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# EMOTIONS AND BODILY CHANGES

*A Survey of Literature on  
Psychosomatic Interrelationships*

1910-1945

BY

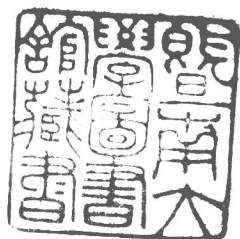
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# EMOTIONS AND BODILY CHANGES

*A Survey of Literature on  
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**I**F, therefore, anyone wishes to search out the truth of things in serious earnest, he ought not to select one special science; for all the sciences are conjoined with each other and interdependent; he ought rather to think how to increase the natural light of reason, not for the purpose of resolving this or that difficulty of scholastic type, but in order that his understanding may enlighten his will to its proper choice in all the contingencies of life. In a short time he will see with amazement that he has made much more progress than those who are eager about particular ends, and that he has not only obtained all that they desire, but even higher results than fall within his expectation.

—DESCARTES

## INTRODUCTION

Scientific study of emotion and of the bodily changes that accompany diverse emotional experience marks a new era in medicine. We know now that many physiological processes which are of profound significance for health, not only of the individual but also of the group, can be controlled by way of the emotions. In this knowledge we have the key to many problems in the prevention and treatment of illness, yet we have scarcely begun to use what we know. We lack perspective concerning our knowledge in this field and are confused in our concepts of the interrelationship of psychic, including emotional, and somatic processes in health and disease.

The problem of psychosomatic interrelationships is continually a stumbling block to the specialist in any phase of scientific research or personality study. Now and then a courageous investigator has taken it up, examined it, considered methods of studying it, only to relegate it to the philosopher again. Nevertheless, each special field of investigation has supplied some information with regard to it, and there are certain points on which today investigators are coming to agree, from the biologist, through the comparative anatomist and the neuroanatomist, to the clinician and the psychologist.

Furthermore, we have reached a point where progress in the specialties themselves is being blocked by a lack of understanding of the relationships between them. Scientists commenting on the tremendous gain which has accrued to us during the last decades of specialization, are calling attention to the fact that many of the most vital of our problems lie between the sciences and cannot be even perceived without going beyond the confines of a specialty. One of the major problems of the "between fields" is the question of psychosomatic interrelationships, and here, as so often happens, we know more than we know we know; in other words, the actual scientific information available, having been achieved along the lines of the several specialties, has never been gathered together, correlated, and evaluated.

As a result the young scientist, interested perhaps in this problem, finds himself disoriented in the field of research he is choosing. The young psychiatrist in particular finds it difficult to get his bearings. In seeking a field of research, he succumbs only too often to one of two fates. On the one hand, he may float around vaguely, intrigued by a number of important problems, all of which are peculiarly difficult of approach, and then become submerged in a more or less antiquated type of routine

clinical practice alleviated by philosophical speculation. On the other hand, finding himself drifting, he may reach out toward some problem which is specific, scientific, and definable, only to find when he gets through that he has done an interesting bit of research in biochemistry, but has really ceased to be a psychiatrist. If he succeeds in choosing a problem vital in psychiatry, his second difficulty, that of the survey of his field, is an especially arduous and time-consuming one, as is illustrated in this bibliography.

The present monograph represents an attempt to bring together in some sort of perspective the research material which has combined to develop those concepts in medicine which are the necessary foundation for further research in the sphere of psychosomatic problems. As William Osler said at the beginning of the present century: "To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all." Both are absolutely necessary. A distinguished librarian has added: "Bibliography is the foundation of research, and however level and flat that foundation may be, however dull may be the task of laying it deep and strong, no lasting and lofty superstructure may safely be reared, save on the secure footing of a knowledge of previous work done by others, a knowledge resting necessarily even in the fields of science on the much despised labor of the bibliographer," a "fundamental factor" being "the record of what has been known and spread abroad by previous inquirers."

Although the aim was to bring together all the fragments of knowledge we possess, pertinent to the problem of psychosomatic interrelationships and integration, it is obvious that such a task could scarcely be accomplished with any considerable degree of completeness. The inherent difficulty here is well expressed in the following paragraph by physicians who attempted to collect the relevant literature on this problem as related to the skin only. "Interest in the effect of emotional and nervous states on bodily function has been growing in this country during the past decade to a degree which makes it seem desirable that the literature on the subject as it affects the skin be collected and when possible, critically summarized. We undertook this task with little realization of the labor and time required for even a partial fulfillment. When our bibliography approached three hundred titles on the general aspects of the matter alone, it became evident that such a résumé could not be offered . . . en masse, for the first paper itself approaches one hundred pages in length. . . ." This being the situation with regard to skin, the difficulty of bringing together under one cover the literature relation to all the

<sup>1</sup> J. H. Stokes and D. M. Pillsbury. The effect on the skin of emotional and nervous states. III. Theoretical and practical consideration of a gastro-intestinal mechanism. *Arch. Dermat. & Syph.* 22, 1930, 962-993.

organ systems is obvious. That is, Part Two of this monograph, treated with any degree of completeness, would necessitate several volumes.

In Part One, on the other hand, the attempt has been to give a survey of the fundamental problem itself, and the possible approaches to it. To do this adequately would necessitate a review of almost the whole literature relating to the sciences. There is no field of scientific investigation which has not a contribution to make, but because the writers themselves, being specialists, are often uninterested in the problem of psyche-soma, they are likely to be unaware of the significance of their findings, and consequently to publish them in contexts which are misleading.

Whereas in the past it has been occasional leaders who have called attention to the problem of psyche-soma as fundamental for the physician, within the last decades this realization has begun to permeate medical literature, changing it intrinsically. So marked is this change that, given the topic and date of a work, one can predict with a fair degree of certainty the points of view that will be expressed. Even yet, however, there is no major division in the *Quarterly Cumulative Index Medicus* devoted to our problem,<sup>2</sup> and, on the other hand, there are few headings under which relevant articles may not be found.<sup>3</sup> The findings of research workers in many fields have combined to modify fundamentally not only our concept of psyche and soma but also our concept of disease.

In the present volume, each major topic in the Table of Contents represents a written chapter and a bibliographical list. The written chapters are made up of abstracts of parts or the whole of such articles in the list as contain a definite contribution, positive or negative, to our problem. As a rule, space has not permitted of complete abstracts, and as a matter of fact complete abstracts would involve in a large proportion of the literature considerable material which is so specialized as to be essentially irrelevant. Those for whom this material would be of value will be students who, in any case, would prefer to consult the original rather than to rely on an abstract. In certain articles it has seemed best merely to call attention to relevant points or points of view, often expressed incidentally by the author. Although at the close of this survey the temptation arose to give a digest, summarizing major trends of

<sup>2</sup> The nearest group heading is "physical-mental relationships," which appeared, incidentally, in 1931, after this study was already under way.

<sup>3</sup> The literature has been covered to the extent consistent with our general purpose for a little more than two decades, 1910-1933. Only fragments of the 1933 literature, however, have been included, because this literature, being extensive and important, seemed best handled by inclusion in a supplementary volume or supplementary volumes on this subject which it may be feasible to publish later, perhaps in collaboration with specialists in the major fields involved.



thought and research in each specialty, it was decided to offer to the reader the possibility of making his own digest on the basis of representative partial abstracts and relevant excerpts.

Again, it is significant in glancing through the various sections of the Bibliography to note the omission of, or the relatively small space given to, certain names for which one would be inclined to look first. In other words, those to whom we owe our most valuable material on the somatic side have very frequently given little or no discussion to psychosomatic relationships.<sup>4</sup>

On the other hand, each special section has been checked by one or more specialists in the field in order to insure as general a representation as possible. Although it would seem inevitable that no specialist would be really satisfied with the section devoted to his specialty, the comments received have been very encouraging.

A major problem in the preparation of this monograph has been the fact that a great deal of the significant literature, having appeared in German, is as yet unavailable in English, and that there is probably no field in which translation into English presents so many problems and is so essentially unsatisfactory as in this field of psychosomatic interrelationships. The attempt here has been to translate literally so far as possible, frequently at the expense of general style.<sup>5</sup>

Finally, it must be borne in mind that this work is essentially a bibliography. Its value is not in its thorough presentation of the contribution made by each specialty to the problem in hand, but instead in its general indication of the type of material we have, where it is to be found, and where it is particularly lacking. Again for this reason, and in the interests of space, a minimum of critical comment has been given.

<sup>4</sup> An example in point is the series of articles by Harvey Cushing, "Papers Relating to the Pituitary Body, Hypothalamus, and Parasympathetic Nervous System" (Springfield and Baltimore: Thomas, 1932), in which he has added signally to our understanding of an important mechanism through which psyche affects soma and soma affects psyche, without having devoted special attention to the general problem.

<sup>5</sup> Barnes and Jelliffe in their translation of C. von Monakow, *The Emotions, Morality, and the Brain*, Nervous and Mental Disease Monograph Series, No. 39, 1925, have formulated the problem confronting us: "In presenting this translation to the English reading public the translators are all too keenly aware of the fact that the German language construction permits of certain syntheses which in an adequate Englishing would demand a great expansion and rephrasing to be adequate.

"We deplore the fact that this translation has been more or less literal. This entails a special intense intellectual effort on the part of the reader to hold the ideas in apposition, which could have been avoided by a gross analytic splitting of the phrasing. As this would have demanded an elaborate rewriting of the entire thesis, the translators have felt that what might possibly have been gained in lucidity would have been lost in giving the essential suggestiveness of the author's thought.

"That indefinable tendency of the English language to simplify and almost emasculate the psychological tension of German thought has been here resisted and we leave the matter in its apparently confused form. . . ."

This survey was prepared with the support of the Josiah Macy, Jr., Foundation, without which so laborious a study would have been impossible. Some of the original bibliographical work was done by Miss Mary A. Ewer, Ph.D., together with many of the original abstracts for the chapter on integration and differentiation, the original abstracts for the chapter on psychogalvanometer, and the abstracts and tables in the chapter on biochemical methods. The bulk of the material was prepared by Dr. Theodore P. Wolfe, Josiah Macy, Jr., Foundation Fellow in Medicine at Presbyterian Hospital, who did most of the bibliographical work and original abstracts and translations for the rest of the chapters. In addition Dr. Wolfe gave many suggestions and critical comments, and assisted in supervising the preparation of the manuscript.

Among the many who have assisted by friendly suggestions in the preparation of this monograph, I want to thank especially Dr. Walter B. Cannon, Dr. Stanley Cobb, Dr. G. E. Coghill, Dr. Dorian Feigenbaum, Dr. Frank Fremont-Smith, Dr. Lewis Fox Frissell, Dr. George H. Kirby, Dr. Adolf Meyer, Dr. Dickinson W. Richards, Dr. Hugo Roesler, Dr. Francis H. Sleeper, and Dr. Edwin G. Zabriskie, for suggestions concerning the chapters relating to their specialties. Special acknowledgment should be made also to Dr. Frederick Peterson, chairman of a subcommittee of the Committee on Public Health Relations of the New York Academy of Medicine, which assisted in the initiation of this study. I want above all to express my appreciation of the help and encouragement given this whole undertaking by Dr. Ludwig Kast, to whose vision this volume owes its being.

H. F. D.

NEW YORK  
1935

## INTRODUCTION TO THE SECOND EDITION<sup>1</sup>

It is encouraging that there should be a demand for a new edition of this volume. It is more encouraging that readers should have found it useful both as a reference book and as a means of general orientation in the psychosomatic field. This aim, as set forth in the Introduction to the first edition, seemed almost impossible of fulfillment because relevant knowledge existed in fragments widely scattered and difficult to bring into focus.

Yet focus seemed needed to assist in preparing the minds of physicians and scientists for further discoveries in the psychosomatic field. There is reason to believe that such discoveries, toward which many are groping, will transform the medicine of the next decades as fundamentally as have discoveries in bacteriology and immunology the medicine of the decades just behind us. But whether applied to the history of medical development or to the study of individual problems, Pasteur's statement holds: In the field of observation chance favors only him who is prepared.

As one reviewer suggested, although it would seem inevitable that an attempt to present abstracts of such an extensive literature would result rather in a reference book than a book suited to continuous reading, yet the book requires such reading for an adequate appreciation of the progress the organismal theory has made in the last twenty years and of the extent to which it is remolding the definitions of health and disease. Those who have gained such "appreciation" from this volume will find themselves at least partially "prepared."

## A NEW DEVELOPMENT IN PSYCHOSOMATIC MEDICINE

Much pressure has been brought to bear on the author to bring this survey up to date. (Incidentally, there were requests—illustrative of our tendency to remain confined within our own fields—that it be republished sectionally so that each specialist could have only the material most interesting to him.) Obviously, to bring the book up to date would be desirable, and, because some convincing work in this field has been done in the last five years, the end result would be more satisfying. On the other hand, nothing in the general point of view would be altered. Furthermore, such revision is rendered less necessary by the inauguration of a journal entitled *Psychosomatic Medicine*, a recent development of impor-

<sup>1</sup> Bibliographical references in this Introduction are to be found on pp. 560 ff. For significance of numbering see note on "Symbols and Abbreviations," p. 2.

tance for students of psychosomatic problems. This as a living instrument for exchange of experience and thought can be continuously up to date. The first volumes of *Psychosomatic Medicine*<sup>2</sup> will contain reviews of the literature of the past five years relevant to the diverse special medical and research fields, following the general pattern of the various sections here.

Requests for a journal devoted to psychosomatic problems have come to the author personally during the last six years,<sup>3</sup> beginning even before this book was completed.<sup>4</sup> Nearly two years ago a Round Table Conference on Psychosomatic Problems was initiated at a meeting of the American Psychiatric Association (held again this year with doubled attendance), and here also attention was called to the need of a periodical in this field. At about the same time the Committee on Problems of Neurotic Behavior of the Division of Anthropology and Psychology of the National Research Council independently held a conference and reached a similar conclusion.<sup>5</sup>

### THE TERM "PSYCHOSOMATIC"

In the final chapter of this volume comment was made on the difficulty of finding a suitable title, and on the unsatisfactoriness of the term "psychosomatic." Although the traditional dichotomy "body-mind" is less prominent in medical thinking, it is not eradicated from our

<sup>2</sup>The journal and monograph series entitled *Psychosomatic Medicine, Experimental and Clinical Studies*, is published with the sponsorship of the National Research Council and the assistance of the Josiah Macy, Jr., Foundation. Its editorial board consists of representatives from the relevant disciplines: internal medicine, neurology, physiology, psychiatry, psychoanalysis, psychology, comparative physiology, and pediatrics. Specialists in the subdivisions of these disciplines and closely related aspects of them are among its editorial advisors.

<sup>3</sup>Because of the difficulty involved (cf. pp. xii ff.) and the number of existing medical journals, it was decided to wait and make sure whether our present journals might not come to fill the need. As a matter of fact several of them have asked for columns on psychosomatic problems, but no one could allow space to cover the field, and their number and diversity create a problem for the student interested in research.

<sup>4</sup>The Josiah Macy, Jr., Foundation, which made the study possible, has maintained a steady interest. Cf. the Foundation's Annual Report, 1931; and Six Year Review (1930-1936), 1937.

<sup>5</sup>It is interesting in addition that only four years ago the American Psychiatric Association at the instigation of George H. Kirby (during his presidency in 1933-1934) inaugurated the tradition of having a symposium on psychosomatic problems. The papers presented in the first symposium were discussed by Walter W. Palmer, head of the department of the Practice of Medicine, and William Darrach, head of the Department of Fracture Surgery, both of Presbyterian Hospital and Columbia University, by invitation, in order to emphasize the fact that such studies are founded on coöperation of psychiatrists with representatives of the other medical specialties. The last such symposium was discussed from the point of view of internal medicine by William J. Kerr, President of the American College of Physicians, 1938-1939.

language.<sup>6</sup> Expressions which are gaining increasing prominence in medical literature, such as "the organismal theory," "the patient as a whole," "psychosomatic problems," "psychophysiology," "psychobiology," are all attempts in this direction. Our difficulty arises from the fact that although the organism is a unity we see it as having psychic and somatic aspects. For the understanding and management of these aspects we have developed fundamentally different methodologies. We have been unable to approach them simultaneously or in the same terms; science has seemed not to supply the tools. There has been a dichotomy in our basic assumptions and in our training. Students of psychology and psychiatry, of physiology and internal medicine, until recently have been brought up in disciplines restricted and separated from each other.

From the earliest days of medicine until the present those techniques which related to understanding and control of the psychic aspects of this indivisible living organism (or of the whole as distinguished from the parts) have been called the art of medicine, in contradistinction to what we have thought of as the science of medicine. Recent studies of psychic factors, especially of the rôle of the patient's personality, in the etiology and course of what we have called "organic" illness have demonstrated that the scientific method is as essential to satisfactory treatment of the psychic as of the somatic aspects of the organism's functioning, and furthermore, that neither can be isolated from the other.

If, therefore, there be any dichotomy lurking in the term "psychosomatic" it is this projected one, inherent not in the organism observed, but in the mind of the observer and in our methods of observation. The term "psychosomatic" is descriptive rather of the observer in his endeavor to apprehend than of the organism observed. Psychic and somatic represent merely two angles of observation. Our understanding of disease rests on pictures taken from these two angles viewed simultaneously, united stereoscopically.

Hence, five years after concluding this volume I have less reservation than then in using the term "psychosomatic." And there is an aspect of it that needs further emphasis. The dichotomy persisting in medical thought and practice will not be eliminated by a new word better expressive of the unity of the organism. (As yet we are unable to feel at home

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Incidentally, the Tenth International Medical Congress for Psychotherapy (July-August, 1938) is devoting a major section to psychosomatic problems, and the program of the Association for Research in Nervous and Mental Disease in December, 1938 is to be devoted to the mind-body problem. This subject furthermore, is to be included this year in a Symposium on Mental Health at the meeting of the American Association for the Advancement of Science in coöperation with the National Committee for Mental Hygiene, United States Public Health Service, and the American Psychiatric Association.

<sup>6</sup> Cf. H. FLANDERS DUNBAR (2278, 1939).

with such a term as "ergasiology," expressive as it is of the problem with which we are dealing.) So rather than side-step this difficulty, let us continue to hold the word before us as a reminder of the problem of unification that confronts us. What is disquieting in it will become a self-limiting phase as we progress. When medicine has apprehended the psychosomatic problem and assimilated it, the adjective will be obsolete: all medicine will be psychosomatic.

In the meantime let us not be misled by those of our seers in medicine and psychiatry, whose thought has remained entangled in problems of terminology—

While the old Mandarin  
Was trying to make up his mind  
How to describe a dogwood flower  
The dogwood season was over.

We need not sit like the mandarin waiting for the perfect expression. "To communicate to another is to learn what it is we intend, for language is not only a medium but a resultant as well."<sup>7</sup>

## RESEARCH METHODS

The literature is still confused by contributions which serve merely to indicate what we have always known, that somatic symptoms may have psychic etiology and vice versa. There has been an increasing attempt, nevertheless, to discover the mechanisms involved, and some progress with regard to methods. The primitive nature of our knowledge in this field is the result of the limitation of our outlook by our prejudice, but also of our relative lack of methods and techniques.<sup>8</sup> "In science we must bethink ourselves of the method not less than of the results. Of the latter you will take as much as you can. The method is even more valuable than the results, for it has produced them all, and will reproduce countless others in the future."<sup>9</sup>

<sup>7</sup> I. A. Richards, *The Philosophy of Rhetoric: The Mary Flexner Lectures at Bryn Mawr for 1936*. New York: Oxford University Press, 1937.

Cf. Chapter XVII, Conclusion 6, p. 428.

<sup>8</sup> For a review of available techniques cf. a Committee Report of the National Research Council (2283, 1938). On the physiological side there are mentioned studies of oxygen deficit, radiation, dietary modification, drugs, glandular disturbance; on the psychological side, shock through fright or threat, bereavement and loss, frustration and thwarting, hypnotism and suggestion, psychological incertitude, psychological reversals, excessive stimulation. Mentioned but not stressed is the transference situation which comes into play even in work with animals. [For a partial discussion of this phenomenon see H. FLANDERS DUNBAR (2278, 1939).] It is interesting that, although this is one of the best reviews of the subject available at present, it fails to bring out the fundamental importance of observation of concomitant sequences and of coöperation between physiologists and psychologists. Cf. Chapter III, "The Problem of Measurement," pp. 81 ff. and "Conclusion."

<sup>9</sup> A cogent expression by Anatole France of a fact familiar to all scientists and variously stated.

The points stressed in the conclusion of this volume are receiving increasing recognition. The following merit specific mention.

*The stereoscopic picture.*—Study of simultaneous sequences in psychic and somatic spheres, or observation from these two angles, is fundamental for our progress. Investigation of the rôle of emotional factors in so-called organic illness was mentioned as an important step forward taken by leading hospitals in this country and abroad. The following difficulties conspired to make such work less productive than it should have been:

*First*, usually only *isolated cases* where the emotional difficulty was obvious have been selected for study. This has resulted in lack of perspective and many unwarranted deductions concerning the rôle of the psychic component in the illness in question. It became possible to change this situation at Presbyterian Hospital in 1934.<sup>10</sup> Even now as far as I know this hospital is the only general hospital where any total admission groups have been studied routinely in this way.<sup>11</sup>

*Second*, usually in such studies equal care in terms of history and technique has not been given to both psychic and somatic components in the illness. There has been an *inadequate appreciation of the whole* in its relationships to the parts especially as modifying their behavior, in general, of the patient's personality.

*Third*, usually, or at least much too often, an *etiological relationship* between the psychic problem and the illness has been *assumed rather*

<sup>10</sup> The study of isolated cases was initiated there by Thomas W. Salmon. It is interesting also that it was "at the instigation of Dr. Salmon and Dr. [Charles L.] Dana," that the subcommittee was appointed by the Public Health Relations Committee (of which the latter was Chairman) of the New York Academy of Medicine, which nearly 10 years later (1930-1931) as the Committee on Religion and Medicine assisted in the initiation of this volume (completed under the auspices of Columbia University, College of Physicians and Surgeons, Department of the Practice of Medicine). "The work of this subcommittee led to the formation of a joint committee representing the Academy of Medicine and the Federal Council of Churches," known during the first part of Frederick Peterson's chairmanship (1927-1935) as the Committee on Religion and Medicine. (Committee on Public Health Relations, Report of Activities for the Year 1935. *Bull. New York Acad. Med.* 12, 1936, 189-216.) The subcommittee then returned to its previous status and was known as the Committee on Emotions and Health, concerning which Peterson wrote: "Dr. Dana would have welcomed this expansion into a Committee on Emotions and Health, for he was very much alive to the changing conditions in the world, and to the analogies between the body physiologic and the body politic." (Frederick Peterson: Obituary, Dr. Charles Loomis Dana, 1932-1935. *Bull. New York Acad. Med.* 12, 1936, 27-30.)

<sup>11</sup> This study has operated through the Department of Practice of Medicine of Columbia University College of Physicians and Surgeons, and has been supported by the Josiah Macy, Jr., Foundation. It has resulted in the following reports: H. FLANDERS DUNBAR, THEODORE P. WOLFE and JANET McK. RIOCH (2281, 1936); H. FLANDERS DUNBAR, THEODORE P. WOLFE, EDWARD S. TAUBER and A. LOUISE BRUSH with the assistance of JANET McK. RIOCH and MIRIAM COFFIN (2282, 1939); H. FLANDERS DUNBAR (2275, 1936); THEODORE P. WOLFE (2353, 1936; 2354, 1939). For fuller discussion of the four points here given cf. the first and second of these articles.



than demonstrated. It has been assumed because of the discovery of unpleasant occurrences, economic difficulties, and so on throughout the range of human ills in the lives of patients.<sup>12</sup> Yet these are no indication of psychogenesis, nor even of need for psychiatric intervention.

Fourth, usually such investigations as have avoided the distortions arising from study of selected cases have gone to the other extreme, employing *dragnet methods* on a large scale, making a multitude of records and tests without rationale, and with considerable waste of time and funds, and with confusion arising through lack of ability to evaluate findings. Observations made on this basis can never be evaluated because what we need to study is disturbance of the total equilibrium of the organism, a factor which cannot be determined adequately by adding up measurements of discrete and partial functions.<sup>13</sup>

Now although these defects are still present in most clinical studies, an awareness of them exists in many hospitals. Mention has been made of the psychosomatic studies at Presbyterian Hospital, New York. Edward G. Billings, in his work on the wards of the Colorado General Hospital is conscious of the difficulties.<sup>14</sup> He has attempted to answer a question which merits much more attention and further study. *What does the consideration of patients from the psychiatric aspect mean in terms of decreasing days, and therefore in saving dollars and cents?* William J. Kerr, Professor of Medicine, working in the University of California Hospital, has made studies of physical phenomena associated with anxiety states and G. Canby Robinson in Baltimore is making observations con-

<sup>12</sup> Of course emotional strain affects any illness adversely, as physicians have always known. Because of lack of rational techniques on the basis of which to approach this problem however, even this obvious fact has tended to be more and more overlooked. It is encouraging therefore, that increased attention is being called to it by such diverse students as W. B. CANNON (2264, 1934), G. C. ROBINSON (2234, 1937), STANLEY COBB, ISABEL WHITING, and WALTER BAUER (2266, 1939). A further step however, which today is of even greater importance, because it is a step in the direction of a more scientific appreciation of the problem, is the bearing in mind of the above distinction. Environmental factors as usually listed are present in patients who develop no symptoms or other symptoms and may not be present in patients with the symptoms in question. Furthermore, when the alleged irritant in the environment is eliminated the symptoms may or may not be relieved, or the patient may even react adversely to its removal, depending on something more fundamental in his total psychosomatic make-up. Hence life charts indicating a relationship between such factors as unhappiness in the family and the onset of a specific organic illness may be misleading. Unhappiness in the family may be a precipitating factor in any illness and not specific for any given disease such for example as arthritis. We know in any case that it is not concrete worries, but unconscious conflicts that produce somatic symptoms. For further discussion Cf. pp. xxix ff. of this Introduction. Cf. also E. Jones (2302, 1938).

<sup>13</sup> Cf. chapter on Measurement and the Conclusion to this volume, and H. FLANDERS DUNBAR, THEODORE P. WOLFE, and JANET McK. RIOCH (2281, 1936).

<sup>14</sup> Cf. EDWARD G. BILLINGS, WILLIAM S. McNARY, and MAURICE H. REES (2260, 1937).



cerning the relation of emotional strain to illness.<sup>15</sup> Karl A. Menninger is Chief of Staff of a clinic which stresses particularly the importance of equal justice to the psychic and somatic components in treatment. Stanley Cobb and Felix Deutsch, in Boston, are giving similar attention to special groups of patients. John C. Whitehorn has just been appointed Professor of Psychiatry, and Carlyle F. Jacobsen has been appointed Professor of Medical Psychology (in the department of which David M. Rioch is to be administrative head), to further medical psychiatric work at the Medical School of the University of Washington in St. Louis, to give but a few examples.<sup>16</sup> At the Institute for Psychoanalysis in Chicago, established in 1932, Franz Alexander and his associates have made great progress in psychiatric study of different types of organic disorder,<sup>17</sup> in selected patients; and Wilson and Wittkower at the Tavistock Clinic in London are working along somewhat similar lines.<sup>18</sup>

As illustrating simultaneous studies of physiological and psychological sequences from a more definitely experimental angle "brain potentials from normal subjects, stutterers and schizophrenic patients"<sup>19</sup> may be mentioned. Other work of this kind is noted under subsequent headings. Although the present heading overlaps with the two following so that the best work could be mentioned under all three, it has been divided in the interests of emphasis. Usually, furthermore, in experimental work there has been inadequate study of the patient as a whole. Alexander and his associates have given special attention to combination of clinical and experimental approaches.

Although such study of children lags behind, mention may be made of Leo Kanner's<sup>20</sup> work at Johns Hopkins Hospital; that of C. H. Rogerson<sup>21</sup> in England; as well as of studies by Hilde Bruch at the Columbia-Presbyterian Medical Center, relative to personality factors in obese and cardiac children.<sup>22</sup> Attention should be called to the publications of the Society for Research in Child Development which brings together

<sup>15</sup> Cf. W. J. KERR, P. A. GLIEBE, and J. W. DALTON (2307, 1938), and G. CANBY ROBINSON (2334, 1937).

<sup>16</sup> Cf. (2281, 1936; 2282, 1939).

<sup>17</sup> Cf. Institute for Psychoanalysis (2301, 1937).

<sup>18</sup> Mostly not yet published. Cf. E. WITTKOWER (2351, 1935), and D. T. DAVIES and A. T. M. WILSON (2270, 1937).

<sup>19</sup> Cf. L. E. TRAVIS and W. MALAMUD (2348, 1937) and L. E. TRAVIS and A. GOTTLÖBER (2347, 1937).

<sup>20</sup> Cf., e.g., L. KANNER (2305, 1937 and 2306, 1938), *et al.*

<sup>21</sup> Cf., e.g., C. H. ROGERSON (2335, 1934) and C. H. ROGERSON, D. H. HARDCASTLE, and K. DUGUID (2336, 1935).

<sup>22</sup> Serial records are being kept from a different point of view by MYRTLE MCGRAW at Babies Hospital. The very suggestive work of DAVID M. LEVY (cf., e.g., 2308, 1936) and of ERIC HOMBURGER (cf., e.g., E. Homburger: Configurations in play-clinical notes. *Psychoanalyt. Quart.* 6, 1937, 139-214), and also the work of K. Lewin and Barker at the Iowa Child Welfare Station are relevant to some aspects of the problem.