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**PSYCHOLOGY:
THAT NASTY
LITTLE SUBJECT OR
THE SCIENCE OF
RESCUE**



by

A. B. WOODRUFF

*Professor of Psychology,
University of Ghana, Legon.*

*An Inaugural Lecture delivered on 25th February, 1971 at the
University of Ghana, Legon.*

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PSYCHOLOGY: THAT NASTY LITTLE SUBJECT OR THE SCIENCE OF RESCUE

THE alternatives that are suggested in the topic I have chosen are taken from writings of two eminent professors of psychology of Harvard University. One was the founder of the department and a man who had a tremendous influence on the historical development of the field, especially, but not exclusively, in America. The other individual is at present a member of the faculty of that outstanding department and is probably the most influential person on the contemporary scene of American psychology, but his influence is felt beyond the borders of that country. The former is William James and the latter is B. F. Skinner.

At the outset I want to make two confessions. First, for the benefit of the logicians present, I recognise that I have not presented a true, mutually exclusive, dichotomy. Second, I do not propose to choose one of these labels and then attempt to defend my position. What I propose to do is to look at the rationale behind each of these descriptions and to use them as a basis for talking about the possibilities and limitations of the scientific study of behaviour.

Let us begin with a look at the statement made by William James when he referred to psychology as that "nasty little subject."¹ In teaching the theoretical positions and stated ideas of a person, I am convinced that the students better understand the bases for them if they know something about the person who is giving the expression. Certainly this is true of William James, a rare character of the academic world. As a faculty member at Harvard University he began with an appointment in physiology, where he became very interested in the laboratory approach to the study of conscious experiences espoused by a number of German physiologists and physicists. This culminated into at least three things: first, he devoted a portion of his teaching and research laboratory to the study of psychology; second, he became a professor of philosophy, when he felt that he could better attack the problems of psychology; and, then he became the Professor of Psychology, at his

1. Perry, R. B. *The Thought and Character of William James: as revealed in unpublished correspondence and notes, together with his published writings.* Vol. 2, *Philosophy and psychology*. Boston: Little, Brown, 1953, p. 2.

own request, and went about establishing the department at Harvard in 1889, even though he had never had formal training in this new field. I wonder what our present day university faculty appointment committees would do with such a request. Later in his academic career he again became more interested in philosophy and, although his writings never lost a psychological flavor, became a Professor of Philosophy at this same university. Any person who has held faculty appointments successively in three academic departments at a university such as Harvard, must be recognized as an unusual academician. Further, this pattern reflects a certain restlessness and dissatisfaction that this man felt as he tried to grapple with the burning issues he saw as relevant in his quest for knowledge. It was this restlessness that led him to the oft quoted phrase of a "nasty little subject," because its approach limited the scholar in this quest. Through this discipline he could not seek answers to some questions because these questions could not be subjected to the kinds of controls and observations demanded by the scientific methodology. He was not rejecting psychology, I must hasten to point out, but was irritated with the limitations of the methodology. Lest some of my colleagues from philosophy begin to feel complacent, it was this same irritation that led William James to write to a friend, "What a curse philosophy would be if we couldn't forget all about it."² He produced numerous works pointing out the accomplishments and possibilities of psychology, such as his classic *Principles of Psychology*,³ but he was always aware of the limitations of the approach.

When considering William James, I must always guard against pursuing him as an individual and leaving the thesis that I started to consider. It is said of him that he felt that he could learn something from every person he met and that he always put down a new idea with great reluctance. If a man who has lived half a century is still allowed the luxury of a hero, I opt for William James.

Now let us look at the characterization of psychology that I have extracted and paraphrased from B. F. Skinner. He is having as much influence on the field of psychology today through his

2. Perry, R. B. *The Thought and Character of William James: as revealed in unpublished correspondence and notes, together with his published writings.* Vol. 2. *Philosophy and psychology*: Boston: Little, Brown, 1935, p. 48.

3. James, William *The Principles of Psychology*, New York: Holt, 1890.

research and writing as James did at the turn of the century. The particular reference from which I am choosing his position is the book, *Science and Human Behaviour*,⁴ which was written as an introduction to psychology for his students. In the opening chapter of this book he begins with a discussion of today's culture and its attitudes towards science in the light of the dilemmas and plight of man. He touches upon the "souring on science" attitude which was discussed briefly from this platform a few weeks ago by Professor Harry Woolf, and points out the effect of this attitude on one's reluctance to subject man, himself, to the same scientific scrutiny that he has utilized in exploring the rest of the universe of nature. One of Skinner's major points is that in any era, the major characteristic of that era becomes the key target when men are searching for the reasons for its short-comings and troubles. Whether it is justified or not, that characteristic gets the blame. So, today as many are becoming greatly concerned with the inadequacies of our world, some are suggesting that this is the product of science and its efforts. Skinner does not try to minimize these inadequacies; rather, he suggests an alternative reason for our state. It is not science, but the utilization of its methodologies in discovering the relationships in nature. Science has focussed its efforts almost exclusively on the universe outside of man and has neglected to focus a rightful portion of its efforts on man, himself. Of the methodologies used by man in pursuing knowledge, only science has shown cumulative progress. Thus, contends Skinner, the scientific study of the behaviour of man must be the corrective in our plight, the science of rescue.

After this introductory presentation, he continues with a discussion of certain psychological findings and approaches, following with suggestions of how these have meaning in areas of man's behaviour, such as social behaviour, government and law, religion and education.

To see the depth of the commitment of this man, we should look at a few aspect of him as an individual. Numbers of years ago he made national news when he was willing to raise his infant son according to the principles of behavior understood by him at that time. More recently he has spear-headed a movement to apply more directly the principles of learning, as discovered by the

4. Skinner, B. F. *Science and Human Behaviour*. New York: The Macmillan Co., 1953.

McClelland from Harvard is investigating the relationship of certain motivational characteristics of the men of a nation to its political and economic development. Professor Hebb of McGill University has been concerned with the need for sensory stimulation for the development and maintenance of intellect. Professor Chapanis of the Johns Hopkins University has devoted most of his career to the consideration of man's behavioral characteristics as they are related to the design of machines and systems. Professor Eysenok of the University of London is concerned with an adequate description of individual personalities in order to better investigate the factors which affect their development. Professor Brunner of Harvard has been concerned with the application of the numerous findings about learning coming from the psychologist's laboratories to the complex educational problems of curriculum building and pedagogy. I have deliberately chosen leading names from the leading universities to illustrate the multi-faceted aspect of the field. Obviously, this list could be extended, almost, indefinitely.

Not only was this a parade of names, but with each there is a list of research accomplishments. They have gained their eminence in personal reputation and academic position because of these. It does not take a great deal of insight to conclude that other such accomplishments will be realized by these men and their many colleagues in psychology. This is the basis for my vision of its possibilities. No one can look into a crystal ball and predict where these possibilities will lead, so I shall present two areas of current research that indicate some meaningful consequences. In both cases, I shall point towards their ultimate applicability to problems of people. I find that even among groups that resent being associated with the concept that knowledge must be applicable to a real problem, that they still want to know what the psychologist's work means for man. Incidentally, ultimately, I agree with this question.

We learn from our physiology and physiological psychology that there are two broad categories of responses: those that are voluntary and those that are involuntary. Within limits, the voluntary responses involve the striated muscles and are under the control of the central nervous system, while the involuntary responses, within limits, involve the smooth muscles and are under the control of the autonomic nervous system. As far as a learning is concerned,

the latter can be affected through a conditioning process to respond in a certain way to a given stimulus, but the organism itself, can do nothing to elicit the response. Dr. Joseph Kamiya (at the time at the University of Chicago) has conducted a series of studies demonstrating that a subject can learn to control certain of his brain waves. The alpha wave is the most prominent of those in an EEG recording of brain activity. A tracing shows that these waves come in bursts of a very few to bursts of many hundreds. Through conditioning subjects, while in a resting state, were first taught to recognize whether they were in a time of high or low alpha wave activity. They were taught to control this activity, as they desired. The work has been substantiated at the University of Tokyo where it was found that there was a high correlation between EEG patterns and the number of years of Zen practice and the proficiency rating of Zen masters. That is, here we have a control of an involuntary response. Add to this some recent work by Neal Miller of Rockefeller University, who has demonstrated that subjects can be taught to control such autonomic functions as heart beat rate and blood pressure, which is in harmony with other work done by Kamiya. Together they present a possibility of certain chronic visceral abnormalities or certain epileptoid tendencies being kept in control by the patient, himself, as a result of learning without having to rely on drugs. To me, this is an interesting possibility coming out of psychology.

As another example of the possibilities of a scientific study of behavior, I shall point to some of the recent work done under the heading of "behavior modification." The approach is that of taking some of the findings from the learning laboratory and applying them to the therapeutic situation, making it an educational process. The principles used are derived from the operant behavior laboratories of Skinner and others.

Professor Wolpe has demonstrated its effectiveness in helping severe neurotics and mild psychotics to regain a normal level of functioning. Of more promise, from a social structure, is the work that is being done with the mentally retarded. In numerous schools in the United States, Canada, and England, through the proper use of reinforcement (giving it for desired responses and withholding it for undesired responses); even severely retarded children are developing skills of self-management and interaction with the

psychologists, to the educational process. Many of you have some degree of acquaintance with the concept of programmed instruction. Even when he moved away from the role of the scientist into that of the novelist, he wrote *Walden Two*.⁵ In this he depicted a society being developed according to the discoveries made through a scientific study of behavior. As one reads his works or hears him speak, whether you agree with him completely or not, you recognize that these are not the ideas of a scientist divorced from the realities of living but of a man who is deeply concerned for his fellow-men.

Some time has been spent in developing the ideas of these two men and the rationale behind their thinking because they, in the statements I have chosen, represent two important emphases in a consideration of a scientific study of behaviour. It is of note that each arrived at his particular emphasis as he was considering the scientific methodology. William James says it is "nasty," if we allow it to be our only method of considering man; Skinner says that it is the corrective in today's era of science.

The evaluation of the possibilities and limitations of psychology has intrigued me for some time. Over the last ten years or so I have been teaching a course to all of the new graduate students in psychology at my home university and each year we spend some time considering this topic. I am not certain what effects this has had on the students who were going through the initial trauma of graduate school, but the experience has convinced me that it is an important consideration for students in the field and for the faculty and research scholars, as well. Further, I feel that is a kind of issue that should be discussed with colleagues from other disciplines, since we are concerned with a mutual endeavour to discover and disseminate knowledge.

The bravery demonstrated in this willingness to discuss limitations with you is based on at least two factors. First, if one will be honest with himself he will admit that there are limitations in the methods of his own field, whether it be in ways of ferreting out the intricate relationship among variables in the micro- or macro-world, or adequately expressing the meaning and relationship of abstract symbols in some logical equation, or developing the correct sequence of words or tones to express the beauty and feeling you want to convey in a poem or a sonata.

5. Skinner, B. F. *Walden Two*. New York: The Macmillan Co., 1948.

The second basis for this bravery is the discovery that I am not the only psychologist that is becoming concerned with issues such as this; that I am not operating alone. Recently there have been a number of symposia, and resulting publications, reflecting this issue. These concerns are being voiced by leading experimentalists of America and Britain. My experience is similar to that of the French horn player in the orchestra who suddenly discovers that while he is playing the "pah-pahs" of his score the other members are playing their "pahs-pahs," and together they are blending into a melody that the audience whistles or hums as it leaves the concert hall.

Now, let us quickly survey some of the possibilities of the scientific study of behavior. I shall attempt not to become mired down here, since it is easy to become enthralled with one's own choice of fields and to end up repelling one's audience. Also, I do not want to sound like the chairman of a public relations board. So, just a few suggestions will be sufficient to underscore this emphasis.

When a discipline claims the area of behavior as its field of investigation, it is much like staking claim to a continent. It encompasses a wide variety of terrains, temperatures and conditions. So it is with psychology. The usual reaction of one who is being introduced to the field is surprise at the range of problems with which the psychologist works. Even sophisticated university committees have difficulties, at times, in placing the faculty of psychology in its organisational structure. A survey of universities will show psychology placed with the natural science, with the social sciences, with the behavioral sciences or life sciences (relatively new categories), or with an applied area, such as business or education. It is not unusual to find a campus where there are two or more psychology departments, placed among these suggested divisions. Further, each of the decisions has a logical basis. This ambiguity arises from the fact of the breadth of the field. Psychologists in their research range all along the dimensions from the natural sciences to the social sciences, working on problems of basic to applied or engineering research. A sampler of research areas will illustrate this point. Professor Krech and his colleagues from the University of California at Berkeley are investigating the effects of early experience on the RNA characteristics of neurons in the cerebral cortex, which, in turn, will affect subsequent behavior. Professor

environment at levels quite higher than those realized before. Notice that this does not mean that they are necessarily reaching a normal level of effectiveness. We are just beginning to see the possibilities here; not just the principles involved, but the proper means of applying them.

Just these two examples have been chosen. Of course many more could be presented as representative of the possibilities. However, we really do not know what these possibilities are in light of the rapid development of the field. We simply recognize they are there.

I will hasten on, now, to discuss some of the limitations of the approach of psychology. It is to these that a good portion of the recent literature within the field has been directed. Some of these limitations are inherent in the use of the scientific method, while others are a result of our own interpretations of its application. The former are shared with many of the other sciences, while the latter are somewhat unique to ourselves as psychologists, although shadows of them can be seen in other fields, as well.

There are two limitations that are inherent in the scientific methodologies that are of particular annoyance to psychology, i.e., to me. Since the implications of these limitations will be readily apparent, not much more than an annotated outline will be needed for them.

The first is the demand that only public data are acceptable in scientific inquiry. That is, in drawing our conclusions or making our statements about relationships among variables affecting behavior, only those pieces of information or events of nature that are available to and recordable by other researchers can be used. The reasons for this are apparent. Scientific data must be replicable and verifiable; this is the only way that our hypotheses and generalizations can be put to a test. Yet, in a study of behavior there are the private, transient experiences of the person that may be of considerable significance to him, but not amenable to the scientist studying him. The illustration I am using was not chosen because it is the most important—for me, it would be down the list considerably—but because it clearly shows the kind of thing to which reference is made. A considerable amount of the sleeping time is spent in dreaming activity. For years, import has been placed on

the reports of these dreams, but these reports are subject to forgetting, censoring, and embellishing to make them seem more acceptable. In recent years we have developed methods of observing rapid-eye-movements and changes in brain wave patterns, which indicate that dreaming is taking place. We can tell how much time is spent in dreaming and how often the person dreams, but are denied access to what is probably the most important variable, what the dream is. Many are convinced that if we had access to this latter, we might be better able to understand behavioral development and personality dynamics. However, they are private data. The same kinds of illustrations can be drawn from such areas as (a) the fine nuances of personal feelings; (b) the elations coming from discovery; and (c) to many other of the aspects of behavior that are the most human. Hopefully, we say, that as time goes on we shall find techniques for making more and more of these private data public. There are two immediate reactions to that: first, we are wanting to answer our questions now (the impatience of the investigator); and, second, there are ethical problems involved in securing these data (the privacy and sanctity of the subject). I think you can see how the methodology limits here. Many of the most meaningful questions asked of psychologists by the public can not be answered, as of now, because of this limitation.

A second limitation rests in the fact that there are extremely few variables that we can measure directly; rather we must measure indirectly, through inference. Again, psychology is not unique here; I can not think of a science that does not face this problem at times. Possibly it is because of my preoccupation with psychology, but it seems that very few sciences meet it as often as we do. It is true that we can measure neural impulses, muscle twitches, turns in a maze, words written on a sheet, and many other responses, but from these we can only infer learning, perception, motivation, cognitive development and other behavioral events. Some psychologists have "copped-out" on the problem and have said that we should stay at the level of the muscle twitches and the pushes on a lever. However, I am convinced that behavior is more significant than this. The frustration is that it must be measured indirectly. This raises continual questions of the validity and reliability of both our inferences and our measurements. Pragmatic evidence indicates that we have not been too far off in our inferences so far;

progress has been made in our understanding of behavior. However, since we know that science is a matter of successive approximations, the more progress that is made and the more refined becomes the statement of the problem, the greater will be the limitation imposed by measuring through inference.

Now, it is to the other kinds of limitations — the self-imposed ones — that we will look. As I talk about these, I am making “family-talk” out in public. This is what a number of the writers, to whom I referred earlier, are doing in their self-criticism of the field. There are two general, but not necessarily mutually exclusive, reactions to all of this among most psychologists. First, it is recognized as a sign of psychology moving from the self-conscious adolescent stage in its development to some stage of adulthood and confidence and the second reaction is, “It is about time.”

There are three of the self-imposed limitations that I want to mention. The first is that psychology has not followed the model among the sciences that it has chosen. A glance into the history of psychology will show that most of the first experimentalists had all or most of their training in physics. As they went about their work of designing their research and developing their laboratories, the model was physics. Few people are aware of the fact that the first psychology courses offered in American universities were in the physics departments. This is readily understood when you realize that initial concerns of psychologists were the perceptual aspects of experience that could not be explained adequately by the laws of physics and physiology. Moreover, as the early psychologists began to develop their theories, physics continued to be the model. The assumptions of rigid mechanism and determinism were the bases for these theories. The fact that all scientific observation was objective was a cardinal principle. When the movement of operationalism hit physics, psychology was not far behind. However, physics has moved to a point of modifying its position. The development of quantum physics made clear that the ideal of absolute objectivity and of an absolutely objective view of the universe was a dream. Physicists like Planck and Heisenberg have pointed out that science is relatively subjective. Further, rigid operationalism had to be modified. Physics has followed in this direction; psychology, for the most part, has not. In failing to move with its model, it has limited its possibilities.

Second, in its attempt to build its scientific theories of man, psychology has developed ones that are deficient in showing what man really is like. It seems that many theorists are more concerned about the intricacies of theory building than about giving a true view of man at the core of their theories. Professor Bannister has given a beautiful statement of this:

“Thus psychoanalytic theories seem to suggest that man is basically a battlefield. He is a dark cellar in which a well-bred spinster lady and a sex-crazed monkey are forever engaged in mortal combat, the struggle being refereed by a rather nervous bank clerk. Alternately, learning theory seems to suggest that man is a ping-pong ball with a memory. Along these lines some types of information theory hint at the idea that man is basically a digital computer constructed by someone who had run out of insulating tape.”⁶

Along with Professor Bannister, I submit that none of these is a true picture of man and until we can develop more realistic theories of behavior, we will continue to be limited.

The last of these self-imposed limitations that I shall mention is that psychologists have too rigid a concept of experimentation. Before going into this I want to defend myself by saying that I was trained in a “hard-nosed” experimental psychology program and still consider myself of that persuasion. So I shall quote one who is not regarded as a strong experimentalist to give a basic position. Professor Abraham Maslow⁷ has written, “scientific methods (broadly conceived) are our only ultimate ways of being sure we *do* have truth.” Others may and should investigate the human condition, such as artists, poets, prophets and others, and they develop intriguing insights and “however sure they may be, they can never make mankind sure. They can convince only those who already agree with them, and a few more. Science is the only way we have of showing truth down the reluctant throat. Only science can overcome characterological differences in seeing and believing. Only science can progress.” The key phrase for my emphasis is, “scientific methods (broadly conceived).” Many psychologists have tended to see them as “narrowly conceived.”

6. Bannister, D. Psychology as an exercise in paradox. *Bulletin of the Psychological Society*, 1966 V.19, 21.26.

7. Maslow, A. H. *Toward a psychology of being*, Princeton, N. J: Van Nostrand, 1962, pp.iv, v.

There are three ways in which I feel this rigidly is too limiting. First, because our students are taught so thoroughly in statistics and research design, they do not get an ample appreciation for the time and effort needed in probing, pilot studies, and unstructured observation. There is a feeling that while these things are being done, research is lagging. I suggest that if more of this were done in psychology, there might be fewer actual experiments (which may not be bad), but those that were done would be of greater meaning.

Second, because we acquaint our students with the available statistical models that have been developed as research designs, they become design-, rather than problem-centered. Too often a good problem become mercilessly distorted by the researcher who feels that it must be handled in a way to fit a design discussed on pages X to Y in a given statistics book. Statistics must be the servant of the problem, not its master. Lest an embryonic psychologist thinks he can use this as an excuse to neglect his study of statistics, it is only by having a sound basis in them that they can become the servant.

The other manner in which there is too great a rigidity in the interpretation of experimentation involves a form of seduction performed by elaborate research designs and computer capabilities. The concern comes from my observation that statisticians and computer experts are always approaching the brink of esthetics and even fall over occasionally. Since multivariate analyses are available statistically, too often there is the feeling we must have numerous variables in our studies to make them sophisticated. Yet, eventually data must be interpreted in terms of the events of nature they represent. The value of the simple, cautiously developed, problem-centered experiments must not be lost.

There is my story. On each of these points, further elaborations could be given. However, probably they are not necessary.

When first informed that this lecture was to be given, I was almost lured into some "relevant topic" such as, "Psychological Problems that Should Be Studied in Ghana." This was quickly pushed aside for two reasons. First, how in the world would I know having been here such a short time? Then, there are at least two papers in files on this campus where Ghanaian psychologists from your faculty have made excellent presentations along this

line. However, it does seem appropriate to suggest that as the discipline of psychology develops in this part of the continent, that it be aware of both the possibilities and the limitations of the field and, especially, it does all that it can to minimize the self-imposed limitations. I have suggested to the Department here that it not "imprint" too strongly on either British or American psychology.

A nasty subject or a science of rescue? It seems that psychology is a little bit, or a great deal, of each. If we psychologists focus only on its limitations, we could become depressed; if only on its possibilities, arrogant. Neither reaction is appropriate.

My wife's father, who was a farmer in mid-western United States, had a file of sayings, poems, and cliches that he could, and would, pull out on almost any occasion. One of these was, "Women are fools to marry; but what else is there for a man to marry?" I'll not vouch for the validity of his statement, but I will for mine. "The scientific study of behavior has limitations; but what other approach is there that has greater possibilities?"

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