Sisters made their selection nor was it possible to prevent this pre-selection process. At the hospital the Ward Sister selected patients in the appropriate age groups and in no other way. Control patients were matched as closely as possible with the cancer patients for age, sex, education level, and occupational status. (See Tables 3 - 6) The two groups were

also comparable in terms of marital status although slightly more of the cancer patients were widowed. (Table 5)

The explanation given to the control groups was the same as that for cancer patients, except that sick persons were specified as patients with chest complaints. Tuberculosis was not mentioned because the Sister in charge considered patients to be sensitive about the exact nature of their illness.

TABLE 2.

Diagnostic Groups of Cancer Patients
who completed the Personal History

Location of Tumour	No. Males	No. Females
Breast		5
Stomach	2	2
Colon	1	3
Cervix		3
Rectum	1	
Duodenum	2	
Prostate	1	
Lung	2	
Alveolus		1
	9	14

TABLE 3.

Age Distribution of Cancer and Control Subjects who completed the Personal History

Age Groups	Males		Females	
	Cancer	Controls	Cancer	Controls
40 - 50 years	1	1	4	5
51 - 60 "	3	3	6	3
61 - 70 "	3	2	3	1
71 - 80 "	2	2	1	1
81 - 90 "				1
	9	8	14	11

TABLE 4.

Education level of Cancer and Control subjects who completed the Personal History

Formal Education completed at Age	Cancer	Control
13 years	1	2
14 "	11	8
15 "	4	6
16 "	2	2
over 16 "	2	1
Not given	3	0
	23	19

TABLE 5.

Marital status of Cancer and Control subjects who completed the Personal History

Marital Status	Males		Females	
	Cancer	Controls	Cancer	Controls
Married	5	6	4	5
Widowed	1		4	3
Separated			1	
Divorced	1			1
Widowed and Remarried			2	
Single	2	2	3	2
	9	8	14	11

3.4 Repetition by Le Shan and Worthington

Photostat copies of the 42 Personal Histories were sent to Le Shan, with the information that some had been completed by cancer patients and some by tuberculosis patients. He asked not to be told the numbers in each group. The completed records were in random order. The records had been examined for any obvious clues which might influence predictions, and these were removed. These clues were simply direct indications as to the grouping of subjects, arising from the times and places at which the Histories were completed. The cancer patients had been seen in three groups, each over a period of a few days, and the tuberculosis patients had been seen in two groups, again each over periods of a few days. It was therefore considered advisable to delete the dates on which forms were completed, and also parts of addresses, mainly the county names. Deletion of the county address was particularly important in the case of control subjects since all of them lived in Kent.

The records were sent on direct from Le Shan to Worthington.

3.41 Results.

Le Shan identified 24 patients correctly out of the total 42.[1]

Cancer	Right choices	15	Wrong choices	8
Control		9		10

This result is not significantly better than chance.

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1. Worthington has not sent his results.

Le Shan reported that he found the task difficult.

> The major problem was my lack of real sensitivity to the nuances of English society. For example many of the clues to social class and social mobility which form an organic part of the P.H. interpretation were completely inaccessible to me. Also many phrasings and tricks of speech were unknown to me and I could not judge if they were idiosyncratic, popular or social class determined. A further unexpected difficulty was the photographed nature of my records. This does, I am afraid, complicate and blur the picture somewhat. Often I just could not read the writing.

These problems encountered by Le Shan complicate the interpretation of his result. The difficulty he found in reading the records cannot be attributed to blurring of the photocopies, since the handwriting was equally impossible to read in the originals. This is to be expected from elderly and ill subjects, particularly as the Personal History has to be completed in pencil. The photocopies were, in fact, clear reproductions. (See Appendix A)

What Le Shan calls his "lack of real sensitivity to the nuances of English society" does, however, introduce an important complication. This was considered in planning the study but it was not known then to what extent the Personal History is culture bound. The Americans' readiness to attempt an analysis of English records indicated that they did not consider cultural boundaries to be insuperable. It was originally intended to ask an English clinician to analyse the records using Worthington's system. However, this was impossible because the analysis method has never published and Worthington claims that a special training course is necessary.

There are thus two possible explanations of Le Shan's failure. He may have been unable to identify cancer patients because all obvious clues had been removed in selecting the subjects, or he may simply have been unable to do a complete personality analysis. The repetition has therefore failed to show whether or not personality characteristics are the determining factor in making the predictions from the Personal History.

3.5 Predictions from Direct Clues

Twenty six independent judges were asked to examine the records and attempt to identify cancer patients. Two groups of judges were selected, for knowledge of psychology (13) and for experience with cancer patients, i.e. experienced nurses (13). Psychologists included 7 postgraduate students, two with clinical training and experience, two university lecturers and 4 third year psychology students.

The nurses were all experienced Ward Sisters doing a post-graduate course of training in preparation for appointment as Matrons.

Predictions with no information.

Ten psychologists and 8 nurses were told only that some records had been completed by cancer patients and some by tuberculosis patients, and that the two groups were matched for age and sex. They were asked to select cancer patients using any clues they

could find, and to keep a record of the factors which guided their choices. Twelve of these judges were given photostat copies of the records and six were given typed, duplicated copies.

Predictions with some hints.

A careful examination of all the records failed to produce any obvious differentiating features. However, it was possible to prepare an impressionistic account of a 'typical' cancer record. This was given to 8 of the judges with instructions to use it if it was any help. Apart from the 'hints', these judges (5 nurses and 3 psychologists) were given the same information as the other judges.

3.51 Results.

The predictions made by each of the independant judges are presented in Tables 6 and 7. Results for each judge were tested by a chi-square analysis. Only one judge correctly identified patients at a level significantly better than chance (29 correct choices, $p < .05$). Two other results approached significance (28 correct choices, $p < .10 > .05$).

Comparison of psychologists and nurses shows no overall differences in the number of correct predictions made. Comparison of judges given clues and those not given clues also shows no overall differences in correct choices.

The results in Tables 6 and 7 indicate a trend towards greater accuracy in identifying cancer patients. That is, in nearly all

TABLE 6.

Results of predictions from direct clues - without information.

Judges	Results			
	Cancer		Tuberculosis	
Psychologists	Right	Wrong	Right	Wrong
1.	15	8	10	9
2.	15	8	11	8
3.	17	6	11	8
4.	17	6	12	7
5.	18	5	10	9
6.	11	12	5	14
7.	14	9	7	12
8.	11	12	6	13
9.	12	11	8	11
10.	9	14	8	11
Nurses				
1.	17	6	8	11
2.	12	11	9	10
3.	14	9	8	11
4.	15	8	7	12
5.	13	10	10	9
6.	15	8	6	13
7.	17	6	7	12
8.	15	8	8	11

TABLE 7.

Results of prediction from direct clues - with hints

Judges	Cancer		Tuberculosis	
Nurses	Right	Wrong	Right	Wrong
1.	15	8	11	8
2.	14	9	10	9
3.	21	2	4	15
4.	19	4	8	11
5.	Not completed			
Psychologists				
1.	14	9	11	8
2.	15	8	8	11
3.	15	8	9	10

cases a higher proportion of cancer patients was correctly identified. However, this trend is due to the higher number in the cancer group and to the higher numbers selected as cancer by the judges. When raw results are corrected by equating the numbers on the two group (i.e. dividing cancer choices by 1.21) and considering correct choices as a proportion of the total number selected as cancer and as tuberculosis, there is no significant difference between correct choices for the two groups. (Results analysed by Mann-Whitney U test).

The results were also examined in terms of judge agreement about individual subjects. Judgements made about each subject are presented in Tables 8.9. There appears to be a fairly high measure of agreement between judges for some of the subjects; in the cancer group agreement of correct choices and in the tuberculosis agreement of incorrect choices. This agreement is obviously related to the factors discussed above (i.e. more cancer patients correct because more selected as cancer.) It was possible, however, that some subjects were more easily identifiable as cancer or tuberculosis patients. Agreement between judges was therefore analysed statistically by calculating the expected proportions of correct and incorrect predictions for each subject. Agreement between judges is significantly greater than chance for one cancer patient and for two tuberculosis patients. Related to the total numbers in each group, these results are insignificant. That is,

TABLE 8

Judgements made about individual cancer patients.
(Results recorded from 22 judges only).

Subjects	Judgements	
	No. Right	No. Wrong
A	12	10
B	15	7
C	13	9
D	13	9
E	12	10
F	16	6
G	7	15
H	18	4
I	16	6
J	7	15
K	14	8
L	14	8
M	18	4
N	19	3
O	17	5
P	15	7
Q	22	0
R	12	10
S	7	15
T	5	17
U	15	7
V	15	7
W	5	17

TABLE 9

Judgements made about individual tuberculosis patients
(Results recorded from 22 judges only)

Subjects	Judgements	
	No. right	No wrong
A	7	15
B	15	7
C	10	12
D	5	17
E	4	18
F	14	8
G	16	6
H	8	14
I	6	16
J	20	2
K	7	15
L	11	11
M	8	14
N	3	19
O	2	20
P	2	20
Q	14	8
R	11	11
S	21	1

one significant difference out of 23 (cancer) and two significant differences out of 19 (tuberculosis) could have occurred by chance.

Judges were asked to keep a record of the factors upon which they based their decisions. Since they failed to identify the patients correctly there is little point in examining the clues they reported. In fact most of the judges had some difficulty in describing how they made decisions. This is obviously because they were no clear indicators as to which patients had cancer and which had tuberculosis. Much of the 'judging' was simply guessing, as the results show.

3.6 Prediction from Hypotheses

The cultural difficulties encountered by Le Shan clearly require further investigation. It was originally hoped to ask experienced English clinical psychologists to attempt a full analysis of the Personal Histories using the Worthington analysis method. This was not possible because the method was not available. A second, less adequate approach was therefore adopted of asking experienced English clinicians to use the Le Shan and Worthington characteristics as a basis for identifying cancer patients from the Personal History records.

A clinical psychologist with 5 years experience in the psychiatric clinic of a general hospital was asked to attempt this.

She was given full details of the results reported by Le Shan and Worthington, that is a full description of the four characteristics they found associated with cancer. Apart from this she was given the same information as all other judges.

Results.

Again the number of correct predictions made was not significantly better than could have been achieved by chance.

	Right Choices	Wrong Choices
Cancer	16	8
Control	10	9

Since this clinician was unsucessful and in view of the overall negative results, it was not considered worthwhile to pursue this approach. It could not provide more than a tenative answer to the cultural problem, and it was decided that the value of results would not be sufficient to justify taking up the time of busy clinicians.

3.7 Discussion

This study has failed to establish that simple direct clues or intuitive judgements can be used to identify cancer patients from their Personal History records. It is quite clear that there were no such clues available which could differentiate between the cancer and tuberculosis patients. Blind predictions were

unsuccessful and a careful examination failed to reveal any differences between the records of the two groups. The results from independant judges, therefore, provide no support for the suggestion that Le Shan and Worthington might have used direct clues in their original experiment.

The study has also failed to establish that personality characteristics could be used to differentiate between the two groups of subjects used. Nor, of course, could it show that such characteristics do not differentiate.

The design of this research allowed for a variety of result combinations, only three of which could provide any clear conclusion. Had Le Shan been successful and the independent judges failed, there would be fairly conclusive evidence that personality characteristics were the determining factors. Had the independent judges been successful, regardless of Le Shan's result it would be reasonable to conclude that personality characteristics were not the determining factor. Had the clinician succeeded and the other judges failed, regardless of Le Shan's result there would have been evidence for personality factors.

Three major problems have to be considered in discussing these results. The limitation of the Personal History for cross cultural use has already been noted. It is clear from the description of the test in Appendix B that its analysis method is heavily weighted with distinctively American social factors and this might well account for Le Shan's failure.

The second problem arises from the removal of clues, both by matching groups and checking completed records. This might have handicapped Le Shan but would equally handicap the independent judges.

Finally, the use of a control group suffering from tuberculosis could have created difficulties for Le Shan. Assuming that cancer is a psychosomatic disease and that tuberculosis is too, there may have been a general 'psychosomatic factor' common to both groups. There is some evidence to suggest that all 'psychosomatic patients' show common personality characteristics in which case Le Shan might have difficulty in sorting the cancer from the tuberculosis patients. This would seem unlikely but not impossible.

The results of the study are inconclusive but they do cast some doubt on the assumption that cancer patients are identifiable from personality characteristics as shown in responses to the Personal History. Further investigation in this country would not be possible unless Worthington made the analysis technique available. This study has shown the need for Le Shan and Worthington to arrange a further blind prediction experiment using carefully matched groups of American subjects.

CHAPTER 4

A QUESTIONNAIRE STUDY

The second research project was originally planned as a further test of the results reported by Le Shan and Worthington. The approach adopted was derived directly from the criticisms made in Chapter 2. That is, the aim of the study was to make improvements in technique and control as indicated in that discussion, in an attempt to discover whether or not the Le Shan and Worthington results could be attributed to defects of their design and method. However, this aim had to be modified because of difficulties in finding both a suitable technique and suitable subjects.

4.1 Selection of Method

Several points had to be considered in deciding on a method for the study.

i. It should relate directly or indirectly to the characteristics described by Le Shan and Worthington.

ii. It should be possible to make direct and objective comparisons between cancer and non-cancer subjects and therefore to avoid a method requiring interpretations to be made prior to quantifying results.

iii. It should be short since the study would be entirely dependent on cooperation from hospital staff and hospital patients.

iv. It would have to make some sense to the patients in terms of the explanation of the study given to them.

All projective tests were excluded because of difficulty in handling results and also because it would be difficult to explain

their relevance to the patients. It was found in using the Personal History test that patients told that the study was concerned with psychological factors and illness expected to be asked direct psychological questions. It is difficult to make any indirect method meaningful to patients with a physical illness, who are more concerned with physical than psychological problems.

No suitable objective personality inventories could be found which would fulfil all the requirements. ~~Rorschach~~ Techniques used in previous studies were considered, particularly the Minnesota Multiphasic ~~Personality~~ Personality Inventory which had proved useful in the West, Blumberg and Ellis study, but this was considered to be too long. It was therefore decided to construct a short inventory of questions relating as far as possible to the characteristics described by Le Shan and Worthington.

4.2 Construction of Inventory

The characteristics reported by Le Shan and Worthington were taken as the starting point, the first step being an attempt to define these in a form from which specific questions could be derived. The incompleteness of Le Shan and Worthington's description of results made this task difficult and placed a fundamental limitation on the study. That is, because the authors did not define their results it is not possible to test them directly. For example "difficulty in expressing hostility" means little without precise definition of the terms used as related to the behaviour of the persons studied. The authors give some examples of such behaviour (failing to list disliked school subjects) but they do not give a systematic description of the responses of cancer patients. The second personality characteristic "feelings of unworthiness and a tendendency to

self-blame" is not even illustrated by examples. It was therefore necessary to make certain assumptions about the characteristics and this meant that the inventory could not be considered as a direct test of their results.

A second problem arises from the nature of the Le Shan and Worthington results. The four characteristics these authors found to be common to a majority of cancer patients are in fact of two types; personality traits (repression of hostility and feelings of unworthiness) and life experiences (loss of cathexis and tension in relationship with parents). In a short inventory it would obviously not be possible to inquire into the nature of the subjects' past history, and it would certainly not be possible to establish that cancer patients had experienced a significant loss prior to onset of the disease. It was assumed, therefore, that the experiences and traits could be taken together as describing particular personality characteristics.

In formulating questions for the inventory the principal assumption made was that the particular personality characteristics described were consistent with Horney's Moving Towards type of person (28). This assumption was made to provide a framework for developing the inventory. Horney provides a very full description of this personality type in terms of specific attitudes, interests, actions and reactions all of which seem to be consistent with the Le Shan and Worthington characteristics and also those reported by other researchers. The impossibility of 'measuring' the Moving Towards type of person with a short questionnaire is fully recognised as are Horney's warnings against interpreting her classification as a typology. It must be emphasised that Horney was used only to give a framework. The

inventory is not in any way designed to 'type' cancer patients as Moving Towards or in any other direction. Horney's description simply proved useful in giving concrete examples of behaviour which could be used for specific questions and which appeared to be consistent with reported characteristics of cancer patients.

Initially 83 questions were formulated and were first tried on seven persons, two psychology students, three school teachers a farmer and a charwoman. On the basis of their comments a selection of 50 questions was made and given to two groups, 24 undergraduate students of psychology and sociology and eight cancer patients. All subjects were invited to comment on the questions and particularly to point out any which gave rise to difficulty in interpretation. A number of the questions were rephrased as the result of these trials and some which were severely criticised were dropped. A final selection of 38 questions was made and, in accordance with a suggestion made by several subjects, these were expressed in the form of direct statements to which the answers True, False or Uncertain could be given.

Two further questions were added in an attempt to discover something of the subjects' life experiences in terms of what they considered to have been good fortune and what they considered to have worried them most in the past. These were presented in the form of lists, asking subjects to check experiences of good fortune and experiences which had caused them most worry. These two questions were included to try to discover whether or not cancer patients had a greater burden of worry in the past, in view of general findings relating to stress experiences in the histories of cancer patients.

The first page of the inventory is shown on page 114 and the full

Confidential

Self Description Inventory

Age: Sex: Marital Status:

Occupation:

Please read the Insturctions Carefully.

In the following list of statements you will find some which describe you and some which do not.

Please read each statement carefully and decide whether it is true of you or whether it is not.

If the statement is a true description of you put a circle round true.

If the statement is not a true description of you put a circle round false.

Please try to decide in every case whether it is True or False. If you absolutely cannot decide then circle the ?.

1.	I like to do things with my friends rather than by myself.	True.	?	False.
2.	I have devoted much of my time to other people.	True.	?	False.
3.	I hate to feel dependant on others.	True.	?	False.
4.	On the whole I am content to be as I am and would not want to be a different sort of person.	True.	?	False.
5.	I hate rows.	True.	?	False.
6.	I like to feel that other people admire me.	True.	?	False.
7.	I have always tried to keep my troubles to myself as much as possible.	True.	?	False.
8.	I usually go to pieces in a crisis.	True.	?	False.
9.	I get angry rather easily.	True.	?	False.
10.	When I do get angry everyone who is there knows about it.	True.	?	False.
11.	I think that in this world you have to look after yourself and not worry too much about others.	True.	?	False.

inventory is included as Appendix C. It was given the title of Self Description Inventory but for convenience will be referred to here as the inventory.

4.3 Design

Clearly the results from this inventory could not be directly related to either to Le Shan and Worthington's results or results of any of the other studies of cancer patients. Nor could results be related directly to personality theory. The study therefore became limited to an empirical investigation, with the possibility that the inventory would provide for isolation of questions relevant to personality characteristics of cancer patients. If such results were obtained it would then be possible to arrange for further investigation of their nature and meaning in terms of personality dynamics. As an empirical investigation this has the advantage of avoiding controversial theoretical problems and limiting conclusions to an operational definition of responses given by cancer patients.

The aim of the research can thus be stated as first to discover whether or not cancer patients differ from non-cancer subjects in their answers to these particular questions, and secondly to identify any questions which appeared related to personality characteristics of cancer patients. Use of an untried questionnaire does raise a special problem for interpreting negative results. However, although negative results from the inventory would have to be considered as possibly due to unsuitability of the method, this is not essentially different from the general problem of dealing with negative results in research of this kind. Negative results can always be dismissed on these grounds if one wishes to do so.

It is still possible within the limited scope of the research

to investigate control factors but it was decided to do this as a second step. That is, to give the inventory a fair trial in relation to the standards set by previous studies it should first be used with subjects comparable to those in the Le Shan and Worthington research, essentially an uncontrolled investigation. If differences are shown between cancer and non-cancer subjects it would then be possible to consider uncontrolled variables by selecting a second group of subjects to provide better control. The research was therefore designed in two parts, the first being simply a trial of the inventory with cancer and non-cancer subjects.

4.4 Trial of Inventory - Part I

4.41 Subjects.

Cancer patients were selected from eight Homes run by the Marie Curie Memorial Foundation, six in England, one in Scotland and one in Wales. Patients were selected by the Matrons as being well enough to attempt the task and the inventories were distributed by the Matrons. The explanation given to subjects was the same as that used in the Personal History investigation, a comparison of ill and healthy persons to investigate possible differences in personality. Fifty four cancer patients, 38 females and 16 males, completed the inventory. As with subjects used in the Personal History study, it was not possible to discover whether or not these patients knew they had cancer.

Non-cancer subjects were students attending a University of London Adult Extension General Summer School. These subjects were told the real purpose of the investigation and were volunteers. No inquiries were made about their health but since they were able

to participate in a Summer School they are assumed not to have been ill. Thirty five subjects completed the inventory, 23 females and 9 males and three who did not state their sex. Further information about all subjects is presented in Tables 10-12.

4.42 Results.

Completed inventories were first examined from the viewpoint of the hypotheses used in formulating the questions. That is, certain expectations about the way in which cancer patients might answer the questions were implicit in the design of the inventory. A preliminary survey of answers from this point of view showed that cancer patients had quite clearly not answered the questions in accordance with expectation. This was not surprising, nor did it necessarily mean that the inventory had failed. Examination of the answers given by the two groups showed that some of the statements were capable of differentiating between them in terms of total answers. Group responses to individual statements were tested by a χ^2 analysis and a total of 17 statements were found which had produced significantly different responses from the two groups.[1] These statements are shown in Table 13.

From a practical point of view it would be useful to investigate the possibility of developing a screening device, and these results could be considered as a basis for such a device. It would have initially to be regarded only as useful for identifying cancer patients, and there are far more efficient ways of doing this. However, it can be tentatively assumed that results from this study do not necessarily describe only cancer patients but might be relevant to persons with a psychological predisposition to cancer. Thus a

1. From the formula and Tables presented by Brožek and Tiede (78) it is calculated that 5 significant differences would occur by chance in a series of 38 significance tests.

TABLE 10.

Ages of Cancer and Non-cancer subjects - Self Description Inventory Part I.

Age	Cancer		Non-cancer	
	Males	Females	Males	Females
20 - 30		1	2	1
30 - 40	2	2	2	6
40 - 49	2	2	3	9
50 - 59	1	16		5
60 - 69	6	8		1
70 - 79	3	5		
80 - 89	2	4		
Not Known			1	2
			3	
	16	38	8	24
Total	54		35	

TABLE 11

Marital Status of Cancer and Non-cancer subjects - Self Description Inventory, Part I.

Marital Status	Cancer		Non-Cancer	
	Males	Females	Males	Females
Married	8	11	3	3
Single	2	9	4	12
Widowed	6	15		1
Separated				2
Divorced		1		4
Not Known		2	1	2
			3	
	16	38	8	24
Total	54		35	

TABLE 12

Diagnoses of Cancer patients - Self Description Inventory Part I.

Site	Male	Female
Breast		15
Cervix		8
Stomach	2	1
Bronchus	1	
Rectum	1	1
Lung	4	1
Hodgkins Disease	1	
Lumphosarcoma		1
Colon		3
Bladder	2	2
Prostate	3	
Kidney		1
Pancreas	1	
Malignant Melanoma	1	
Myeloid Leukemia		2
Uterus		3
Total	16	38

TABLE 13.

Self Description Inventory Statements Showing Significant differences between Cancer and Non-Cancer subjects; Part I.

		% TRUE		% FALSE		% ?	
		Ca	NCa	Ca	NCa	Ca	NCa
1.	I hate to feel dependant on others.	94	74	2	23	4	3
2.	On the whole I am content to be as I am and would not want to be a different sort of person.	81	51	15	40	4	9
3.	I have always tried to keep my troubles to myself as much as possible.	98	57	2	29	0	14
4.	I like to have strong attachments with my friends.	78	43	15	46	7	11
5.	I nearly always agree with the opinions of my friends.	30	6	52	83	18	11
6.	I feel embarassed being with someone who is unhappy and upset.	48	31	41	69	11	0
7.	I have found that it is a wonderful experience to comfort someone who is unhappy and upset.	91	66	2	20	7	14
8.	When I get angry I usually try not to show it.	81	60	7	40	12	0
9.	I rather despise people who are soft and give in to others.	46	31	31	63	23	6
10.	I sometimes feel I have not done enough for others.	63	83	35	11	2	6
11.	I have always been an obliging person.	94	57	2	26	4	17
12.	I feel better if I give in in an argument than I would if I tried to get my own way.	46	23	26	71	28	6
13.	I think I can feel satisfied with what I have done with my life so far.	72	31	17	57	11	12
14.	It takes a lot to make me angry.	85	57	4	34	11	9
15.	I feel very uncomfortable when people show their feelings in public.	80	46	7	43	13	11
16.	I think most people who know me well would say I am pretty easy person to get on with.	91	57	2	23	7	20
17.	I think I can cope quite well with any crisis.	68	55	9	31	23	14

successful screening technique could justifiably be tried as a prediction technique for cancer prone persons. (These points are discussed further in Chapter 5). The differences shown appeared sufficiently great to provide a possible basis for a 'screening' technique. That is, it appeared possible that a scoring system could be devised which would differentiate between cancer and non-cancer subjects. The score was built up by assigning a weighting to each of the questions in terms of the way it had been answered by cancer patients. Questions showing greater differences between cancer and non-cancer were given a weight of 2 and those showing a smaller difference were given a weight of 1, giving a total score of 25. The score was designed to show maximal difference between the two groups. The resultant score could then be assumed, tentatively, to relate to cancer. A high score would mean "more like cancer patients" and a low score "more like non-cancer subjects" (more accurately, more like Adult Extension Summer School students). All the inventories were then scored and means and standard deviations calculated. Results are shown in Table 14. Mean score for cancer patients was 15.8, SD 3.32, and for non-cancer 9.6, SD 3.2. It can be seen from Table 14 that by taking a score of 12 as the cut-off point it would be possible to identify 80% of the cancer group and 83% of the non-cancer group.

A further analysis of the meaning of this score in terms of the differentiating questions was not done because the groups were small and control was minimal. It would obviously be necessary to try the inventory on more subjects to see whether the differences would be maintained before these results could be interpreted as significantly related to cancer.

TABLE 14

Comparison of Cancer and Healthy subjects on Self Description Inventory Score, Part I.

SCORE	CANCER	HEALTHY
1		
2		
3		1
4		
5		5
6		1
7		3
8		5
9	3	2
10		5
11	6	1
12	2	6
13	2	2
14	6	
15	1	
16	5	4
17	7	
18	14	
19	3	
20	2	
21	3	
22		
23		
24		
25		
	54	35
Mean	15.8	9.6
SD.	3.32	3.2

4.5 Trial of Inventory - Part II

The second part of the study was approached with two questions in view;

a. would the score be effective with new groups of subjects?

b. were variables other than cancer affecting results? In particular illness and age seemed likely to be important.

4.51 Subjects.

Several requirements were specified for subjects for the second part of the study but it was not possible for practical reasons to fulfil all of these. A second group of cancer patients was obtained in the same way as for the first part, 44 patients with a variety of kinds of cancer, 24 women and 18 men (two did not state their sex).

To investigate the possible influence of illness on results it was hoped to find two groups of subjects with similar symptoms one of which had cancer and the other a non-malignant disease in the same site. Ideally such subjects should be asked to complete the inventory before the nature of the disease had been [redacted] diagnosed, when patients in both groups were in the early stages of illness and with similar symptoms.

On medical [redacted] advice it was decided to use stomach cancer and peptic ulcer patients and to try to see patients in out-patients clinics before diagnosis. Inquiries showed that pre-diagnosis patients would be hard to find since most outpatients' clinics cannot provide for psychological inventories, however short they may be. Discussion with almoners working in a large gastric clinic also disclosed that many patients attending the clinic were very tense and anxious and found it difficult even to give simple facts about themselves to the hospital staff.

An attempt was then made to find a group of stomach cancer and peotic ulcer patients who had recently undergone surgery. This also proved difficult and had to be abandoned largely because many of the patients available with stomach cancer were not well enough to be approached.[1] It finally appeared that stomach cancer was not a suitable site to have chosen for the study because it often is not detected until fairly well advanced, is a rather rapidly progressing disease and from the viewpoint of the patients' experiences it is not very similar at any stage to peptic ulcer. For example, patients with stomach cancer often do not experience pain in the early stages of the disease whereas ulcer patients do.

Ulcer patients were more easily obtained and were seen at four London hospitals. All were post-operative patients with stomach or duodenal ulcers. A total of 40 ulcer patients agreed to complete the inventory. Of these two were not used because they were too young, four had to be discarded because they did not finish the inventory and one was discarded because the subject had not taken it seriously, having given facetious answers. Six of those discarded had been attempted by women which meant that there were fewer women than men in the final group.

Efforts to find healthy subjects were also not very successful. Seventeen women serving as control subjects in a research project conducted by the Claybury hospital were found.

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1. It was difficult to obtain permission to enter hospitals. Those hospitals (4) which did give permission had an approximate average of 2 Ca stomach patients per month. Of the patients seen in three months (19) five were too ill and two were senile. One hospital provided names and addresses of patients discharged in the past year. Inquiries from their own doctors disclosed that 10 had died and two would be disturbed by the study.

TABLE 15.

Ages of Cancer and Non-cancer subjects - Self Description Inventory, Part II

Age	Cancer		Ulcer		Healthy
	Males	Females	Males	Females	Females
20 - 29			1		4
30 - 39			3	1	3
40 - 49	2	5	8	3	2
50 - 59	6	6	5	4	7
60 - 69	2	5	3	4	
70 - 79	5	5		1	
80 - 89	2	1			
Not Known	1	2			1
		2			
	18	24	20	13	17
		44		33	

TABLE 16

Marital Status of Cancer and Non-cancer subjects - Self Description Inventory, Part II.

Marital Status	Cancer		Ulcer		Healthy
	Males	Females	Males	Females	Females
Married	7	10	18	8	10
Single	2	7	1		4
Widowed	4	5	1	5	1
Separated					1
Divorced					
Not Known	5	2			1
		2			
	18	24	20	13	17
		44		33	

TABLE 17

Diagnoses of Cancer patients - Self Description Inventory, Part II.

Site	Male	Female
Breast		10
Cervix		4
Stomach	9	1
Bronchus	1	
Rectum	1	
Malignant Reticulosis		1
Lung	3	2
Hodgkins Disease	1	
Colon		1
Duodenum		1
Prostate	2	
Kidney		1
Skin		1
Myeloid Leukemia	1	
Uteris		2
	18	24
Not known	2	

Arrangements were also made with a large factory for employees to complete the inventory but after three months the completed inventories have not arrived. However, inadequate though they are, the additional groups obtained are sufficient at least to test the score and also to provide for investigation of possible effects of illness and age.

Further information about the subjects is shown in Tables 15-17.

4.52 Statistical Results

Since the score developed from the first two groups of subjects had been devised to identify cancer patients, it was first applied to the new group of cancer patients. The mean score for these patients was 14.54, SD 3.6, and as can be seen in Table 18, although the range extends well below a score of 12, the proportion of cancer patients which could be 'screened' out is still quite high, being just over 77%.

The score was then applied to the ulcer patients with the result that they fell into approximately the same range as the cancer patients, with a mean score not significantly different from the cancer patients 13.66, SD 5.0. (See Table 18) Had the score been used to make blind predictions, taking a score of 12 and under for 'non-cancer', 60.6% of predictions would have been wrong. Thus in terms of the score, ulcer patients are more like the cancer group than the non-cancer group.

The score was then applied to the new group of healthy women. Although there are only 17 of them it is still possible to see whether or not their scores fall in the cancer or non-cancer range. With these subjects the score was slightly more successful (see Table 18) but blind predictions would have been wrong in 41% of cases. Taking

together the new subjects used as a test of the score, of a total of 50 predictions, only 23 would have been correct. Thus it appears that the questions used as the basis for the score cannot be considered as differentiating between cancer and non-cancer subjects.

However, it is clear that the inventory still produced differences in responses between cancer and non-cancer subjects, since the mean scores of the two groups (taking together all non-cancer subjects) are still significantly different. To investigate these differences further all subjects were combined in two groups, cancer and non-cancer and the individual questions examined again using the χ^2 test. Thirteen of the questions were found to show significant differences between responses of the two groups, and one other to show a difference closely approaching significances (χ^2 5.33, df 2). Of these questions 12 were also significant in the first part of the study so that five of the original questions no longer differentiate between the groups. (See Table 19.) To see what difference these new findings would make in screening out cancer patients, a new score was developed in the same way as the first one, using 14 questions and with a total score of 18. All the inventories were rescored and means and standard deviations calculated for cancer and non-cancer and for ulcer and healthy subjects separately. These results are shown in Tables 20 and 21. Differences between the mean scores of all groups are significant at the 1% level, that is between Cancer and Healthy, Cancer and Ulcer and Ulcer and Healthy. The greatest difference occurs between the Cancer and Healthy groups and the least between Cancer and Ulcer. These results are similar to those obtained with the

TABLE 18

Comparison of Cancer, Ulcer and Healthy subject (Second Sample) on Self Description Inventory Score.

Part I.

SCORE	CANCER	ULCER	HEALTHY
1	3		
2			
3			
4			
5		1	
6			
7	1	1	
8	1	1	
9	1	1	3
10	3	2	2
11	2	5	2
12		2	3
13	2	2	2
14	7	1	1
15	4	5	1
16	4	4	
17	5	3	
18	4	3	1
19	3	1	1
20	4	1	
21	2		1
23			
24			
25			
	44	33	17
Mean	14.54	13.66	12.8
SD	3.6	5.0	

TABLE 19.

Self Description Inventory Statements showing significant difference between Cancer and Non-Cancer subjects; Part II

No. in Inventory	Statement	Responses Cancer			Non-Cancer		
		T	F	?	T	F	?
7.	I have already tried to keep my troubles to myself as much as possible.	90	4	4	60	15	7
12.	I like to have strong attachments with my friends.	77	15	6	48	25	9
13.	I nearly always agree with the opinions of my friends.	28	51	19	14	62	6
17.	When I get angry I usually try not to show it.	71	20	7	51	31	-
19.	I rather despise people who are soft and give in to others.	51	31	16	30	45	7
23.	I sometimes feel I have not done enough for others.	62	26	10	67	11	4
26.	I feel embarrassed being with someone who is unhappy and upset.	51	38	9	31	47	4
27.	I have always been an obliging person.	88	4	6	63	10	9
28.	I feel I have missed a lot because I have not gone out enough and met people.	49	45	4	27	49	6
29.	I feel better when I give in in an argument than I would if I tried to get my own way.	45	29	24	29	46	7
33.	I think I can feel satisfied with what I have done with my life.	68	18	12	37	35	10
34.	I don't like being tied to other people.	67	19	12	46	29	7
35.	It takes a lot to make me angry.	78	9	11	54	22	6
36.	I feel very uncomfortable when people show their feelings in public.	76	11	11	50	23	9

TABLE 20.

Comparison of Cancer and Non-Cancer Subjects on Self Description Inventory Score, Part II.

SCORE	CANCER	NON-CANCER
1	1	
2	1	4
3	1	3
4	1	4
5	1	6
6	3	11
7	6	17
8	7	5
9	9	7
10	5	9
11	14	9
12	20	4
13	12	2
14	5	4
15	8	
16	3	
17	1	
	98	85
MEAN =	10.89	= 7.88
SD =	3.2	= 3.5

$t = 6.00 \quad p < .01$

TABLE 21.

Comparison of Cancer, Ulcer and Healthy Subjects on Self Description Inventory Score, Part II.

SCORE	CANCER	ULCER	HEALTHY
1	1		
2	1		4
3	1	1	2
4	1		4
5	1	3	3
6	3	1	10
7	6	8	9
8	7	1	4
9	9	2	5
10	5	5	4
11	14	5	4
12	20	3	1
13	12	2	
14	5	2	2
15	8		
16	3		
17	1		
	98	33	52
MEAN =	10.89	9.12	7.09
SD =	3.2	2.7	2.9

Differences Between Means

Cancer - Ulcer	t : 3.0	$p < .01$
Cancer - Healthy	t : 7.45	$p < .01$
Healthy - Ulcer	t : 3.17	$P < .01$

TABLE 22.

Self Description Inventory Score Part II - Random Halves.

SCORE	CANCER			ULCER		HEALTHY	
	1.	2.		1.	2.	1.	2.
1.	1						
2.	1					1	3
3.		1			1	1	1
4.		1				2	2
5.		1		1	2	2	1
6.	1	2			1	3	7
7.	4	2		5	3	8	1
8.	5	2		1		3	1
9.	3	6		1	1	2	3
10.	2	3		1	4	1	3
11.	6	8		3	2	2	2
12.	9	11		2	1		1
13.	7	5		1	1		
14.	3	2		1	1	1	1
15.	5	3					
16.	2	1					
17.		1					
18.							
	49	49		16	17	26	26
MEAN =	10.79		10.98	9.44		8.82	7.12	7.08

first scoring system but show a greater difference between Cancer and Ulcer subjects and a smaller difference between Cancer and Healthy subjects.

It is clear that it would not be possible to consider the inventory as an efficient screening device for identifying cancer patients since there is a good deal of overlap in the scores. However, the results could be interpreted as indicating that cancer patients differ in the responses they give from ulcer patients and from healthy subjects. A further check was made on the scoring method by taking random halves of each group to see whether the differences would be maintained in random samples from the same populations. Results are shown in Table 22 and it is clear that differences between means of the random samples are significant.

Before examining the nature of these differences in terms of the actual questions used it was necessary to consider possible reasons for the differences shown. Tables 10, 11, 15, 16, show that the groups used for this study were not well matched for age or sex and that marital status also varied. In comparing the groups so far these variables have not been considered and this has been justified on the grounds that the inventory would not be given a fair test if method and control were altered simultaneously (see page 116). Since the method has proved successful in showing differences between cancer and non-cancer subjects some control factors can now be examined. It is not possible with the subjects available to do this in as much detail as would be desirable but some possible sources of variation can be considered. Since the scoring method was designed to bring out maximal differences between the cancer and non-cancer group it seems reasonable to use this for an examination of control factors.

4.521 Sex Differences

The three groups were divided into males and females and the mean scores compared. No sex differences were found within the group. (Cancer, Females 10.84, Males 11.06; Ulcer Females 9.08, Males 9.15; Healthy Females 7.5, Males 6.6.) It therefore appears that the inventory is not showing sex differences.

4.522 Marital Status

There are considerably more unmarried females in the Healthy group than in the Cancer and Ulcer groups. To investigate the effect of this the Healthy group was split into married and unmarried subjects and the two compared. Again it appeared that this factor had not influenced the results, there being no difference in mean scores for these subjects. (Married 6.9, Unmarried 7.2)

4.523 Age Differences

The considerable differences in age, particularly between the Cancer and Healthy subjects could possibly account for the differences in scores. Two methods were used to investigate the effects of age.

a. Each group was divided into two, above and below the mean age for the group. Results are shown in Tables 23, 24, 25. In all three groups of subjects the older members show higher mean scores than the younger members. None of the differences above and below mean age is significant but it appears from these data that age has some effect on scores.

b. Cancer patients were approximately age matched with both the Ulcer and Healthy groups by eliminating all cancer patients older than the oldest subject in the other groups and all non-cancer subjects younger than the youngest cancer patients. Results are

TABLE 23.

Self Description Inventory Score Part II; — Cancer Subjects above and below Mean Age.

SCORE	CANCER Under 60	CANCER Over 60
1.		1
2.		1
3.	1	
4.		1
5.	1	
6.	3	
7.	3	3
8.	5	2
9.	4	5
10.	3	2
11.	10	4
12.	7	13
13.	6	6
14.		5
15.	3	5
16.	1	2
17.		1
18.		
	47	51
MEAN =	10.34	11.39

$t = 1.667$ $p > .05$

TABLE 24.

Self Description Inventory Score Part II; Ulcer Subjects above and below Mean Age.

SCORE	ULCER Over	ULCER Under
1		
2		
3	1	
4		
5	2	1
6		1
7	4	4
8	1	
9	1	1
10	4	1
11	1	4
12	1	2
13		2
14	1	1
15		
16		
17		
	16	17
Mean =	9.76	8.43
SD =	2.8	2.7
	t = 1.34	p > .05

TABLE 25.

Self Description Inventory Score Part II; Healthy Subjects above and below Mean Age.

CORE	HEALTHY Under	HEALTHY Over
1		
2	3	2
3	1	
4	1	2
5	2	1
6	3	6
7	4	4
8	1	3
9	2	2
10	2	
11	1	1
12		1
13		
14	1	1
15		
16		
17		
	21	23
Mean =	6.67	6.96

TABLE 26.

Comparison of Age Matched Cancer, Ulcer & Healthy Subjects on Self Description Inventory Score; Part II.

SCORE	CANCER Under 74	ULCER	CANCER Under 60	HEALTHY
1.				
2.	1			4
3.	1	1	1	2
4.	1			4
5.	1	3	1	3
6.	3	1	3	10
7.	4	8	3	9
8.	6	1	5	4
9.	8	2	4	5
10.	4	5	3	4
11.	12	5	10	4
12.	17	3	7	1
13.	10	2	6	
14.	2	2		2
15.	5		3	
16.	1		1	
17.	1			
18.				
	77	33	47	52
MEAN =	10.68	9.12	10.34	7.09
	t = 2.60	p < .05	t = 5.6	p < .01

shown in Table 26, and although differences between mean scores are reduced they are still statistically significant.

4.524 Illness

For reasons mentioned on page 124 it was not possible to investigate the effects of illness as thoroughly as was at first intended. However, the inclusion of the peptic ulcer group does provide for some already been given (Table 21) and two interesting facts have emerged: the progressive increase in score from Healthy to Ulcer to Cancer and the somewhat greater similarity between Cancer and Ulcer subjects than between either of these groups and the Healthy subjects. With the information available it is not possible to explain these findings. Two alternative explanations could be offered which could be the subject of further research.

The results might be attributed to illness as such, on the assumption that cancer is a more serious illness than peptic ulcer. Thus it might be that the score relates to degree of illness. It is, however, not very clear what degree of illness might mean or how it could be measured, particularly since it is not known whether or not cancer patients knew they had cancer. Length of illness is not particularly helpful since some of the ulcer patients had been suffering from stomach disorder for many years and had had considerable pain and discomfort. None of the subjects, either cancer or ulcer patients, were feeling very ill at the time they completed the inventory, since this was one of the criteria for selection. One way in which this problem might be investigated would be to break down the cancer group by site, length of illness and treatments

received, to see whether those who had not been ill so long and had not undergone stressful treatment experiences obtained lower scores. Such a breakdown would not be possible for this sample because although general information is available regarding the diagnoses and length of illness for the group this cannot be attached to individual subjects because the inventories were completed anonymously.

A second explanation might be suggested if the assumption could be made that both cancer and ulcer patients are 'psychosomatic types'. There is some evidence to suggest that persons who suffer from psychosomatic complaints often have more than one such complaint at different times. From this evidence it might be concluded that there is a type of personality which constitutes a psychosomatic predisposition. The marked similarity in personality traits reported to be associated with various psychosomatic diseases is further evidence for this. The score from the inventory might be related to some such personality traits of a general psychosomatic nature, and the similarity between cancer and ulcer patients could then be interpreted as evidence that cancer patients would come under a general 'psychosomatic type'. This would not be easy to investigate since so many illnesses are now thought to be psychosomatic and it would be difficult to find a group of persons with a sufficiently serious illness which was definitely not psychosomatic.

4.53 Differentiating Questions

The results discussed so far clearly indicate statistically that cancer patients were giving different responses to approximately one third of the questions used in the inventory. The difference

has been expressed purely statistically as X^2 results from responses to individual questions and as a score related to the way in which cancer patients answered. In dealing with the data this way each question has been treated as a separate unit and has been used as such for a statistical analysis. Obviously individual questions of this kind are of very limited value in describing anything about cancer patients. We can conclude nothing about what cancer patients are like from the statistical fact that they give different answers to each of 14 questions. Furthermore, the 14 questions on which results have been based are thos differentiating between cancer and all non-cancer subjects and do not necessarily all represent differences between cancer patients and each of the other two groups. Thus two further kinds of analysis should be done in an attempt to make the statistical data more meaningful, an examination of questions differentiating between three groups (cancer, ulcer and healthy) still using the X^2 test, and an examination of the nature of these questions.

4.531 Comparisons between Groups.

Chi square tests were applied to answers given by each group, comparing cancer - healthy, cancer - ulcer and ulcer— healthy. Differentiating questions are shown in Tables 27 and 28, and a summary of the results is presented in Table 29.

Between cancer and healthy subjects, 12 questions were found to differentiate, one (question 11) not having been included in the original 14 questions used for the screening score. Between ulcer and healthy subjects 8 questions differentiate, again including one

not used for the score, (question 30). Between cancer and ulcer subjects only two questions differentiate, an interesting result in view of the significant difference between mean scores based on 14 questions. Summing the χ^2 results for cancer - ulcer for all the original 14 questions it becomes apparent why the score showed a significant difference between these two groups (χ^2 29.35 df 18 $p < .05$). However, it is also clear that the difference in scores was due largely to two questions only. This analysis shows that the score results were misleading and that cancer and ulcer patients are more different from the healthy subjects than they are from each other. One exception appears in answers to question 17 (see Table 29), where cancer and healthy subjects gave similar answers, both differing from the ulcer subjects. Little can be said about one question, but this finding casts doubt upon the meaningfulness of the statistical analysis.

4.532 The Nature of Differences.

Discussion of the nature of differences as shown by the questions used in the inventory cannot be more than speculative. It is nevertheless of some possible use in providing ideas for further study. It might also throw further light on the statistical results which are clearly not very meaningful. The principal problem in having treated results in the way adopted here is that it has worked from group frequencies and obscures variation within the groups. It also obscures the nature of variation between the groups as has been shown above. Clearly, if the 14 questions used for the score, taken together, mean anything about cancer patients then the majority of cancer patients should have answered them all in the same way and the other subjects should have answered them all

TABLE 27

Self Description Inventory statements showing significant differences between Cancer & Healthy Subjects; Part II.

		Cancer			Healthy		
		T	F	?	T	F	?
7.	I have always tried to keep my troubles to myself as much as possible.	90	4	4	33	10	5
11.	I think that in this world you have to look after yourself and not worry too much about others.	32	59	7	4	44	1
12.	I like to have strong attachments with my friends.	77	15	6	26	19	4
13.	I nearly always agree with the opinions of my friends.	28	51	19	7	38	4
19.	I rather despise people who are soft and give in to others.	51	31	16	15	31	3
26.	I feel embarrassed being with someone who is unhappy and upset.	51	38	9	13	35	1
28.	I have missed a lot because I have not gone out enough and met people.	49	45	4	12	33	4
29.	I feel better when I give in in an argument than I would if I tried to get my own way.	45	29	24	12	34	3
33.	I think I can feel satisfied with what I have done with my life.	68	18	12	18	26	5
34.	I don't like being tied to other people.	67	19	12	23	23	3
35.	It takes a lot to make me angry.	78	9	11	33	13	3
36.	I feel uncomfortable when people show their feelings in public.	76	11	11	25	19	5

TABLE 28.

Self Description Inventory Statements, showing significant differences between Cancer & Ulcer subjects and Ulcer and Healthy subjects; Part II.

1. Cancer-Ulcer

		Cancer			Ulcer		
		T	F	?	T	F	?
17.	When I get angry I usually try not to show it.	71	20	7	15	18	0
35.	It takes a lot to make me angry.	78	9	11	21	9	3

2. Ulcer-Healthy

		Ulcer			Healthy		
		T	F	?	T	F	?
11.	I think that in this world you have to look after yourself and not worry too much about others.	13	18	2	4	44	1
17.	When I get angry I usually try not to show it.	15	18	0	35	14	0
26.	I feel embarrassed being with someone who is unhappy and upset.	18	12	3	13	35	1
29.	I feel better when I give in in an argument than I would if I tried to get my own way.	17	12	4	12	34	3
30.	I agree with people who think our personal misfortunes are often a sort of punishment for things we have done wrong in the past.	12	16	5	6	35	8
33.	I think I can feel satisfied with what I have done with my life.	19	9	5	18	26	5
34.	I don't like being tied to other people.	23	6	4	23	23	3
36.	I feel very uncomfortable when people show their feelings in public.	25	4	4	25	19	5

TABLE 29.

Summary of questions showing differences between cancer, ulcer and healthy subjects. Self Description Inventory, Part II.

Question No.	Cancer-Non Cancer	Cancer-Healthy	Cancer-Ulcer	Ulcer-Healthy
7	X	X		
11		X		
12	X	X		
13	X	X		
17	X		X	X
19	X	X		
23	X			
26	X	X		X
27	X			
28	X	X		
29	X	X		X
30				X
33	X	X		X
34	X	X		X
35	X	X	X	X
36	X	X		X

in the same way and the other subjects should have answered tham all differently, whereas neither is the case. Results from the X^2 analysis show differences in distribution of answers over the three alternatives (True, False, ?). For the purpose of demonstrating statistical differences this is quite adequate, but it is not meaningful in relation to characteristics of cancer patients. Of the 14 questions only 8 were answered in the same way by a clear majority of cancer patients. For the purpose of this analysis a clear majority is considered to be two thirds. It is considered that if cancer patients do have any personality characteristics in common and these questions are relevant to such characteristics, then more than one third of 'deviants' would be difficult to account for.

Questions 'describing' cancer patients are therefore reduced in number from 14 to 8. Furthermore for these questions to have any meaning in relation to cancer patients they should all have been answered in the same way by the same subjects. It was therefore necessary to examine the composition of the groups of cancer patients making up the majority for each of the 8 questions. Again a two thirds majority was taken as the requirement; that is, only questions all answered the same way by a two thirds majority of the same cancer subjects were selected. Interrelationships between the 8 questions are shown in Table 30. Five questions fulfilled the requirements as stated and it is maintained here that only these five questions can be considered relevant to personality characteristics of cancer patients.

However, if the answers given are characteristic of cancer patients they must obviously be different from answers given by the non-cancer groups. Compared with Healthy subjects four of the

TABLE 30.

Differentiating statements answered in same way by a two thirds majority of Cancer patients; Self Description Inventory Part II.

Statement	7	12	17	27	33	34	35	36
7	x	83	74	88	72	67	80	80
12		x	60	73	62	53	64	67
17			x	69	58	52	63	60
27				x	68	65	74	73
33					x	54	62	55
34						x	56	57
35							x	65
36								x

Cancer - Healthy

7. I have always tried to keep my troubles to myself as much as possible.

12. I like to have strong attachments with my friends.

35. It takes a lot to make me angry.

36. I feel uncomfortable when people show their feelings in public.

Cancer - Ulcer

35. It takes a lot to make me angry.

questions can be considered to come into this category, but compared with ulcer patients only one of the questions does so. This leaves very little to be said about the characteristics of cancer patients as shown by the inventory. They report that they have always tried to keep their troubles to themselves as much as possible, they like to have strong attachments with their friends, they have always been obliging people, it takes a lot to make them angry and they feel very uncomfortable when people show their feelings in public. Looking back at the responses given to these questions by the two non-cancer groups it appears first that ulcer patients describe themselves in the same way except that slightly more than one third evidently require less to make them angry. Secondly, healthy subjects are more evenly divided about these questions though in most cases more than half are on the side of the cancer patients, and they consider themselves to be almost equally as obliging.

Thus, although the inventory can be used to provide statistically significant differences between the three groups of subjects used, it appears that these statistical differences are rather empty of meaning. One final point must be noted in connection with the inventory questions which raises further doubts as to the meaningfulness of the results. As far as can be judged from the questions used and the answers given the technique appears not to be highly reliable. This is hardly surprising and was certainly expected. As a rough check on reliability several questions were repeated in a different form and obvious inconsistencies of answers have occurred in a number of cases (approximately 15% of cancer patients, 10% of ulcer patients, no healthy subjects). Since there is little to be shown from results

about characteristics of cancer patients it is not considered important to examine reliability in any detail. The statistical results stand on their own merits as statistics, but unreliability of the data provides additional support for the contention that the statistics do not mean a great deal.

It is possible that some of the inconsistencies shown in answers are related to the fact that both cancer patients and ulcer patients showed rather a marked inclination to answer questions as True. The proportion of True responses given by cancer patients was compared with that of the healthy subjects and the difference is significant (X^2 3.8, $p < .05$). Fifty seven percent of both the cancer and the ulcer responses were True as compared with 48% of the healthy responses. It is possible that this difference is a reflection of some aspect of personality. It might be related to reports that cancer patients are typically anxious to please. If so ulcer patients are equally anxious to please. It might also be suggested that both cancer and ulcer patients, being ill, were either unwilling or unable to give their full attention to the questions and tended to take an easy way out. None of the patients was obviously uncooperative but it seems quite likely that illness would not help with concentration.

4.533 Good Fortune and Worry.

The two final questions included in the inventory remain to be discussed. Once again cancer and ulcer patients gave responses which differed little or not at all. The check list relating to experiences of good fortune produced no differences either in the number or nature of experiences reported by any of the groups.

TABLE 31.

Responsens of Cancer, Ulcer and Healthy subjects to check list of worrying experiences.

	% of Subjects (approximate)		
	Cancer	Ulcer	Healthy
Work	6	12	6
Money	12	9	8
Relationships with other people in general	4	4	4
Relationships with the opposite sex	4	4	8
Relationship with spouse	4	3	5
Relationships with parents	3	3	13
Children	3	4	1
Own ill health	18	14	1
Illness of close relatives or friends	18	15	16
Own faults	9	8	23
Failure to achieve what one wants	8	13	13
Difficulties through no fault of one's own.	12	12	4

The check list of worries, however, did produce differences between cancer patients and healthy subjects in the nature of worrying experiences. Responses are shown in Table 31. The differences occur in responses to 4 of the experiences listed. It is hardly surprising that cancer patients have worried more about their own ill health. It is, however, or some interest that considerably more of the healthy subjects have worried about their own faults and about their relationship with their parents.

4.6 Conclusions

The statistical analysis of data has shown significant differences between cancer and non-cancer subjects in answers to 14 of the inventory questions. Stated in the form of a scoring system, results show significant differences between cancer and all non-cancer, cancer and ulcer, cancer and healthy and ulcer and healthy subjects. It is not possible, however, to use the inventory results for a cancer screening technique. Age differences appear to have influenced results to some extent but do not account for the significant differences between cancer and non-cancer subjects. The inventory has also shown that cancer and ulcer patients report having worried about similar problems but that the worries of both these groups have been somewhat different from those of the healthy subjects.

It is apparent from the later more detailed analysis of results that cancer and ulcer patients differ very little in responses to the inventory questions, differences between mean scores having been due largely to only two questions. It also became evident that when attention is focused on similarities among cancer patients rather

than purely on differences between them and non-cancer subjects, the inventory has provided little evidence of distinctive personality characteristics.

This investigation was originally planned to correct some of the faults apparent in earlier research. Because of the various difficulties explained above it has only succeeded in repeating most of these faults and adding some new ones. However, although unsuccessful in making improvements, it has the advantage of exposing its own defects. Its principal value appears to be in its having laid bare some of the methodological problems which can easily occur in research of this kind and which have not been seriously considered by most of the authors whose work was discussed in Chapter 1. In fact by using a method with no pretnsions, allowing it a fair trial and then demolishing it, the study has shown how defective research in this field can be.

The statistical results as expressed by the scoring system do not seem essentially different from results in many of the previous studies, except that differences here are defined purely in terms of the questions used rather than in terms of personality dynamics. Had Le Shan and Worthington stated their results in the form of actual responses to Personal History questions they would be of the same kind as the results presented here. On this basis cancer patients have been shown to differ from both groups of non-cancer subjects. Since the inventory must be considered a psychological technique, the differences are clearly psychological. When examined from the point of view of cancer patients, however, it appears that they mean very little.

The study has also exposed sampling and control problems. The significance of results was decreased by the addition of 44 more cancer patients and 50 more non-cancer subjects. It might be further decreased if more subjects were added. Both cancer and healthy subjects almost certainly constitute a biased sample. In relation to cancer patients, the bias was mentioned in Chapter 3 (page 93). Most of the patients in the Marie Curie Memorial Foundation Homes are there because they have no-one to look after them at home. Most of the healthy subjects were students at an Adult Extension Summer School and although they may be representative of persons who attend Summer Schools, these are a very small proportion of the total population. Ulcer patients can perhaps be considered more representative, at least of persons who go into a public ward when they require treatment for peptic ulcer.

It seems likely that age influenced the scores of cancer patients rather more than appears from the calculation of mean scores above and below mean age. Although the difference between the means is not statistically significant, it would be were there not three of the older group with very low scores. These patients were all over 80 and while their answers were not obviously unreliable the combination of advanced age and illness might well have affected their understanding of the questions.

The most interesting finding from this study was that cancer and ulcer patients are more alike than either group is like the healthy subjects. This may mean only that the two groups of patients are not like persons who attend Summer Schools, but it seems reasonable to conclude tentatively that the result relates to illness. It is

not possible to say whether this reflects just the effects of illness or whether there is some general 'psychosomatic' factor common to both groups. From the data available it can only be said that cancer patients and ulcer patients are known to have been ill at the time they answered the questions, whereas the healthy subjects were well enough to continue with their ordinary everyday activities.

There are many unanswered questions arising from this study and failure to answer them means that no definite conclusions can be drawn from the research. It would be possible to correct some of the weaknesses and solve some of the problems by further research, and by further investigation of the inventory itself. However, the experience gained from the two research projects reported here and from the detailed review of the literature has led to the conviction that the gap between what should be done and what can be done in this field of research is too great to be bridged.

CHAPTER 5

CONCLUDING EVALUATION

The preceding chapters have been concerned exclusively with research method and results. Criticism of the literature led to a largely negative conclusion concerning an association between personality characteristics and cancer. The two research projects reported in Chapters 3 and 4 are incomplete and inconclusive but although no conclusions can be drawn about the hypothesised association, the research has served to emphasise methodological problems inherent in this type of research. A pessimistic view was expressed at the end of the last chapter of prospects for improvements in research. This view applies to research concerned with personality characteristics of cancer patients and stems from the opinion that with the methods available very little can be achieved towards providing the 'proper foundation' asked for by Weinberg (see page 10). This refers only to a proper foundation for correlation between personality factors and cancer. What is really required for the claim with which this thesis is concerned is a proper foundation for the conclusion that personality factors may cause cancer.

In chapter 2 a division was made between the psychosomatic and the experimental hypotheses underlying this research on cancer. This was considered a necessary distinction because research evidence is not obviously relevant to the claim that psychological factors are

causally associated with cancer. It seems that at least some of the confusion and disagreement noted in the Introduction results from failure to make the distinction explicit. For example, Perrin and Pierce have published a highly critical review of the literature, making many of the same criticisms expressed in this thesis. In their concluding remarks, however, (see page 12) they fail to make clear whether they consider the evidence inadequate because it does not establish an association between personality and cancer or because it does not establish a causal association, or both. The conclusion quoted refers to an association with the "growth and development of the disease", which seems to imply that their principal objection is to postulating causality from the available evidence. On the other hand Le Shan and Worthington and Kowal believe that the evidence is sufficiently strong to support an etiological hypothesis. In general it seems to be taken for granted either that the association is causal or that it is not, but the arguments for or against have not been discussed by either side. It is quite obvious that none of the research has provided evidence that personality factors actually cause cancer or affect the development of the disease. The problem lies in the fact that some researchers and reviewers consider there is justification for assuming that it does, and before rejecting the evidence as Perrin and Pierce do, this justification should be examined.

The history of psychosomatic research provides adequate precedent for those who maintain a psychosomatic origin of cancer from the evidence available. Ultimately the justification for this view rests on the theory of specificity which holds that specific emotional disturbances may produce specific physical symptoms. The cancer

research is clearly following the lead first of Dunbar (15) who constructed typologies characteristic of patients with particular diseases, and also of Alexander (1) who is currently the chief exponent of the specificity view, basing his theory on the following postulates:

1. All healthy and sick human functions are psychosomatic.
2. Emotions are always associated with concomitant action patterns expressed through a portion of the autonomic nervous system and its innervated organs.
3. For specific emotions there are appropriate concomitant vegetative patterns.
4. Emotions repressed from overt expression lead to chronic tensions, thus intensifying in degree and prolonging in time the concomitant vegetative innervation.
5. The resulting excessive organ innervation leads to disturbance in function which may eventually end in morphological changes in the tissues.

Only if one holds that particular diseases result from specific emotional disturbances can the research on cancer be interpreted as having etiological significance. As Brown has made clear (9), clinical research involving personality studies of groups of patients is based on the specificity view of psychosomatic illness. This is, of course, a theory and provides only a general theoretical justification for the cancer claim. However, it appears that those who maintain that cancer is a new psychosomatic syndrome must do so by interpreting the specificity view as something rather more than just one possible theory. The argument has not been explicitly stated but there are suggestions that some writers are assuming specificity to have been proven. The bare outline of the argument would seem to be as follows; certain emotional disturbances are

correlated with cancer, specificity theory holds that certain emotional disturbances cause a number of other diseases, therefore emotional disturbances cause cancer. Since the evidence for the specificity theory is in fact only that emotional disturbances appear to be correlated with certain diseases, this argument is obviously circular. The question of causation remains open, depending entirely on speculation about the link between the emotional disturbance and the disease symptoms. Brown has said "the psychologist has shown great ingenuity in spanning the gap between symptoms and personality with speculation rather than facts...but the problem of causality is still elusive". (9)

Causation therefore cannot be assumed by falling back on the theory of specificity. However, specificity based research may in the future come up with some facts to span the gap. The problem of causation is elusive at present but if research is pursued it may be caught and solved.

This position raises two questions, both general problems related to specificity theory. Support for the theory must come from two sources, the establishment of clear correlations between specific emotional disturbance and particular diseases, and evidence that the emotional reactions have physiological concomitants which can produce observed structural damage. As has been stated, the second source of support is lacking, except for what Brown has called "shrewdly conceived hypotheses". If it is ever to be more than this the emotional disturbances, or as Anexander calls them, constellations, must be described in such a way as to show first that they are characteristic of persons who develop the particular physical symptoms

and secondly that they do have the appropriate physiological concomitants. In fact not even the first has been established. Many studies have appeared in which attempts are made to describe specific personality characteristics without, it is now generally agreed, very much success. Specificity theory is currently subjected to strong criticism on the grounds that research has failed to show correlations, and that the characteristics described cannot be shown to have etiological significance.

Research on various diseases has produced monotonously similar lists of traits and has also shown that the same person may at different times develop different psychosomatic symptoms. Alexander holds that not traits but unconscious emotional constellations should be studied. However, his approach has also resulted in variations on the same theme and leads little further towards specificity. This results to a large extent from the limitations of techniques for studying personality and the basically limited understanding of personality dynamics. Brown has pointed out that psychologists do not know what they mean by traits and the psychoanalysts are using terms which "have flimsy operational concomitants and hazy external referents". Hence, with little understanding of the concepts employed at the psychological level, it is difficult to see how attempts to specify physiological effects could succeed. Brown and Hamilton have both laid the problem squarely on the psychologists' doorstep.

> With so much uncertainty at the bedrock of personality theory, it is not surprising that so much research in psychosomatic medicine has come to floundering, piecemeal conclusions. (9)

> Attempts to explain predisposing factors in psychological terms are unsatisfactory, partly because general psychology has not yet developed an adequate theory of personality. (26)

It might still be held that the only way to improve the position would be to continue with better techniques and try to develop better concepts. Grinker, however, presents rather strong arguments to suggest that even if this were possible it would not be profitable towards understanding etiology. The trait approach he dismisses with Dunbar's typologies, from which it is a direct descendant, and from which the cancer research has also descended.

> Personality profiles and disease syndromes cannot logically be considered as two aspects of the same process, since the disease is considered as a stereotype and the profile as a statistic in Dunbar's hands. The resulting impasse will continue no matter how much the profile pattern is refined. (23)

Grinker maintains that Alexander's position, although less superficial does not come closer to providing the links between psyche and soma.

> Although consisting of unconscious character traits uncovered only by psychoanalytic procedures, they are still very close to the personality profiles of Dunbar. The monotonous formulations of dependency, frustration and aggression even though juggled into so-called specific dynamic configurations, are unsharp universals. They are so far removed from processes influencing psyche and soma ... that they can only be considered as characterological precipitates derived from these action processes or in reaction to them. (23)

One might object to Grinker's terminology, but his fundamental argument appears unanswerable. Neither psychologists nor psychoanalysts can define their concepts in a form which is meaningful physiologically. Looking at the characteristics said to be associated with cancer the problem is thrown sharply into focus. Repressed hostility, extraversion, masochistic character structure are psychologically vague concepts and quite meaningless physiologically.

Specificity theory has also been attacked on the grounds that it

over-simplifies the problem and is in danger of substituting a causal concept of disease no less narrow than the organistic conception from which psychosomatic medicine has revolted. Bandler has traced the origin of specificity to two sources, the medical ideal of a single cause and the psychoanalytic concern with choice of neurosis. (5) Success in medical research in locating causes of many diseases led to the hope that all disease including mental illness would be found to result from specific physical causes. The psychoanalytic concept of neurosis led to a search for specific conflicts as causes of particular neurotic syndromes. Kubie (35) has discussed the choice of neurosis problem in relation to psychosomatic specificity theory and argues that since it has proved difficult if not impossible to trace specific links in the neurotic chain it is unlikely that psychosomatic research will be more successful. Choice of symptom is perhaps the weakest point of the psychoanalytic theory of neurosis and it seems probable that the psychoanalytic conception of psychosomatic symptoms must come up against the same problems.

The parallel between a specificity approach to psychosomatic illness and the organistic approach to disease in general has been sharply drawn by Galdston (20), and his point of view may be taken as representing those who consider psychosomatic medicine to be a way of thinking about disease rather than a medical specialisation concerned with the diagnostic category 'psychosomatic disease'. Psychosomatic medicine, Galdston maintains, "constitutes a movement to counterbalance and correct some of the erroneous and corrupting ideas and viewpoints progogated in organicist medicine". He says that the concepts of specificity and time-sequential causality fall into the very errors

that the psychosomatic movement is trying to correct. For the organicist the somatic event preceeds the psychological, for the psychosomatist the psychological event preceeds the physical. Thus he points out that in adopting the specificity theory "the evil is not corrected, only multiplied".

Relating all this to cancer research it becomes apparent that with the questioning of the specificity concept of psychosomatic disease the foundation for the whole approach to cancer becomes decidedly unstable. It is relevant here to note Bandler's statement, in discussing research based on specificity theory.

> It is of special interest that with the recent extension of the psychosomatic movement to the neoplastic diseases, many of the same questions are being asked again in spite of the fact that the psychosomatic movement has largely abandoned this approach towards the classical psychosomatic diseases". (5)

It seems strange that nothing has been learned from the difficulties which led to abandoning the approach. Bandler, however, continues; "Typology it appears is an important and necessary descriptive and classificatory stage in the development of any science". He seems here to imply that the cancer research is not an extension of the psychosomatic movement, but an entirely new development. This is obviously not the case, if only because the approach to cancer is undoubtedly based on theory developed from research on the classical psychosomatic diseases. It is maintained here that if there have been good grounds for the psychosomatic movement to abandon the approach it must be unprofitable for it to be resurected for studying cancer.

In addition to the general weaknesses and unfruitfulness of specificity research, there are some problems which arise directly

from the nature of the neoplastic diseases. One has been briefly discussed with reference to the Le Shan and Worthington research and the two projects reported here, namely the difficulty of defining the scope of the disease. It has been pointed out by several writers (Ruesch, for example (77)) that correlations between broad abstractions of 'personality' and a 'disease syndrome' are not very meaningful. This is even more true of cancer, an abstraction which includes many and varied syndromes. Selection of one site also raises some problems. For example, breast cancer has been the most commonly studied but it is known that some breast carcinomas are harmone responsive (possibly 50% of cases (27)) and some are not. It therefore appears even cancer in a specific site cannot necessarily be regarded as one disease syndrome. There are also known causal agents of certain types of cancer, particularly the many industrial cancers which have been recognised, and these facts should be considered, together with epidemiological data, in deciding upon a disease to be studied. Research designed to isolate etiological factors must obviously take all known causative agents into account, and a specificity approach clearly necessitates the study of a specific disease. An analogy might be drawn between a study of all types of cancer and one of all types of ulcer.

The possibility must be considered that any personality characteristics associated with cancer are an effect of the disease. This is perhaps more likely to be true of cancer than of many of the other diseases which have been studied in the same way. Psychological effects of being very ill, knowing or suspecting that it is cancer and therefore facing death, could account for the characteristics

found. A number of studies have been published concerned with the psychological effects of having cancer. One such study reports that reactions of some cancer patients are very similar to neurotic symptoms, being defenses against a real as opposed to an imaginary threat. The authors describe reactions of anxiety, increased dependency, paranoid mechanisms, suicidal thought, inferiority feelings, feelings of rejection, aggression, withdrawal and isolation (3).

These are, of course, studies of patients who know they have cancer. However, although patients are often not told, many must suspect and it is reported that cases of obvious denial are not infrequent (39). It is interesting that nurses and medical staff with whom this question has been discussed report that cancer patients often do not ask for their diagnosis. This is sometimes used as an argument in favour of not telling them they have cancer. It would seem reasonable to assume that patients don't ask because they fear they have cancer and do not want to know definitely. A reaction of this kind would almost certainly have some psychological repercussions.

The effects of treatment and the physical strain of a very serious illness may also produce psychological side-effects. Just being ill has been suggested as a possible explanation of the results reported in Chapter 4. The two groups of patients differed more from healthy subjects than they did from each other. This may be because the particular questions used showed illness differences and not anything else, but the results do suggest that differences between cancer and non-cancer subjects found in other research may be effects of illness. Finally there is the possibility that physiological changes brought about by the neoplastic development may provide a physical basis for

psychological changes. These alternative explanations of the correlation between personality and cancer have been discussed in some detail by Meerloo. (50)

It might be argued that the characteristics reported common to cancer patients are of the kind which would not be affected by having the disease. For example, one might suggest that having cancer is unlikely to make the patient more extraverted. However, it is possible that cancer patients give 'extraverted answers' to questionnaires because of their present state, ill and in hospital and therefore rather isolated from social contact. They might, as patients ill and facing death, be answering as they would like to have been rather than as they were. It is, in fact, impossible to sift out preceedent from antecedent characteristics when so little is known about personality, the characteristics described are not properly defined and the psychological impact of disease is so little understood. A longitudinal study would help to solve this problem and one such has been reported by Hagnall.[1] Subjects given an extraversion - introversion inventory were followed up some years later and the scores of those who subsequently developed cancer were examined. It was found that they had higher than average extraversion scores. An approach of this kind is obviously an improvement on post-diagnosis research, but the problem of causation is not thereby

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1. It has not been possible to read this report, and it was therefore not included in the literature review. A summary of the results was obtained from Mrs. Maryse Metcalfe.

solved.

Methodological problems, which have been discussed at some length in the three preceeding chapters, are not peculiar to the research on cancer, but would seem to be more difficult to solve. The nature of the disease must impose a strict limit upon what one can hope to achieve. Personality studies of patients with other types of psychosomatic illness have not been limited as much by the physical state of the patient and none of them have been concerned with a disease which is almost always fatal. Experiments with psychotherapy, which have been suggested by Askervold (2) as a way out of the causality impasse, are clearly impossible with cancer patients. Psychotherapy could be, and has been tried (39) but this could never be done without also using physical treatments. Neither would it be possible to perform personality experiments requiring elaborate apparatus and laboratory conditions with patients who are seriously ill. It seems that very little can be done beyond the questionnaire, projective test and interview methods which have already been tried. In general with these techniques it is true to say that we know very little about what is being measured in terms of personality and behaviour and we certainly cannot say what is being measured in physiological terms. Furthermore it is difficult to check results because in this field one can never be sure that the technique is adequate. It is always possible to dismiss negative results on the grounds that an inappropriate method was used, or that it was improperly interpreted. Direct testing of results is also difficult because most of the terms used to describe personality traits or emotional disturbances are imprecise and not operationally defined.

It is impossible to find a control group which does not include persons who will later develop cancer or already have it. Strictly, a control group could only be found when all subjects were dead and autopsy data available.

There is also the problem of dealing with group results as though 'a group of cancer patients' had some separate existence apart from the individuals making it up. This is particularly noticeable in clinical research where a number of aspects of personality are being considered. This point was brought out clearly in the previous chapter. Many of the studies of cancer patients have concentrated on demonstrating differences between cancer and non-cancer subjects and partially neglecting the question of whether the cancer patients are themselves alike. Even studies not using a control group, and hence not being directed towards finding differences between cancer and non-cancer, have fallen into the error of discussing majority figures for several characteristics which are not necessarily shared by the same patients. Bacon, Renneker and Cutler list majority figures for their five characteristics but do not say how these were distributed amongst their 40 patients. Le Shan and Worthington show percentage results for their two groups, emphasising the differences which are quite large. However, the four characteristics they found in their second study were obviously not shared by a majority of their cancer subjects. One was 'found' in 77% of cancer patients, one in 64%, one in 38% and one in 79%. Thus only a maximum of 38% of cancer patients could have shared all characteristics, but on the information provided by the authors it could be that in fact only 2% had all four characteristics in common, that is assuming that most of

the 38% were not included in the 64%. This is not intended to imply that no results are of any value unless they show in detail how can patients are alike, but it does seem to point to a mistaken conception of the aim of the research. Dealing with groups results in this way could only be fully justified if it were true that groups get cancer.

Bacon, Renneker and Cutler report that they were continuing with more intensive studies of a few patients. This is more in line with the specificity approach as advocated by Alexander, and also more in line with Wolf's theory which makes specific conflicts specific to the individual. (75) For a psychosomatic approach to any particular disease to be meaningful it must be based on individuals and not on groups. However, a few studies of individual patients are unlikely to be accepted as evidence of disease etiology. A frequent criticism of psychosomatic research has been that too much weight is given to individual studies. Papers in psychosomatic journals have too often been individual case histories.

This raises the question again, of whether one considers psychosomatic medicine to be a way of approaching all disease or as a speciality within general medicine concerned with a particular diagnostic category. As a way of approaching disease it claims no more than that psychological factors can be of importance in predisposing towards or precipitating an illness or influencing remissions and exacerbations. In practice this means making a science of the bedside manner, or trying to systematise the principles on which the family doctor has been working for generations. From this point of view psychosomatic medicine is concerned with treating 'the whole person' as far as this is possible, and psychosomatic research is aimed

at trying to understand the fundamental relationships between psychological and somatic processes, in order to discover experimentally how 'the whole person' is involved in becoming ill.

There is a great deal of confusion about this question, some wishing to show that certain diseases are psychosomatic in the sense of having a psychological 'first cause'. Alexander has apparently solved the conflict between the specificity view of particular diseases and the more general concept, by maintaining a position which almost amounts to saying that all diseases are psychosomatic but some are more so than others. Alexander lists nine possible causal factors and states that psychosomatic medicine has only added one more to the list which may be of importance in some cases but not in others. This leaves open the question of which are the cases where the psychological factor is important. Those who talk of somatopsychic illness throw the subject into even greater confusion, leading to a view that there are several different categories of disease. Margett (49) has suggested that we should construct frames of reference when thinking in terms of psychosomatic medicine, whether one is dealing with functional manifestations of emotion (for example, anxiety); symbolic dysfunction of emotion-determined origin (example, conversion hysteria); structural disease with emotional disturbance possible predominating as a 'causative' factor (example, ulcerative colitis) and most important, sickness per se in which the whole person, mind and body, is disturbed (example, any illness). Margett emphasises that in view of our present ignorance of specific causation this can only be a theoretical schema and no more than that. This schema would find general support from psychosomatists, but in practice many are thinking of the first three "frames of

reference" as separate disease categories and not as temporary classifications resulting more from ignorance than anything else.

Alexander is most insistent that there is no reason to believe the most outstanding etiological factor in any disease to be psychological.

> Multicausality and the varying distribution of psychological and non psychological factors from case to case, invalidates the concept of psychosomatic disease as a specific diagnostic category. (1)

Hamilton has suggested a useful solution to the problem by referring it to a practical test.

> Classifications have their importance as a mode of ordering one's thinking, but in the end the value of a classification is determined by its practical use. For example, the value of classifying diseases into infective and non-infective lies in the action that is taken in treating the former and preventing their occurrence. The practical value of psychosomatic theory lies on the whole still in the future. Whether a given disorder is or is not a psychosomatic one will be decided in the end by the practical difference it makes to the physician. Good classifications, like good definitions, come at the end of a scientific investigation not at the beginning. (26)

Multi-causation is generally accepted but for practical purposes it would seem that most important or 'first' cause will be identified as the one about which something can be done. The classification of infective diseases does not imply that infection is the only cause, or even the most important. Lowered resistance to infection is equally as important. It is, however, more useful to deal first with the infection, both in prevention and treatment. Strengthening resistance is also important, but this aspect of causation is less easy to control and usually comes as a second step in prevention and treatment. Lowered resistance to infection, of course, covers a variety of causal factors and here again it is those about which something can be done

which are specified as the important causes; poor diet and low standards of hygiene for example. Tuberculosis is an interesting example to consider in relation to this problem. In this case it appears that psychological factors may operate in addition to infection in causing the disease. For prevention and treatment it is the infection which is considered as the cause, any form of psychological therapy being an extra and unessential refinement.

With present knowledge of cancer it is quite clear that the practical usefulness of a 'psychological cause' would be minimal. As Le Shan has pointed out, one does not attempt to stop a forest fire by extinguishing the match which started it. (38) From the treatment point of view it may be of little use to know that the 'match' was a psychological event and not a physical one. Prevention could perhaps make use of psychological cause if it were possible to identify cancer prone persons and treat them before the disease developed. The idea of a screening technique discussed in the previous chapter was related to this possibility. However, psychological techniques for screening and therapy are quite inadequate at present to attempt such a preventive programme. Prevention of recurrence might also be approach psychologically but further difficulties arise here because of the nature of the disease. It is rare for patients to be cured completely, and if any malignant celle remain after surgery of other treatment one is still faced with the fire rather than the match.

Ultimately the practical usefulness of any etiological factors must depend on knowledge that they are causes and on knowing how they operate. It has been maintained here that the cancer research is based on a naive view of specificity theory and a naive view of

psychosomatic medicine. The research has been floundering in the confusion of personality theory and in the confusion of psychosomatic theory. The aim has been to 'prove' that cancer is a psychosomatic disease by showing that specific emotional disturbances are correlated with development and growth of neoplasm. It has been argued here that we do not know what a psychosomatic disease is and we certainly do not know that any diseases have specific emotional causes. The conclusion from this argument must be that for both methodological and theoretical reasons research of the kind being done on cancer can never provide a proper foundation for anything.

The great advance made by psychosomatic medicine has been in attempts to systematise ideas about mind-body relations in health and disease, beginning in 1935 with Dunbar's great contribution of collecting, abstracting and synthesising the literature on relationships between emotions and bodily changes (15). Its greatest mistake has been in attempting to apply these data to particular diseases before psychosomatic relationships were even partially understood. Grinker has noted some of the errors into which the 'psychosomatic specialist' has fallen.

> Uncontrolled conclusions based on incomplete studies of only a few examples of specific syndromes were applied to all cases. The enthusiastic quest for knowledge by a plethora of post war graduate students seduced their gratified teachers into throwing caution to the winds, into stirring up even more interest amongst physicians and into making doubtful therapeutic promises to laymen through popular lectures and articles of questionable accuracy....Far more serious for the patients was the acceptance.. of labelled syndromes as diagnostic categories, serving to evoke psychological pronouncements of etiology and prognosis without reference to the specific forces at work within and around the individual patients.... As a result psychosomatic formulations have become stereotypes into which each patient's life history and situation is moulded by special focusing, selective interpretation and omission or neglect of the incongruent. (23)

The psychosomatic approach to cancer is considered to be in this tradition, to be heading towards the same serious mistakes and to be unaware of them. The present thesis began as an attempt to evaluate the research which has been published, accepting that it was a legitimate attempt to contribute to the problem of cancer etiology, but that it was not very good research. As the result of examining methodological theoretical and practical problems it is now concluded that the research can contribute nothing to an understanding of cancer or of psychosomatic problems. This position is inevitable as long as research is concerned first with cancer and only secondarily with psychosomatic processes. For a useful contribution to be made the orientation should be the other way about, and research should be concentrated on basic processes both in health and disease, leaving cancer aside until more is known about the interrelationships of psyche and soma. This statement expresses full agreement with Grinker in his proposal for an approach to psychosomatic research, and the following quotation states effectively the conclusion of this thesis.

> To overcome the many obstacles to research in psychosomatic medicine and to fulfill certain criteria of scientific evidence it would seem that two general methodological principles should be employed. One is the study of the maturation and differentiation of psychosomatic processes (genetic - not exclusively psychogenic). The other is the use of multi-dispiplinary, simultaneous, prolonged observations of many phases of integration and disintegration of psychosomatic processes. (23)

Such a programme obviously involves the psychologist but it is not a programme which can be planned by a psychologist. Hence it is not possible here to outline specific proposals for further research. In fact this programme is intended to lead to the 'proof' discussed

in the Introduction as the only real foundation for a conclusion that cancer is a psychogenic disease. One must still maintain that such proof is a distant prospect and that disproof is equally distant but what Grinker suggests is strictly psychosomatic research. It must be from a focus on psychosomatic processes that useful answers to problems of disease etiology will be found. If psychotherapy proves useful with some physical diseases then studies of patients are useful and indeed necessary. It is difficult to see how psychotherapy could be useful to cancer patients except in helping them to accept their fate, but even if psychological treatment were effective, psychological research alone could never establish that cancer is "a new psychosomatic syndrome."

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APPENDIX A.

FIRST PAGE ONLY

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PERSONAL HISTORY

This form should be completed in pencil. Either printing or longhand may be used. Items relating to school subjects, hobbies, activities, etc., require specific answers. If history was your favorite or your most disliked subject, it should be made clear whether ~~American or European~~ British history was the subject. Sports should be listed specifically as golf, tennis, etc. The job history section of this form should be as complete as possible, even including part-time jobs held during school years if space permits. All information you give here will be held in strict confidence.

Mr., Mrs., Miss _____ Date _____

Address _____ Age _____

Date of Birth _____ Sex _____

Years lived in present ~~city~~ town _____ ~~Citizen~~ British Subject: Yes _____ No _____

FAMILY:

1. Home owned _____ Rented _____ ~~Apartment~~ Flat _____ Room _____ Phone No. _____

2. Marital status: Single _____ Married _____ Date of marriage(s) _____

   Separated _____ Date of separation(s) _____ Engaged _____

   Divorced _____ Date of divorce(s) _____ Expected date of marriage _____

   Widowed _____ Date of spouse's death _____ Cause of death _____

3. Number of dependent children _____ 4. Ages and names of children _____

5. Number of other dependents _____ Relationship(s) _____

6. ~~Given~~ First name of spouse _____ 7. Spouse's age _____

8. Is spouse employed, or regularly occupied with ~~volunteer~~ voluntary work. _____

   Where _____ What capacity _____

9. In the event of an emergency, whom would you wish notified (other than spouse) _____

   Name _____

   Address _____ Telephone _____

10. Health of father _____ Health of mother _____
    (If either parent deceased, give year of death; if ill, nature of illness.)

11. Father's occupation (or former occupation) _____

12. Brother(s), Sister(s) — Check — Age(s) — Occupation(s) — Address(es) ~~(City and state)~~ (Town, county)

Brother _____ Sister _____ _____ _____

Brother _____ Sister _____ _____ _____

Brother _____ Sister _____ _____ _____

Brother _____ Sister _____ _____ _____

Brother _____ Sister _____ _____ _____

Brother _____ Sister _____ _____ _____

PERSONAL HISTORY

This form should be completed IN PENCIL. Either printing or writing may be used. Items relating to school subjects, hobbies, activities, etc., require specific answers. If history was your favourite or your most disliked subject, it should be made clear whether British or European history was the subject. Sports should be listed specifically as golf, tennis, etc., The job history section of this form should be as complete as possible, even including part-time jobs held during school years if space permits. All information you give here will be held in strict confidence.

~~Mr.~~, Mrs., ~~Miss~~ Isabel.....Date.....

Address. 295 Bathurst Ave. Hosp. T/C.6.....Age. 68....

Date of Birth ...November 11th.....Sex.....

Years lived in present town...34.....British Subject, Yes.....~~No~~.....

FAMILY: one Son.

1. ~~Home owned~~.....Rented.....Flat.....~~Room~~.....~~Phone No~~.....

2. ~~Marital status: Single~~.....Married.....Date(s) of marriage
First marriage August 1st 1918. 2nd M. Oct. 18th 1947.

~~Separated~~.....Date of separation(s).....~~Engaged~~.....

~~Divorced~~.....Date of divorce(s).....~~Expected date of marriage~~

.....

Widowed.....Date of spouse's death. August 24th 1936 Cause of death. Angina
2nd August 21st 1959. Heart Trouble.

3. Number of dependent children.....4.Ages and names of children
Herrick William Hollies.....

5. Number of ~~other~~ dependents..... Relationship(s).....

6. First name of spouse.....7.Spouse's age.....

8. Is spouse employed, or regularly occupied with voluntary work.....

Where .....What capacity.....

9. In the event of an emergency, whom would you wish notified (other than spouse)

Name ...My Son Herrick William Hollies.....

Address..8 Belleisle Grove Toronto 4 Ont.....Telephone.....

10. Health of father.....Health of mother.....

(if either parent deceased, give year of death; if ill, nature of illness)

11. Father's occupation (or former occupation).....

Check Walter died 1952. Natural cause.

12. ~~Brother(s)~~, Sister(s) Age Occupation(s) Address(es)

~~Brother~~.....Sister...8.0...7.1.....retired.....

~~Brother~~.....Sister 1st Mrs Brown 56 Farming Peasant Linden Village, Co Durham

Brother.....Sister 2nd Mrs Brown 47 Hatmaker Linden Village

Brother.....~~Sister~~ Mr George Brown Blacksmith Co Durham Village Co Durham

Brother.....Sister.....

EDUCATION:

I. Indicate last school attended: Elementary....~~Secondary~~....~~University~~..... Linden Grange. Co Durham

. Highest class completed: Elementary.7.....~~Secondary~~.....

2. Age completed: Elementary 14yrs ~~Secondary~~....~~University~~.....

3. Approximate number in highest class completed 46.9.7

. Approximate position in class.....

4. Favourite secondary school subjects...all subjects.....

5. Least liked....none.....

6. Extra-curricular activities.....

.....

7. School offices held.....

8. Did you get along better with teachers or students at secondary school.....

9. To whom did you go for help with personal problems at secondary school and/or University.....

.....

10. Universiti(es) attended.....

11. Main subjects .....

12. Subjects least liked.....

13. Degree(s) and year(s) taken.....

14. Did you get along better with teachers or students at University

.....

15. Commercial or technical courses.....

16. If you type, indicate speed.....17.Shorthand Speed.....

ACTIVITIES

1. Membership in civic, professional or social organizations.....

.....

2. Hobbies or interests (past or present)..Church activities...

.....

3. In what additional activities would you <u>like</u> to engage.....

... .

4. What type of holiday do you prefer..Both country & Seaside...

S EXPERIENCE IN FORCES.

If in forces, indicate: Service.....Date entered.....

Overseas..... Date discharged.....

Type of discharge.....Highest grade or rank .....

Terminal rank or grade..... What did you gain from service that was worthwhile .....

.....

BUSINESS EXPERIENCE: (Please start with your present position)

1. Firm.....Address.....
2. Title.....Department.....
3. Nature of work.....Date begun.....
4. Immediate superior.....
5. What do you like most about your job.....
6. What do you least enjoy.....

Previous employment

1. Firm.....Address.....
2. Title.....Department.....
3. Nature of work.....Nurse work.....

   Employed from.....To.....
4. Immediate superior.....
5. What did you like about the work.....
6. What did you dislike.....
.....
7. Reasons for leaving.....

ii.

1. Firm.....Address.....
2. Title.....Department.....
3. Nature of work.....

   Employed from.....To.....
4. Immediate superior.....
5. What did you like about the work.....
6. What did you dislike.....
7. Reasons for leaving.....

Other positions held:

Name of company	Type of work	Date began	Date left	Reasons for leaving

List highlights of your experiences and accomplishments

AIMS

1. What additional education or experience have you had that you think is useful in your present job, or would be of value if you were to be promoted to a more responsible position.

2. Regardless of your present salary, what income would you need to enable you to live as you would like to live? (This relates to type of housing and general living conditions you may desire ultimately; and your response will not be construed as dissatisfaction with your present salary).

3. What are your plans for the future

Just to have better health

APPENDIX B.

Some Notes on the Personal History Technique

Worthington developed the Personal History as a projective technique after discovering that job application forms seemed a fruitful source of information about aspects of the applicant's personality. (8) The Personal History was apparently an attempt to systematise intuitions derived from this type of information. The rationale for the test rests on the assumption that all aspects of behaviour reflect personality and that meaningful interpretations can be made from biographical facts and any form of written expression.

An elaborate method of analysis has been devised for the Personal History. This is based on psychoanalytic theory together with a fairly heavy emphasis on social factors. Each item of information is subjected to a 'depth' interpretation in terms of either form or content or both. In relation to the Personal History, form means the way in which the information is expressed, and content the actual facts stated. The analysis is organised under three major areas of personality. 1. Character structure, for example, passive, dependant, narcissistic, homoerotic.

2. Mechanisms of defense, for example, hysteroid, paranoid, schizoid.

3. Personality facets, which are described as symptoms of the relative goodness of the functioning of character structure and defense mechanisms. They are indicators which may tell how well the individual's security is functioning. For example, aggression, tension, anxiety, lability and ideation are regarded as facets.

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class and social mobility, based on direct information such as occupation, and on indirect clues such as the use of Jnr or Roman III or IV after the name, indicating upper middle or upper class status. An estimate of I.Q. and intellectual functioning is then made and related to the grades used in the Wechsler-Bellvue scale. The direct assessment of personality involves assigning a score of 1 or 3 to each aspect of the analysis system. For example in dealing with defense mechanisms, hysteroid characteristics, designated by the symbol R, are said to be reflected in items left blank when the analyst is reasonably sure that they would ordinarily be indicated. This is given a score of R3. R1 is assigned if there is evidence of [redacted] histrionic trends as for example if the subject states an interest in dramatics. Neologisms or irrelevant statements are taken to indicate schizoid reactions, (B3). A score of B1 is given if an answer is placed on the line following the correct space, but only in answers to items having to do with the future. A similar system is adopted for personality structure and for personality facets. For example a score of aggression 3 is given to all expression indicating overt hostility. Tension is indicated by erasures and retracings, all of which are given a score of 3. Interests as expressed in favourite school subjects and hobbies are assigned direct scores. Worthington gives an exhaustive list of possible interests in these areas each of which is assigned one or more scores for character structure, defense mechanisms or facets or all three. For example, a liking for arithmetics gets a score of Dc3 (compulsive), dislike of mathematics a score of B, a3 (schizoid, high anxiety). Fishing as a hobby for males is scored ag-3 (aggression), x. (psychopathic), h. (homosexual),

dm (oral sachistic); while for females also x, h, dm and ag. with the addition of f (oral demanding).

There is said to be constant cross checking of interpretations so that scores assigned to particular items are reevaluated in terms of other evidence. It is not clear how this is done. The scores are totalled and organised in a profile when analysis is complete and it appears that this is a simple summing of all scores for a specific characteristic.

An example of analysis given by Worthington, presents a final personality description of personality dynamics (defense mechanisms), characteriological picture (character structure), intellectual functioning, behavioural picture, diagnosis, and prognosis.

There have been few validation studies done with this test. References cited are primarily concerned with the use of the test in industry, particularly in personnel selection. Some of these references do not appear to provide any direct evidence of validity (eg. Le Shan's studies of accident proneness which was not concerned with validation (1,2)). Those which are in fact validation studies indicate that the Personal History is useful in predicting sales success and work output in a factory. The methods employed in these studies appear to be perfectly adequate for the purpose, and in so far as the Personal History is an instrument for personnel selection, they appear to provide adequate evidence of its usefulness. However, it is by no means clear from this work that the success of the instrument is the result of the detailed 'depth' interpretations of personality. It might be possible to make correct predictions in the industrial field on the basis of quite superficial indicators in the records. Success

in personnel predictions is not sufficient evidence that the Personal History is a suitable technique for personality studies of cancer patients.

A search for clinical validation studies has produced little. In a paper read to the Office Management Association of Chicago (9), Worthington refers briefly to two such studies. One is a comparison of Personal History and T.A.T. analyses for 157 cases.

> Competent psychologists have estimated that the degree of correlation between the two reports is in the neighbourhood of .90, which would make a percentage agreement of about 85.

The study has not been published and this very brief statement is the only reference available. The other study which Worthington mentions appears to be that which he reported in his Ph.D. dissertation.

Subjects used were 8 patients attending a Veterans Association Mental Hygiene clinic. Worthington analysed their Personal History forms and prepared a list of statements describing each patient. These were checked in four cases by the patient's own therapist and by a clinician who had results from other tests, "the Rorschach and Weschler-Bellvue as a minimum". The remaining four cases were evaluated on the basis of test results only. Worthington described one case in detail, giving a full Personal History analysis and complete validation results. For the whole group, however, he gives only total results, that is, the amount of agreement on all statements describing all subjects. Overall agreement was approximately 53%, that is, therapists and clinicians agreed with 63% of the total number of statements prepared by Worthington.

Essential information is obscured by presenting only total results.

It is quite possible that some of the agreement resulted from inclusion of general statements which could describe anyone. It is also possible that total agreement is spuriously raised by one or two cases in which Personal History analyses happened to strike significant personality characteristics. This is not a satisfactory method of presenting validation results.

Worthington acknowledges that the design of the study could have been improved. Blind matchings would provide a more objective and pure test of the accuracy of Personal History interpretations. It would also be desirable to have validation data based on more than 8 subjects.

In his thesis Worthington does not mention norms for responses, but in their outline of analysis method, Spencer and Worthington (6) suggest an extremely detailed knowledge of 'standard responses'. For example they state with confidence that "very few men give their sisters' married names when they use their mother's first name". It is very doubtful whether norms of this nature could have a sound quantitative foundation, and certainly no mention is made of normative studies. However, even if Spencer and Worthington could prove conclusively that very few men give their sisters' married names when they use their mother's first name, there are many items in the Personal History to which norms could not be applied.

The question has been raised as to whether the Personal History is in fact a projective test. (5) In terms of the strict definition, as applied to the Rorschach or Thematic Apperception Test, biographical facts and forms of expression are not projections. Murray has drawn attention to the unjustified extension of the term 'projection'

> If the term (projection) is used to denote all forms of expression - a man's characteristic postures and gestures, his style of walking, talking and writing, the way he cocks his hat and buttons up his overcoat - then we must find a new word for the process of projection (as traditionally used). If projection means everything, it means nothing. (4)

Van Lennep is also troubled by the application of the term to "all kinds of utterances and expressions of the subject, as far as these are personal and not determined by the rules of his society". (7)

In fact many of the so-called projective techniques would not come within a strict definition of projection, and none of them make use in interpretations of the mechanism of projection alone. MacFarlane and Tuddenham have stated the common characteristic of the projective methods as being that "the ambiguity of the task permits the subject to respond in his own way". (3) They point out the explicit assumption of the projective methods is that "every subject's responses are not the result of sheer accident, but are determined by the psychological attributes of the subject". It is implicitly assumed that, since it offers wide latitude to the subject to reveal himself, the particular sample of responses supplied by the protocol mirrors the subjects basic personality organisation. This account of projective techniques would allow for "all kinds of utterances and expressions, in so far as these are personal" to be considered as mirroring basic personality.

However, it is difficult to accommodate the Personal History even within this wider definition of projective method. It does not appear to offer very wide latitude to the subject to reveal himself and it is not clear how one decides whether the subjects responses are personal and not determined by the rules of his society. Worthington states that although the Personal History appears to be rather structured,

"in actuality, subjects can show considerable idiosyncratic choice in answering any particular item." Spencer and Worthington refer to the design of items permitting "opportunity for unstructured responses". It is not very clear what they mean by unstructured responses, but one can say the Personal History avoids predetermined responses by not giving instructions as to how the form should be completed.

A further problem arises from the assumption that a limited range of ~~biological~~ biographical details, interests and forms of expression can provide the basic data for a complete assessment of personality structure and functioning. This, of course, is a problem shared by all the projective techniques. As MacFarlane and Tuddenham maintain, it has not been established that the particular range of responses elicited by any projective stimulus is an adequate mirror of personality organisation. In the case of the Personal History the biographical material available to the subjects differs so widely that more can be no guarantee of having comparable data from each - e.g. not everyone has a married sister, ability of S and characteristics of his school affect the degree of his dislike for any school subject regardless of his readiness to express it. The projection screen is not like a TAT picture controlled by E, not like the blank card controlled by S; it is largely outside the control of either. It cannot be said that material such as responses to the Personal History should not be subjected to 'depth' interpretations. However, the information available on the Personal History does not provide adequate theoretical justification for the interpretations, nor evidence of the completeness and accuracy of the personality descriptions thus derived.

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APPENDIX C.

Confidential.

6.

Self Description Inventory.

Age: 55 Sex: MALE Marital Status: HUSBAND.

Occupation: FOREMAN WELDER.

Please read the Instructions Carefully.

In the following list of statements you will find some which describe you and some which do not.

Please read each statement carefully and decide whether it is true of you or whether it is not.

If the statement is a true description of you put a circle round true.

If the statement is not a true description of you put a circle round false.

Please try to decide in every case whether it is True or False. If you absolutely cannot decide then circle the ?.

1.	I like to do things with my friends rather than by myself.	(True.)	?	False.
2.	I have devoted much of my time to other people.	(True.)	?	False.
3.	I hate to feel dependant on others.	(True.)	?	False.
4.	On the whole I am content to be as I am and would not want to be a different sort of person.	True.	?	(False.)
5.	I hate rows.	(True.)	?	False.
6.	I like to feel that other people admire me.	(True.)	?	False.
7.	I have always tried to keep my troubles to myself as much as possible.	(True.)	?	False.
8.	I usually go to pieces in a crisis.	True.	?	(False.)
9.	I get angry rather easily.	(True.)	?	False.
10.	When I do get angry everyone who is there knows about it.	True.	?	(False.)
11.	I think that in this world you have to look after yourself and not worry too much about others.	True.	?.	(False.)

12. I like to have strong attachments with my friends. (True.) ? False.

13. I nearly always agree with the opinions of my friends. True. ? (False.)

14. When things go wrong for me I feel I am more to blame than anyone else. (True.) ? False.

15. I like to feel that I am master of myself and can decide what I will do without worrying about what others think. (True.) ? False.

16. I have found that it is a wonderful experience to be able to comfort someone who is upset. (True.) ? False.

17. When I get angry I usually try not to show it. (True.) ? False.

18. On the whole I have never been a very happy person. (True.) ? False.

19. I rather despise people who are soft and give in to others. (True.) ? False.

20. I feel that the pain and misery I have suffered has done me more good than harm. True. ? (False.)

21. I have nearly always solved my problems by myself without help from anyone. True. ? (False.)

22. I do not like giving orders. True. ? (False.)

23. I sometimes feel I have not done enough for others. (True.) ? False.

24. I nearly always show how I am feeling, even though it may upset someone else. True. ? (False.)

25. On the whole I haven't much confidence in myself. True, ? (False.)

26. I feel embarrassed being with someone who is unhappy and upset. (True.) ? False.

27. I have always been an obliging person. True. (?) False.

28. I have missed a lot because I have not gone out enough and met people. True. ? (False.)

29.	I feel better when I give in in an argument than I would if I tried to get my own way.	True.	?	(False.)
30.	I agree with people who think our personal misfortunes are often a sort of punishment for things we have done wrong in the past.	True.	?	(False.)
31.	I don't often feel like putting myself out to help other people.	True.	?	(False.)
32.	I often feel better after a good row.	True.	?	(False.)
33.	I think I can feel satisfied with what I have done with my life.	True.	?	(False.)
34.	I don't like being tied to other people.	True.	?	(False.)
35.	It takes a lot to make me angry.	True.	?	(False.)
36.	I feel very uncomfortable when people show their feelings in public.	(True.)	?	False.
37.	I think most people who know me well would say I am a pretty easy person to get on with.	(True.)	?	False.
38.	I think I can cope quite well with any crisis.	(True.)	?	False.

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39. If I had to say which of the following were my greatest pieces of good fortune I would choose those I have ticked. (You may tick as many or as few as you like.)

Good health in the main (apart from any present illness.)

✓ The good start my childhood home gave me.

✓ The understanding and sympathy I had as a child.

✓ Satisfying work.

✓ Happiness with my ~~husband~~/wife.

✓ Happiness through my children.

✓ Good friendship.

4.

A good education.

Enough free time to do what I enjoy.

Add here any other good fortune you have had:

40. If I had to say which of the following have caused me most worry and trouble I would choose those I have ticked. (You may tick as many or as few as you like.)

My work.

Money.

relationships with other people in general.

My relationships with my parents.

My relationships with the opposite sex.

My relationship with my husband/wife.

My children.

✓ My own ill health.

✓ Illness of those close to me.

My own faults.

My failure to achieve what I wanted.

The difficulties I have had through no fault of my own.

Add here any other things which have caused a lot of worry: