Journal of
Psychological Research
Jan 1957

VOLUME 1 · JANUARY 1957 · NUMBER 1

JOURNAL OF PSYCHOLOGICAL RESEARCHES

Published by

THE MADRAS PSYCHOLOGICAL SOCIETY
UNIVERSITY EXAMINATION BUILDINGS
MADRAS 5, INDIA

Directions to Authors

Three numbers of the Journal are published every year, in January, May and September and contributions for the publications should be sent to the Editor, not later than the 1st November, 1st March, and 1st July respectively.

Contributors are requested to be clear and concise. The length of the articles should not exceed 15 printed pages. The manuscript should be in a final form for the press. The introduction and reviews of literature should be restricted to closely pertinent papers.

The manuscript should be type-written on one side of the page only, with double spacing, and wide margins, including titles, foot-notes, literature citations and legends. Symbols, formulae and equations must be written clearly and with great care. Too many tables, graphs, etc., should be avoided. Each table should be typed on a separate sheet with its proper position marked in the text in pencil. *Two type-written copies of the article should be sent.*

Literature citations :—All references to literature cited in the text should be presented together at the end of the paper in alphabetical order of authors' names. Each reference should be given in a standard form as follows :—

(1) Name(s), followed by initial(s), of author,

(2) year of publication in brackets,

(3) full title of paper,

(4) titles of Journals abbreviated according to *World List of Scientific Periodicals*, 1934, and underlined,

(5) volume number in Arabic numerals, underlined with two lines to indicate bold type,

(6) page numbers without the prefix p ; when books are mentioned in the references, the order, should be :

(d) Name of author(s), initial(s), year in brackets, title of the book, which should be underlined, volume number, edition, page, followed by place of publication and name of publisher. Where reference has not been seen in the original, it should be indicated by an asterisk, and the name of the abstracting journal or other source should be mentioned in brackets. If the title is in a language other than English, the diacretic signs, etc., should be precisely given as in the original.

Drawings should be on white board in Indian ink. As many of the illustrations as possible should be grouped together so that they may be reproduced as a single unit. Photographs should be in glossy prints with strong contrasts. They are best submitted in the exact size in which it is desired to have them reproduced. Full page drawings and photographs should be made so as to allow reduction to a maximum size of 8" × 5". The name of the author, figure number and the title of the article should be written in pencil on the back of each figure.

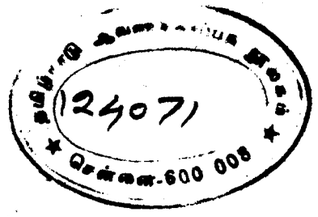
Twenty-five reprints are supplied free to authors. Extra reprints may be had at cost price, but this should be ordered when sending the article for the publication.

Communications should be addressed to Dr. G. D. Boaz, Editor, Journal of Psychological Researches, University Examination Buildings, Madras-5, India.

JOURNAL OF PSYCHOLOGICAL RESEARCHES

VOL. I JANUARY 1957 No. 1

CONTENTS



EDITORIAL NOTES

Psychology in Madras

The starting of this Journal coincides with the Centenary of the Madras University, and hence the Editorial Board takes this opportunity of paying their tributes to the University of Madras and putting on record the lead taken by the University in promoting higher studies in Psychology. At the initiative of the Vice-Chancellor, Dr. A. Lakshmanaswamy Mudaliar, the University of Madras opened the Department of Research in Psychology in the year 1943. In July 1950, two of the constituent Colleges, the Presidency College and the Madras Christian College in co-operation with the University Department, opened Honours and Post-Graduate Degree courses in Psychology. These courses have promoted research in these centres. The Syndicate of the University of Madras has also encouraged the activities of the Madras Psychological Society by allowing it the use of the University Examination Buildings for its office purposes, and also by generous financial contributions for the first Regional Conference which the Society organised in December, 1955.

The Madras Psychological Society

The Madras Psychological Society was founded in the year 1945 with the main objective of encouraging research in Psychology and also disseminating knowledge of Psychology among those interested. The first President of the Society was Dr. A. Lakshmanaswamy Mudaliar. The main activity of the Society was to arrange periodical lectures. After a short period of non-activity, the Society was again revived in 1950 with Dr. T. E. Shanmugam as the Secretary and Dr. G. D. Boaz as the President. The Society was given great

encouragement and fillip by the visit of Dr. Gardner Murphy, who was then invited by the Government of India to initiate and organise researches in Social Tensions in our country. A regular programme of lectures and reading of papers has been carried on with great vigour since then. The Society started a symposium on Human Personality, inviting authorities on different fields of study, to explain the concept of Human Personality as viewed by their subjects. We have already had papers on Personality, as viewed by an Anatomist, a Geographer, an Indian Philosopher, and a Constitutional Historian. We hope to have a few more papers in this series.

The Society has also been organising annual conferences and in 1955, the Conference was on a Regional basis having delegates from the Universities of Hyderabad, Mysore, Andhra, Annamalai, Trivandrum and Madras. There were also delegates from a few Government departments and industrial and commercial firms. A number of original papers were read at this conference.

In 1955, from the proceeds of a Psychology Exhibition the Society was able to institute a *Medal* in the name of the Madras Psychological Society, for the Honours and M.A. Degree Examinations in Psychology of the Madras University.

We have now started this Research Journal with the encouragement from scholars both in India and abroad, some of whom have also agreed to serve on the Editorial Board.

We take this opportunity to express our gratitude to one and all for their encouragement given in various ways.

Values and Personality *

BY

G. D. BOAZ

Department of Psychology, University of Madras

Psychology perhaps has not yet established itself as an independent science in our country. In some Universities, under an enlightened leadership Psychology has become a separate discipline and these departments have been doing very good work. In many other places, it has not been separated from its parent, namely, Philosophy. The attitude of the general educated public to this subject is a mixed one, ranging from complete faith, through indifference to utter disregard. The latter is mostly because of the ignorance that many people have about the achievement of modern psychology. In its applications to the problems of life in various aspects of it, such as industry, mental health, education, etc., Psychology has great achievements to its credit. The suggestion that some people often put forward that the findings of Psychology are based only on conditions of life in western countries and hence are not applicable to us is entirely irrelevant, and unjustified by facts. This also is based primarily on ignorance and strengthens unscientific concepts of nationalism. At the same time, it is a matter of great encouragement to students of Psychology that in several quarters the subject is recognised and well supported.

It is a fact that there are differences among psychologists themselves regarding the scope and definition of the subject. It is not easy to give a definition of the subject of Psychology which would be accepted by all students as we could define for example Chemistry or Physics. But this is because of the complexity of the subject-matter. It is comparatively easy for a man to adopt a definite objective outlook about things external to him. When it comes to a study of himself he is naturally faced with a good many alternatives regarding the emphasis to be given. This possibility has given rise to the existence of different schools of Psychology depending upon the orientation preferred by the founder. Though there are different schools each has its own definite scientific methods and technique whose validity and reliability cannot be questioned. While one may reject or accept a particular interpretation and explanation, the facts themselves are unquestionable. Even with regard to the interpretation of the data, Psychology is now using Statistics to a large extent thus giving mathematical precision to certain of its aspects. So, it has become practically unnecessary to defend the claim of Psychology to be a science.

Modern Psychology has contributed a great deal to our understanding of human behaviour. It has thrown light not only on the less obvious factors

---

* Presidential address at the Third Annual Conference of the Madras Psychological Society, 26-12-55.

that are responsible for the erratic and abnormal behaviour of the individual but also on those that are responsible for group tensions and various forms of social cataclysms. In their desire to make Psychology an exact science the early founders of modern experimental psychology gave a turn to the scope of Psychology to include only those things which could be quantitatively studied and measured. Thus, we find even Psychologists like Watson and Titchner who are completely opposed to each other in their outlook and methods discarding values and meanings from thier purview. All students of Psychology are familiar with the statement of Watson made while discussing the proper method of study of Psychology. " If this is done (namely the objective method which he advocated), work on the human being will be directly comparable with the work on animals." Subsequent scholars have more or less tacitly accepted this position though no one has raised the question why should work done on human beings be directly comparable with that done on animals. As a result a scientific study of values at various levels was practically neglected, and was not included in the main stream of Psychological research. Only in recent years in some quarters this problem has now begun to receive attention. There was a natural fear that the question of values would involve moral and religious concepts for which many leading Psychologists could not find a place in Psychology. In fact Psychology as dealt with by some outstanding scholars like Freud has attempted to explain away religion. This position was further complicated by a confusion between repression and moral restraint and self control. Soon after Freud brought to the notice of the world the psychological evils of repression, a subtle and unquestioned belief in a complete freedom of expression set in which resulted in reducing the importance of moral restraint and self control. Many social evils of the present day can be traced to this lowering of moral standards. Freud certainly never envisaged such consequences of his writings on repression.

Though Freud roused a good deal of opposition to begin with, because of his outstanding intellectual ability, he was able to make people accept and assimilate most of his teachings in some form or other. To assess the contribution made by Freud it is necessary to distinguish between the psychological facts and phenomena which his keen mind observed and the hypothesis and interpretation which he offered to explain them. He was such an intellectual giant that he soon gathered a bright halo around his figure which made it difficult for people to sift the facts and theories which unfortunately are so closely knit together in his writings ; *e.g.*, his noticing the sense of guilt. It is definitely a fact. Almost all the psychiatrists and psychotherapists have also pointed to this sense of guilt as an important component in the human personality—normal, abnormal and the normally abnormal. But his concept of super-ego in its particular form, is his interpretation and theory to explain this and some other related facts which he observed. Again the bi-polar conflict between what he calls the pleasure principle and the reality principle is certainly a fact. There again, we find a good deal of interpretation and theory mixed up in those two concepts and with his ideas regarding what he calls the Ego and the Id.

It might be claimed that of all scientists Sigmund Freud pays the highest homage to the power of moral values. According to his theories, the reality principle, which, of course, is not called the moral principle by him is much more significant and powerful than the pleasure principle. That is why any violation of the former produces a sense of guilt. He talks of the ambivalent attitude of the child to the parents. Yet it is when the claims and expression of the positive attitude are violated that there is a sense of guilt. Since Freud was more interested in the abnormalities that result from these conflicts he does not enter into any discussion of the ultimate nature of these relationships and attitudes. Yet in all these concepts we have a sure foundation for a psychology of values. The conflict is a fact which Freud observed. But the thesis that all culture and civilisation was a result of this conflict was his explanation and plausible hypothesis. The explanation could also be based on an emphasis of the nature and reality of the positive attitudes and of the reality principle.

394

The extreme importance and empirical force exerted by these moral values are repeatedly demonstrated in any clinic dealing with psychological disorders. What is termed as a psychological conflict often turns out to be a moral conflict, between right and wrong. Only we do not have the courage to use the terms right and wrong. When loyalties are betrayed, when family ties are violated, when elementary duties are disregarded, conflicts and sense of guilt set in sowing the seeds of neurosis.

Abnormal Psychology and Mental Hygiene have emphasised certain fundamental needs of the child which should be fulfilled to a certain extent to ensure its mental health and proper personality development. They are the need to love and to be loved, the need for a sense of biological and emotional security and the need for recognition. But so far one important need has not been given any recognition. It is the *need to do the right*. A careful study of all the cases reported in any text-book on Abnormal Psychology and my own experience with different types of psychological patients have driven me to the conclusion that this need to do the right is more basic, more fundamental and more important for mental health than the other ones mentioned above and commonly recognised. Observe any child when it does something wrong. More than any sense of fear of punishment, there is a disturbance within. It becomes unstable as it were and the sense of security is momentarily lost, and there is always an inner struggle to restore the balance. In other words right and wrong have the greatest positive and negative valencies. Any attempt to explain this merely in terms of the social pressure on the individual or in terms of the greater strength of the group than that of the individual or in terms of the inferiority feelings of the child which give a magnitude to the authority of the parent or the elder, cannot be acceptable. For in the last analysis the sanctity must be derived from the experience of the individual.

There is also another important aspect to this disturbing sense of guilt arising from doing something that is wrong. It gradually weakens the ability to do the right,

the case becoming rapidly worse, as it were. The stage may come when this need goes to the underground and comes out in various disguised and mutilated forms of challenging the whole concept of right and wrong and testing out the limits of the chaos and tension resulting from such a disturabance. The result of this whole process is the psychopathic personality. Of course, why an individual is not able to do the right needs a psychological analysis of the individual and his environment. But, on the other hand, it is again a pointer to the deeper longing in the human being to do the right as part of the process of self-fulfilment. A follower of behaviouristic school of psychology may get alarmed at this introduction of teleological concepts into scientific psychology. But empirical facts cannot be discarded. It might even be suggested that the nuclear sense of guilt is the one related to the frustration of this longing for self-fulfilment.

Modern Experimental Psychology, with its emphasis on applications, almost as a vengeful reaction to Titchener's warning, has not paid enough attention, among many other problems, to the concept of the process of individuation as formulated, by Jung. An attempt to relate the findings of modern investigations into the structure of human personality, normal and abnormal, with Jung's concept of the process of individuation may yield very profitable results. The dynamics of this forward moving process may not be explained by or found in the turmoil and struggle that go on in the Freudian Unconscious based on a strict psychic determinism. It may be relevant here to mention one other trend in modern Psychology. Ever since Francis Galton set the ball rolling, Psychology has been going headlong into the study and analysis of individual differences, so much so we have a highly developed and rich differential psychology today. Everywhere it is individual differences, group differences, sex differences, race differences, culture differences, etc. It is unquestionably true that this extensive and intensive study of individual differences has given us very valuable material in understanding people and their behaviour and also helped the rapid growth of all fields of applied psychology. But in the midst of all this, one misses the man or the human mind.

This also has been one of the unfortunate results of not heeding some of Titchener's warnings. In as much as we have collected during the last quarter of a century or so, a staggeringly vast amount of data on human behaviour, using not only special psychological methods but also methods borrowed from other disciplines, such as Anthropology, Sociology, Biology and Statistics, it is high time that some of us settled down to study and produce a picture of individual similarities or agreements. Such a study may perhaps give a better clue or at least an additional clue to our understanding of man. The Individual differences themselves should be viewed in that new light. When we achieve such a concept of Man, based not on philosophic reflective thinking, but on experimental data, it may be that Psychologists would have made a singular contribution towards the achievement of peace among mankind. As long as there is an emphasis on and an orientation towards individual differences, the efforts of the psychologists of the UNESCO in studying Group Tensions and

Social Problems with a view to bring about more of international understanding and good-will may not yield results of any worthwhile magnitude.

Integration of Personality is another concept that is often spoken of, particularly in mental hygiene. Unfortunately, we do not have yet a clear idea of this state of integration. All the ideas we have about this concept is based on our empirical knowledge of the state of normality. But we have not yet studied this problem as a dynamic process ever moving forward towards greater richness and complexity. The dynamics of the personality structure has so far been studied only with reference to its motivational function directing behaviour. But by dynamics, I mean its own inner power and capacity for development and perfection. Many Psychologists have attempted to analyse various personality traits and to determine their autonomy. In spite of the contribution of Factor Analysis, the results show that at many points these various traits merge into one another, resulting in one organic unity. These points of intermingling or fusion have not yet been studied adequately with reference to the conditions at which they take place and the dynamics behind such phenomena. May it be possible that the whole process of individuation moves towards a pragnanz, to borrow a concept from the Gestalt school, a balance and perfection which is a teleological goal, but the dynamics of which is present in every part that goes to make up the individual personality.

The Gestalt Psychologists have brought to our notice the quality of the whole emerging when parts are brought together to form an integral whole. It is a new quality which is not present in any of the parts separately. This is a very useful concept and generally accepted. But we have not tried to apply this concpt to explain certain finer qualities that characterise well-integrated personalities. Is it fantastic to suggest that the common experience and empirical fact called spiritual characteristics and values form the new quality or using the technical term, the Gestalt Qualitat, that emerges when the integration takes place ? We have not been able to study this scientifically so far since we have been busy only with analysis and a detailed study of various individual traits. Perhaps the fault lies with the early enthusiasts who tried to postulate and establish a separate religious instinct. But viewed as the Gestalt Qualitat of an integrated personality and as the goal of the process of individuation and self-fulfilment, resulting in a more or less complete satisfaction of the fundamental need to do the right, what we mean by religious or spiritual values and experience can come under the legitimate study of scientific psychology. It is a movement towards a pragnanz, the perfection of which, has not yet become an empirical fact for the human being.

Quantum Field Theory and "Goal-directed" Activity †

BY

C. T. K. CHARI

Madras Christian College, Tambaram

PART I

Since the advent of quantum mechanics, more than one attempt has been made to draw attention to its larger implications. Leaders like Bohr, Heisenberg and Jordan have dwelt on the possible significance of the "Complementarity Principle" for the biological and psychological sciences. I have attempted to discuss the wider issues elsewhere (1, 2, 3). I propose to consider here a very ambitious proposal to extend the analogies furnished by quantum field theory to neurophysiology and psychology. In a paper (17) contributed to a recent symposium arranged by the Ciba Foundation, G. D. Wassermann of the Department of Mathematics, King's College, Durham, has envisaged some very far-reaching consequences of quantum field theory for hypotheses about the "goal-directed" behaviour of living organisms. Wassermann has told us that his brief statement is a "very superficial" sketch of a "new theory", meant only to indicate "its nature"; he has promised a more elaborate treatment in a forthcoming book. It would be presumptuous to anticipate all that he may have to say in his book. I do not pretend to raise here more than a few questions about the basic approach he has suggested. Modern psychologists must be prepared to review, from time to time, the fundamental issues involved in their discipline if they want to keep pace with the ever-increasing output of knowledge in related scientific domains. Professor Arne Noess of Oslo is reported (18) to have said about the psychologist's enterprise: "What disturbs me is a disharmony between the vast production of programs and terminologies and the meagre production of painstaking empirical studies of limited problems". Even in experimental psychology, it is only provisionally that we can allow our horizons to contract. We must come back from the laboratory to make an extended survey of foundations.

(1)

To understand Wassermann's mathematical approach to psychobiology, we must contrast the classical field of physics with the quantum-mechanical

† I am grateful to Mrs. Eileen J. Garrett, President of the Parapsychology Foundation Inc., of New York City and Dr. Gardner Murphy, Director of Research, Menninger Foundation, Kansas, U.S.A., for the assistance and encouragement I received from them in my studies. I am indebted to Dr. S. V. Anantakrishnan, Head of the Department of Chemistry, Madras Christian College, Tambaram, for some invaluable references. I thank Dr. G. D. Boaz for the opportunity he has given me to express my views in the opening issue of this journal.

field (14). The classical field may be likened to a kind of "stress" or "tension" existing in empty space. It manifests itself as a "force" acting on any natural object which may be situated in the space occupied by the field. An important characteristic of the classical field (gravitational or electromagnetic) is that its strength varies continuously as we move from point to point. With the inclusion of relativity, the classical field theory provides a tolerably satisfactory account of all large-scale phenomena. It fails, however, in attempting to deal with the behaviour of individual atoms and elementary particles. The quantum field is based on the existence of specific elementary particles with definite masses, spins, charges and interactions among themselves. The basic feature of the field is Heisenberg's "uncertainty relation" and the statistical interpretation of phenomena. The strength of the field at a point cannot be ascertained with any degree of accuracy. The field energy can reveal itself only in the shape of discrete units. As many as twenty qualitatively different quantum fields have been postulated. Each field is supposed to fill the whole of space; indeed, *exhypothesi*, there is nothing apart from the fields. Different kinds of interaction take place between various pairs of fields. Each field is associated with a distinctive type of elementary particle. The number of particles of a given field is not necessarily fixed; particles are being created and annihilated or transmuted into one another. The rules for the interaction determine the manner in which the creation and transmutation of particles take place. The association of certain particles with a field should not be taken to mean that the field is literally composed of such particles. "Field" and "particle" are, to adopt a convenient expression, aspects of one and the same basic concept. A charged quantum field will be represented by two elementary particles which are alike in all respects except that one has positive charge and the other negative (e.g. positron and electron).

The discussion of Wassermann's theory may be prefaced with a general account of Schrödinger's wave-mechanical theory of the electron. The electron, in this theory, is described by a wave function ψ and an associated energy E which are found as "acceptable solutions" of the wave equation :

$$\nabla^2\psi + \frac{8\pi^2 m}{h^2}(E - V)\psi = 0,$$

where $\nabla^2 = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2}$, V is the potential energy, m is the mass of the particle and h is Planck's constant. $(E - V)$, i.e. the kinetic energy, in classical mechanics, is represented by $\frac{1}{2}m(u^2 + v^2 + w^2)$. Replacing mu, mv, mw by $\frac{h}{2\pi i}\frac{\partial}{\partial x}$, $\frac{\partial}{2\pi i}\frac{\partial}{\partial y}$, $\frac{h}{2\pi i}\frac{\partial}{\partial z}$, respectively, we obtain Schrödinger's non-relativistic equation for a single electron given above. The equation has an indefinite number of solutions not all of which are "acceptable" in Physics and Chemistry. "Acceptable solutions" must satisfy certain conditions (4, 5, 9, 12, 15). A continuous range of energy levels is possible for a particle which has enough energy to escape to infinity; but discrete energy levels are found when the particle is bound

to a finite region of space. Most systems of chemical interest are based on states of definite, stationary energy. For any electron which is bound to an atom or a molecule, we demand that the wave function ψ be everywhere finite, single-valued, continuous and its gradient must also be continuous. The wave function must be such that the integral $\int \psi^2 \, d\tau$ ($d\tau$ is the volume dx dy dz surrounding the particle) is finite ; the function can then be " normalized ". The quantity $|\psi|^2$ or $\psi^* \psi$ is a real, positive function of the coordinates of the system and possibly of time. Since the wave equation contains in one of its terms the total energy E of the electron, it will be readily seen that only for certain values of the energy the equation yields physically significant solutions. These are the stationary states of wave mechanics ; in such cases, it may be shown that $|\psi|^2$ is independent of time. The energies derived are the eigenvalues and the corresponding wave functions the eigenfunctions. $|\psi|^2$ is the " probability " of finding the electron in any region.

The state of an electron can be determined by four quantum numbers, n, l, m_l and m_s. The possible values of l and m_l depend on n while m_s can be either $+\frac{1}{2}$ or $-\frac{1}{2}$. A further restriction is introduced by Pauli's " Exclusion Principle " which states that two electrons in the same atom cannot have all the four quantum numbers identical (5). In formulating the " selection rules " for complex atoms, considerations of " symmetry " are brought in. The wave function will be odd or even. The " Laporte selection rule " states that dipole radiation transitions can take place only from even to odd or odd to even states and not between two even or two odd states. A second general, if approximate, " selection rule " is that only one electron changes its orbital ; two-electron changes have a lower order of probability. A third general but again not absolutely strict (12, p. 97) rule is that no transitions with changes in net spin or multiplicity are allowed. Wassermann asserts that the quantum-mechanical " selection rules " produce a " *directivity of transitions between stationary states which has no analogue in Newtonian physics* " (italics mine). For any two fields there may, in suitable circumstances, exist bound states. If a bound state exists, it will have lower energy than the two fields are likely to have if they exist in isolation in their corresponding stationary states.

Wassermann believes that an essential requirement of a hypothesis about " goal-directed " behaviour is the appropriate choice of Lorentz-invariant Lagrangian functions associated with fields. The contention requires to be carefully studied in view of the criticisms I am going to urge later. In classical mechanics (12, 15), the Lagrangian function for a conservative and holonomic system (as distinguished from a non-holonomic system, e.g. a sphere rolling on a rough plane, 9), with L = (T − V), is given by

$$\frac{d}{dt}\frac{\partial L}{\partial \dot{q}_k} - \frac{\partial L}{\partial q_k} = 0,$$

where k passes from 1 to n. The Lagrangian can be solved in generalized coordinates a nd associated momenta :

$$p_k = \frac{\partial L}{\partial \dot{q}_k}, \quad \dot{p}_k = \frac{\partial L}{\partial q_k}.$$

Introducing a function

$$H = \sum_{k=1}^{n} p_k \dot{q}_k - L(q, \dot{q}),$$

we get

$$\frac{\partial H}{\partial p_k} = \dot{q}_k, \quad \frac{\partial H}{\partial q_k} = -\frac{\partial L}{\partial q_k} = -\dot{p}_k.$$

The Hamiltonian, i.e. the function H (p, q), was anticipated by Poisson and Lagrange. Where we have *n* Lagrangian equations (one for each degree of freedom) of the second order, the 2 *n* Hamiltonian equations are of the first order. In each case, the total number of arbitrary constants of integration which must be fixed by the boundary conditions is 2 *n* (See 9).

To bring out the analogy between classical mechanics and wave mechanics, we concentrate on the wave functions ψ_i and the corresponding momenta π_i. To transform ψ_i and π_i into a denumerable set of coordinates q_k and momenta p_k, we determine the Lagrangian function L from which the given wave equation can be derived by Hamilton's principle in its usual form,

$$\delta \int L \, dt = 0.$$

We then expand the wave function in terms of an arbitrary set of orthogonal functions, f_k (xyz) :

$$\psi(xyxt) = \sum_k q_k(t) \, f_k(xyz).$$

The wave equation becomes an infinite system of equations for the q_k (t) terms (10). L then becomes a function of the q_k terms, the generalized coordinates of the field, and of the derivatives

$$dq_k / dt, \text{ i.e., } L = L[q_k (dq_k / dt)].$$

The momenta p_k conjugate to the coordinates q_k are determined by the relation

$$p_k = \partial L / \partial (dq_k / dt).$$

For the Hamiltonian of the system, we get

$$H = \sum \left(\frac{dq_k}{dt}\right) p_k - L\left[q_k \left(\frac{dq_k}{dt}\right)\right] = H(q_p p_k).$$

The wave equation can then be translated into

$$\frac{dq_k}{dt} = \frac{\partial H}{\partial p_k}, \quad \frac{dp_k}{dt} = -\frac{\partial H}{\partial q_k}.$$

The equivalence of a quantized wave field with a many-particle system has proved to be of decisive importance for quantum-mechanical field theory. We can

start, if we prefer, with special wave fields corresponding to the coordinates x_k of a particle changing with time according to

$$\frac{h}{i}\frac{dx_k}{dt} = \sum_i H_{ki}\, x_i \ ,$$

where $\|H_{ki}\|$ is the energy matrix of a single particle referred to the coordinate system K_o. The method admits, however, of a generalization which has a bearing on Wassermann's speculation. If the excitation of an arbitrary wave field, so far as it depends on x, y, z, t, is defined by ψ (xyzt), then ψ, with the aid of a system of orthogonal functions f_i (xyz), can always be expanded into a series

$$\sum x_i(t) f_i(xyz).$$

In the co-efficients x_i of the expansion, we have the generalized coordinates the values of which define the state of the system for any times. Correlating the momenta p_i with the x_i terms, and expressing the energy of the field in terms of x_i and p_i, we obtain (**10**) the Hamiltonian from which the field equations can be derived in the form

$$\frac{dx_i}{dt} = \frac{\partial H}{\partial p_i}\ , \quad \frac{dp_i}{dt} = -\frac{\partial H}{\partial x_i}\ .$$

On selecting x_i in such a way that H takes the form :

$$\sum H_{ik}\, x_i^* x_k,$$

the quantized wave field may be interpreted as equivalent to a system of particles; the measurement of all observables that can be ascertained simultaneously with the $|x_i|^2$ terms leads to the same result that would have followed from the supposition that the wave field is a system of particles. The method can be extended to all wave fields, including those corresponding to the light-quantum and the meson. It may be noticed, in passing, that a Hamiltonian operator of the form

$$\sum H_{ik} X_i X_k$$

($\bar{X}_i$ is the Hermitean conjugate matrix correspondlng to x_i^*) implies that the number of particles remains constant during the change of the system. In quantum-mechanical field theory, there are Hamiltonians containing terms with X_i only or $\bar{X}_i$ only signifying the possibility that particles are created or destroyed.

The fields postulated by Wassermann remain in one of a number of stationary states, the most stable being the "ground state" (of lowest energy). Whether two fields which are coupled will or will not exchange energy depends on the quantum-mechanical "selection rules" based on "transition probabilities". Certain transitions will be permitted; others forbidden. Some ideas about "transition probabilities", which are basic presuppositions of Wassermann's theory, may be gained from the following considerations, without our going deeply into a rigorous mathematical formulation of quantum mechanics. Bohr

evaluated the frequencies of the spectral lines emitted by an atom with the aid of the postulated condition :

$$h\nu = E_i - E_k$$

where h is Planck's constant. Besides frequency, a line possesses an intensity depending on the probability of the transition $i \to k$, i.e. on the average number of atoms undergoing transitions in unit time. If ω denotes the classical frequency belonging to the motion of an electron in the i th orbit, the motion, by Fourier's theorem, can be represented by

$$x = \sum x_n \cos(2\pi\, n\, \omega t + \alpha_n).$$

x as much as y and z is a periodic function of time. The function can be understood as a superposition of harmonic oscillations of frequencies ω, 2ω,... and of amplitudes x_n. In Maxwell's classical theory, any partial oscillator emits an electromagnetic wave of the same frequency and an energy which, for unit time, is given by

$$\frac{16\pi^4 e^2}{3c^3}\nu^4(x_n^2 + y_n^2 + z_n^2),$$

x_n, y_n, z_n representing the amplitudes associated with $\nu = n\omega$ in the expansions of x, y and z respectively. Bohr's "correspondence principle" lays down the requirement that, in the equation given above, we must substitute for ν the quantum-mechanical $\nu_{i,\,i-n}$ and take the expression as an approximate measure of the intensity with which light is emitted by the spontaneous transition from the i th into the (i − n)th stationary state (**10**). The transition $i \to (i - n)$ is not supposed to occur if, in the Fourier expansion, the amplitudes x_n, y_n, z_n of the corresponding partial oscillations are all zero. In quantum mechanics (**10**), if the atom is in the i th stationary state, the probability of a spontaneous transition into a state $k<i$ is given by

$$\frac{64\pi^4 e^2}{3c^3 h}\nu_{ik}^3\,(|x_{ki}|^2 + |y_{ki}|^2 + |z_{ki}|^2).$$

The transition involves the energy transition $h\nu_{ik} = E_i - E_k$. The intensity J of the radiation emitted by N atoms, all in the i th stationary state, will be

$$J = N\frac{64\pi^4 e^2}{3c^3}\nu_{ik}^4\,(|x_{ki}|^2 + |y_{ki}|^2 + |z_{ki}|^2).$$

The x_{ki} terms are evaluated from "normalized" eigenfunctions, since they must be single-valued. It is instructive to consider the case in which the x_{ki} terms vanish for certain values of i and k. If x_{ki}, y_{ki}, and z_{ki} also happen to be zero, a transition i to k cannot occur and a line of frequency ν_{ik} is not observed. If y_{ki} and z_{ki} are zero and x_{ki} different from zero, we suppose that there is emitted a radiation analogous to that in Maxwell's theory when the radiation is due to an electron moving in the x-direction, i.e., we expect a linearly polarized emission of light in the x-direction. If z_{ki} alone is zero, we expect elliptically or circularly polarized light. The application of the "selection and polarization rules" to the oscillator and the Hydrogen atom has led to agreement with observation. The

rules permit only transitions to i−1 and i to i + 1. By proving that any homogeneous polynomial of the *l* th order can be expressed in terms of spherical harmonics, we can show that the Hydrogen atom is capable only of transitions in which *l* is changed by + 1 or − 1.

In view of Wassermann's references to the " variation " and the " perturbation " methods, it is necessary to form some perfunctory notions (**10, 12**) of the many-body problem in quantum-mechanics. In classical-mechanics, only two-body systems are strictly solvable ; approximation methods have to be used for many-body systems. Essentially the same situation prevails in quantum mechanics. Variation and perturbation methods are used as approximation methods (**12**). The variation method fixes an upper limit to the energy value which, in favourable cases, may be made to approach the true value. We utilize the theorem that the integral

$$W = \int \psi^* H \psi \, d\tau \geq E_o \left(\int \psi^* \psi \, d\tau = 1 \right),$$

where ψ is any " normalized function " satisfying the general conditions prescribed (continuous, single-valued, etc.) for the wave function necessitated by the problem, H is the Hamiltonian, E_o is the energy of the lowest quantum state and the integration is over the entire space ($d\tau$) appropriate to the problem. The perturbation method is convenient when the system of interest differs only slightly from a system whose exact solutions are known. If $\overset{\circ}{\psi}_o$, $\overset{\circ}{\psi}_1$, $\overset{\circ}{\psi}_2$ ..., are the wave functions available from the " unperturbed " problem, the first approximation appropriate to the lowest energy level of the " perturbed " state may be set down as

$$W_o = \int \overset{\circ}{\psi}_o H \overset{\circ}{\psi}_o \, d\tau \geq E_o.$$

For other levels,

$$W_n = \int \overset{\circ}{\psi}_n H \overset{\circ}{\psi}_n \, d\tau \simeq E_n.$$

(2)

To come to some of Wassermann's proposed applications of quantum field theory to biology and neurophysiology. Hypotheses about a " morphogenetic field " were proposed by Gurwitsch (1921), Spemann (1921, 1938, see **16**) and Weiss (1928). Wassermann finds, not without justification, that the term " morphogenetic field " is very slippery so long as it is not stated explicity whether or not the field function can be derived from Lagrangians. He believes, for his own part, that the morphogenetic field or M-field (by abbreviation) is an example of a field which can be derived from Lagrangians, although a not very familiar example to mathematical physicists. M-fields produce change of molecular patterning by changing the material fields of organisms according to quantum-

mechanical " selection rules " which govern the energy exchange. Wassermann supposes that the amount of energy exchanged between M-fields and molecular fields is extremely small. M-fields may act by either *passively* influencing the " transition probabilities " of changes of molecules or *actively* " steering " them, in fact by acting as a slight " perturbation field ". Energy transactions will go on until the joint system reaches an equilibrium state which is conditioned by the quantum-kinematical (i.e., statistical) condition (Boltzmann's H-theorem). The steady (or the nearly steady) state which is reached in this way may be described as the " goal " of organic development and the process of reaching the steady (or almost) steady state may be described as " goal-directed ". Wassermann proposes to dispense with all " mysterious, non-physical constructs " such as Bergson's *élan vital.* M-fields and matter-fields may exist in states when they cannot exchange energy. Wassermann suggests that the condition is exemplified in the ovum prior to its fertilization by the sperm. The molecules of the sperm are supposed to act as a " trigger " in bringing about the interaction between the M-fields and the relevant material fields.

Without going into all the details of Wassermann's quantum-mechanical biology, I shall single out for attention his treatment of neurophysiology. The fields which " steer" the molecular system of the post-embryonic animal and evoke " goal-directed " behaviour (e.g. learning) fall under M-fields ; but because they are of special interest to the psychologist, and also for reasons of convenience, they may be designated B-fields. B-fields are those M-fields which interact principally with neural matter (and to some extent with protoplasmic molecular organization, as in infusoria, which seem to be capable of learning) after the M-fields have resulted in the structuring of the nervous system. Chemically different neurons will bind different B-fields while chemically similar neurons will bind the same type of B-fields. Wassermann seeks in this hypothesis the clue to an interpretation of the " equipotentiality " and " totipotentiality " of cortical areas suggested by K. S. Lashley's well-known experiments (**8**). Not the relative positions but the number of chemically similar neurons will determine the " bonds " between B-fields and neural matter. Ablation of cortical matter may affect the mutual interaction of certain B-fields and lower the " efficiency " of behaviour, as suggested by Goldstein's work (**6**). Wassermann is prepared to believe that memory is the result of the formation of mutually bound B-fields which can exist in stable, bound " stationary states." " Selectivity of recall " may be viewed as a consequence of the quantum-mechanical " selection rules " for the exchange of energy between B-fields. Destruction of nerve tissue dissolves not the bonds between the stable B-fields but the " bonds " between the bound B-fields and the neural fields. Through repetition, transitions between " strongly bound fields " may become more probable than the transitions between " weakly bound fields ". Wassermann thinks that the " selectivity " and " permanence " of memory and learning inevitably follow from his postulates for a field theory of behaviour.

A field-theoretical hypothesis of visual perception is sketched. Light signals arriving at the retina excite not only the photo-receptive neurons but a set of peripheral B-fields which are bound to these neurons. The peripheral B-fields are linked by intermediary B-fields to central B-fields which are bound to the cortex. The function of peripheral and cortical neurons is that of "releasers" or "triggers" of B-fields. Excitation may depend uniquely on the intermediary B-fields linking central and peripheral B-fields. A random connection between peripheral and central neurons will not, therefore, affect visual perception. Ablation of a large part of the visual cortex may leave vision almost unimpaired, as Lashley **(8)** showed.

It may be useful to compare Wassermann's theory with the one put forward by McCulloch and Pitts (1943, 1947; see McCulloch's statement in **11**). They assumed that any aspect of behaviour which can be completely and unambiguously expressed in words can be matched by a suitable finite "formal neural network". They applied an abstract Boolean algebra and a logical calculus to cortical events. Suppose that the number of neurons is of the order of 10^{10}, the number of internuncial "cross-overs" between the circular nets of which the cells are constituents should be less. On topological grounds, McCulloch argued that

$$\log D = [- 0{\cdot}5 + \sqrt{(0{\cdot}25 + 2d)}] \log 2$$

where D is the number of circular paths in the network, d is the number of "cross-overs" between them. The relation has finite limits. As $d \to \infty$ $D \to 2^{\sqrt{2d}}$; but as $d < 10^{10}$, $D < 10^{4,900}$ **(19)**. Cybernetics exploits the analogies between electronic machines and neural systems. A theory of positive and negative "feed-back" systems has been developed to account for the "runaway" or oscillating activity, on the one hand, and "stability", on the other. The "goal-seeking" property has been analysed, on mathematical grounds, by McCulloch and Pitts and, on experimental grounds, by Ashby and Walter. Ashby's "homeostat" and Walter's "electronic tortoise" display "goal-seeking" and "adaptative" properties by virtue of "feed-back" systems. Analogies have been traced between electronic computing devices and memory systems. "Reverberating circuits" are said to be characteristic of such devices; chains of internuncial neurons in the cerebral cortex have been described by von Bonin. An automatic computer can "store" data; reverberation of chains of internuncial neurons may be associated with "storage" in the brain. Wassermann's theory may be regarded as an attempt to advance all this speculation along quantum-mechanical lines.

In the Hixon symposium on cerebral mechanisms **(11)**, J. von Neumann voiced some misgivings about "reverberating circuits" and Köhler pointed out that, on the "atomistic neural network" theories, it is ununderstandable how the contours of retinal images are projected upon the visual cortex. Köhler threw out the suggestion that it may be profitable to replace neural impulses in as many anatomically distinct units by a "field". Wassermann works out the suggestion independently, on quantum-mechanical lines, and, incidentally, attempts to furnish

an improved theory of memory. Polyak **(13)** and Hebb **(7)** remarked that a central projection of retinal excitation patterns fails to yield a unique topographical representation of such simple figures as the circle and the square. Wassermann meets the difficulty by postulating a unique one-one correspondence between peripheral and central B-fields *via* the intermediary B-fields.

We hear that, in a complete statement of the theory, certain B_m-fields concerned "epiphenomenally" with "meaning" and certain other B_e-fields concerned ("epiphenomenally", one imagines) with "needs" will have to be introduced. It would be rash to anticipate all the esoteric details that Wassermann may provide about the auxiliary B-fields in his book. Meanwhile, it is clear that he has already reached, in his own way, a conclusion anticipated by C. L. Hull in his re-statement of the behaviouristic thesis. Hull regretted that the "molar science of behaviour" cannot be deduced from the science of neurology. None the less, he insisted that "Nearly all serious students of behaviour like to believe that some day the major neurological laws will be known in a form adequate to constitute the foundation principles of a science of behaviour". Wassermann would perhaps amend the statement by saying that nearly all serious students of the psychobiological sciences must hope for an elucidation of the laws of the various Lorentz-invariant quantum-mechanical fields which alone constitute the universe. Hull would prefer to regard man as a "completely self-maintaining robot". Wassermann, too, would provide us with a robot, but one behaving according to the "selection rules" governing energy-exchanges between various quantum fields. Whatever we may think of Wassermann's speculation, we cannot deny his resoluteness, his resourcefulness and the vast knowledge of various inter-related sciences he has deployed in the defence of a theory.

REFERENCES

1. CHARI, C. T. K., "Quantum Mechanical Perplexities," *The Philosophical Quarterly* (Indian Institute of Philosophy, Amalner), Vol. XXVI, No. 3 (October, 1953), pp. 177–185.
2. ... ., "Quantum Physics and East-West *Rapprochement*," *Philosophy East and West* (University of Hawaii), Vol. V, No. 1 (April, 1955), pp. 60–67.
3. ... ., "Quantum Physics and Parapsychology," *Journal of Parapsychology* (Duke University), Vol. 20, No. 3 (September, 1956), pp. 166–183.
4. COULSON, C. A., *Valence* (Clarendon Press, Oxford, 1952), Ch. II.
5. GLASSTONE, S., *Theoretical Chemistry* (D. Van Nostrand and Co., New York, 1944), Chs. I and II.

6. GOLDSTEIN, K., *The Organism : A Holistic Approach to Biology* (American Book Co., New York., 1939).

7. HEBB, D. O., *The Organization of Behavior* (John Wiley, New York, 1949).

8. LASHLEY, K. S., *Brain Mechanisms and Intelligence* (Chicago University Press, 1930), esp., Chs. X and XI.

9. LINDSAY, R. B., and MARGENAU, H., *Foundations of Physics* (John Wiley, New York, 1936), pp. 136–147 ; 401–469.

10. MARCH, A., *Quantum Mechanics of Particles and Wave Fields* (John Wiley, New York, 1951), pp. 76-82 ; 158–159 ; 191–192.

11. MCCULLOCH, W. S., " Why the Mind is in the Head " in *Cerebral Mechanisms in Behavior* (Hixon Symposium), ed. L. A. Jeffress (John Wiley, New York, 1951), pp. 42–57. See also " Discussion " of the theory by Lorente de Nó, J. von Neumann and W. Köhler, *Ibid.*, pp. 57–65.

12. PITZER, K. S., *Quantum Chemistry* (Constable & Co., London, 1953), pp. 2–18 ; 21–41 ; 60–68 ; 98 ; also Appendix 10.

13. POLYAK, S. L., *The Retina* (Chicago University Press, 1941).

14. RAJAM, J. B., *Atomic Physics* (with a foreword by L. de Broglie), 3rd edition, 1955 (published by the author, St. Joseph's College, Trichinopoly, S. India), pp. 1361–62.

15. RUTGERS, A. J., *Physical Chemistry* (Interscience Publishers, Ltd., London and New York, 1954), Chs. 29 and 32.

16. SPEMANN, H., *Embryonic Development and Induction* (Yale University Press, 1938).

17. WASSERMANN, G. D., " An outline of a field theory of organismic form and behaviour," in *Extrasensory Perception* (A Ciba Foundation Symposium), ed. G. E. W. Wolstenholme and Elaine C. P. Miller (J. & A. Churchill, Ltd., London, 1956), pp. 53–72.

18. WOODGER, J. H., *Biology and Language* (University Press, Cambridge, 1952), p. 284.

19. WYKE, B. D., " Biophysical Aspects of Nervous Function " in *Progress in Biophysics*, 2, ed. J. A. V. Butler and J. T. Randall (Pergamon Press, Ltd., London, 1951), pp. 117–192.

(To be concluded)

Human Personality as considered by Philosophy*

BY

INDRA SEN

Aurobindo Ashram, Pondicherry

Human personality is normally taken as the concern of the science of Psychology and it is surely psychology that is exclusively preoccupied with it. However, philosophy too is concerned with it, as it is one of the three major issues, Self, World and Reality or, in other words, Man, Nature and God, which constitute the subject-matter of philosophy. But the approaches of the two are different, and it will repay an interested student of human personality to consider it from both points of view. In fact, there are other approaches too. Law, Sociology, Politics, Morals and even Physical Science have all their characteristic conceptions of man and it surely would enrich and reinforce our knowledge of human personality, if we considered it from all these points of view. The fact is that explicitly or implicitly a concept of man is involved in all that man seeks and does. His conative seeking is, in fact, in its nature and character determined by the nature and character of the part and impulse of the personality from which it proceeds. There are the impulses, which are primarily bodily, of inertia and of mechanical routine ; those that are primarily vital, of acquisition, construction and aggrandisement; and those which are primarily mental, of knowledge, aesthetic experience and right conduct. And there is also an impulse of comprehending love, compassion and goodwill, which at times in the history of of man is seen proceeding from some exceptional personalities and affecting human society widely and deeply. This is the spiritual impulse and influence. All these impulses are normally present in personality as such, but their levels of development are differently represented in individuals, social groups and cultural epochs of human history. Amongst individuals we find the man of habits and routine and he is the common pattern. There is the man of energy, of pursuit, struggle and acquisition. And then the man of knowledge, artistic culture and virtuous life. Social groups too are traditional or energetic and acquisitive and those largely given to things of mental culture. In history we find that ancient Greece was governed by ideals of truth, beauty and goodness, ancient India by that of the spirit and modern scientific world by that of production and possession.

Thus we find that the dominance of a particular impulse or part of personality determines the character of an individual, society and a cultural epoch. An understanding of man is, therefore, the key to the understanding of human life and its cultural expression.

Psychology is *par excellence* the science of man and his behaviour and it has, during the last three-quarters of a century, aroused great interest in the study of human personality and created a vast literature on the subject. The cultural

* Paper read in the symposium on 'Human Personality' conducted by the Madras Psychological Society.

significance of this development too is very profound. Western science had until recently been interested exclusively in external nature. In psychology this interest turns upon man himself. Psychology is, therefore, the modern scientific expression of the ancient quest of philosophy and human culture to "know oneself." Ancient India and ancient Greece alike had taken " Know Thyself " or "*Atmānam Viddhi*, " which is the Sanskrit equivalent of the same, as the *leitmotif* of their thought and culture. However the approach of modern psychology to human personality is very characteristic. It seeks, like all sciences, to study the *phenomenon* of personality. In order to become a respectable science it joyfully became a " Psychology without a soul." The consequence of it has been rather a mixed one. The gain has been the careful methodology of science but the loss has been a restriction of the field of subject-matter and the difficulty of explaining many a phenomenon. In spite of the great progress made by psychology our total knowledge of human personality is not very much. The essential fact of personality yet remains unknown. Jung, who is often referred to as " the greatest living psychologist," sums up the present situation of the science in these words : " All the usual little remedies and medicaments of psychology fall somewhat short (to explain personality) just as they do with the man of genius or the creative human being. Derivation from ancestral heredity or from the milieu does not quite succeed ; inventing fictions about childhood, which is so popular to-day, and—to put it mildly—in the inappropriate, the explanation from necessity —" he had no money, was ill, " and so forth—remains caught in mere externalities." (2, p. 299). Gardener Murphy, who wields a very wide knowledge of the science of psychology as a whole, in his article "The Nature of Man," in which he discusses the " General Trends and Atmosphere of Modern Psychological Studies " says almost at the outset : " Nobody knows anything much about the nature of man. We are in a position to raise a great many questions, to raise questions perhaps so grave and so fundamental that we begin to wonder if we even have a method for approaching an ultimate solution." [3]

The fact is that all our psychological knowledge is confined to the workings of the " persona," the mask, the outer superficial formation of life, while the real person remains unknown. The science of psychology avowedly studies the psycho-physical interactions and relations of the organism and environment. Hence it all consists of correlations of such relations. This knowledge has undoubtedly much capacity for prediction and serviceability. But the essential truth of personality will evidently escape its very approach.

Jung, who combines in himself the qualities of an empirical investigator and also those of a bold theorist, has felt obliged to affirm a ' Centre ' in personality, which " acts like a magnet upon the disparate materials and processes of the unconscious and like a crystal grating, catches them one by one." (2, p. 197). An inner dynamic centre, which integrates and assimilates the diverse experiences of personality, is necessary to explain some of the most obvious facts of personality. And this centre is the true self. This is, in modern psychology, indeed, a profound judgment.

Besides it, the knowledge of the unconscious lately acquired is a great achievement. But otherwise we are limited to the correlations of superficial reactions and that is all the insight we possess into human nature.

Psychical Research or Parapsychology does, indeed, attempt daring things. It explores the supernormal phenomena and has accumulated a body of facts, which are, undoubtedly challenging. Organism, environment and their immediate interactions do not seem to be sufficient. Personality may have a survival after death and, at any rate, it seems to have suprasensory capacities of knowledge, feeling and action. This is indeed a large horizon for personality, but this body of knowledge is yet in a state of semi-science and, therefore, the sum of our present verified psychological knowledge of personality, though great in its own way, in the main gets limited to the correlations of organism-environment interactions.

The approach of philosophy is, on the other hand, naturally free, large and comprehensive. Philosophy does not limit itself by any assumptions and it daringly and obstinately seeks the very truth of any matter and of whole existence. In doing so it accepts the generalisations of sciences and builds upon them, but it also strikes upon independent approaches to the subject and is thus able to discover original data too. The approach of philosophy is, therefore, complementary to that of every science and that in a double way. It seeks to interpret and give fuller meanings to the generalisations of different sciences by inter-relating them in a system of total reality. And then by independent approaches to different classes of phenomena it is able to observe new facts too, which escape the predetermined scientific methods of investigation.

Of late, this relation has had a vivid demonstration in the more recent developments of Physics. Physics is an old science and perhaps the most developed at the moment. In its highest reaches it has shown that it tends to become one with philosophy. The nature of matter, as it propounds, is not a thing of the phenomenon, but of ultimate reality and is indistinguishable from a philosophical account. The truth is that where a science is yet concerned with the collection of facts, classification and simpler generalisations, it has no need of philosophy and philosophy is likely to appear to it unnecessarily vague and vast. But when it has finished this kind of spade-work and comes to grips with its largest generalisations and feels the need of inquiring into the fundamental nature of its subject-matter, then it tends to become philosophical and at that stage philosophy begins to appear to it very near and sympathetic. Obviously at an advanced stage science and philosophy will tend to come very close to each other and then we will have the deep satisfaction of real insight into facts and phenomena as we have today, regarding the nature of matter.

But psychology and philosophy have been in the history of thought and are by the nature of their subject-matters very close to each other. Mind and personality or human individuality and selfhood are evidently identical and interconnected. And the development of contemporary psychology and its various schools are a

complete evidence that even in its early career, psychology has found it necessary to advance its knowledge of personality through philosophical theorisation. In fact, already it seems to be exceeding the limits of being strictly an empirical investigation of the phenomenon of mind and behaviour and venturing upon larger explanations and this may all prove helpful to the discovery of true truths of personality.

Now philosophy, as a discipline of knowledge, is primarily concerned with total reality, with existence as such, and in its labours to evolve a comprehensive view of reality it has broadly taken two lines of approach. One is objective and the other subjective. The objective consists of taking external nature as the starting point and through a consideration of it arriving at a view of total reality. The subjective takes man and his experience as the starting point and through a consideration of it arrives at a view of human selfhood and the universal reality of which the selfhood is a part. Western philosophy, on the whole, has followed the former and Indian philosophy the latter. Ancient Greek thinkers were struck by wonder in regard to nature and her great happenings and that stimulated them to profound reflection, which led to philosophy. In India, on the other hand, it is the experience of pain, suffering and incapacity in the human individual that led him to reflection on himself and seek a better state of existence. This seeking had led him to explore the resources of his own being and personality and discover the spiritual planes and statuses within himself and that, by intuitive insight and vision revealed to him the true nature of cosmic reality.

These two approaches are characteristic of Western and Indian philosophy and they clearly show that they both lead to similar results and are, therefore, complementary in character. Evidently the latter approach is more contributory to the growth of knowledge of human personality. But it is interesting even in the West, where the objective approach has been the general tendency, at times, the human selfhood figured as the more important truth at least methodologically. The general trend of Greek philosophy, we have said above, was objective. But it has had its strong ethical and humanistic period, during which man, his capacity to know and his conduct, were the chief interests of study. Socrates, the chief figure of Greek life, primarily inquired into man's nature, his knowledge and his conduct. But the highest conception of man that Greek thought, on the whole, gives us is that of his rational nature. And this is perfectly consistent with the ideals of truth, beauty and goodness, as the highest things of our normal mental life, which Greek life cultivated and which it has left to posterity. However, there are sufficient indications of a suprarational and truly spiritual element in personality in Heraclitus and Plato and so far as Plotinus is concerned we have a completely spiritual conception of personality.

During the medieval period of European philosophy the religious outlook of Christianity was the dominant influence and, therefore, the human individual was taken as the soul. However, that does not mean that the spirit was able to govern and determine life. In practice, the intellectually-formulated creed and other externals

of religious life ruled supreme and with that went obedience to priest-craft and suppr ssion of individual personality. Hence this period could not be very creative.

The Renaissance in Europe was the reassertion of individual's independence to freely inquire and seek to know and for this, the example of ancient Greece was naturally the best source of inspiration to turn to. The study of external nature was the first interest and the eighteenth century put forth humanism as the highest cultural ideal. Under humanism man and his personality came to be looked upon as the highest good. But the entire modern period of European philosophy has taken man as a rational animal and relied upon reason as the highest source of knowledge. This entire scientific epoch of about four centuries has been a rationalist age and whatever philosophies may have prevailed at different times the essential conception of man has remained largely the same. Rationalism and humanism have been the major influences of this period.

Anti-intellectualism, which appeared as a reaction against the ultra-rationalism of Hegel, and Freud's Psycho-analysis, which initiated a wide interest and inquiry into the unconscious, are the other influences worth mentioning. The former produced in the person of Bergson a great thinker, who with much success dared to show the true function and scope of intellect and affirmed intuition as the true instrument of knowledge. Individual's inner experience and its true character acquire a special significance in the evolution of his system of thought. Freud's psychoanalysis has virtually initiated a wide cultural movement, which directly and indirectly influences literature, art and even philosophy. This affirms the irrational in man and declares it as the normal determinant of life. Nine-tenths of life is unconscious instinct. In the present cultural phase, one could say the unconscious has become particularly dominant and is producing wide consequences in science and humanities.

We had said that western philosophy has been, on the whole, objective in its approach. But even here, at times, human personality has acquired a pre-eminent emphasis. Descartes, the father of modern philosophy, presents a most interesting case. He felt tormented by the contradictions that external nature and life presented and in a desperate moment decided to disbelieve everything unless he was obliged to believe something. He found he could dismiss the existence of the world and of God, but when he turned to himself he found that he could not dismiss the thought process that constituted the dismissing act. He exclaimed, " Cogito Ergo Sum," I think, therefore I am. His personal existence became his first unassailable certitude and this was, indeed, a great truth. And from this he rediscovered his world and God too.

In Indian philosophy " *Pinda* ", the individual, and " *Brahmanda* ", the universe, have been a familiar correlation. The Pinda is the miniature of Brahmanda and all that exists in the Pinda is in a wide scale present in the Brahmanda and *vice versa*. Exactly corresponding is the pair of ideas, microcosm and macrocosm, and their correlation too has been recognised in western thought. However, Lotze

stands out as the most striking representative of this correlation, which he developed in his principal work named " Microcosm."

Bergson's consideration of inner experience is of a much greater importance. His thought is a recent creation and is directly related to contemporary cultural life. We will state his approach in his own words. Says he, " When, with the inner regard of my consciousness, I examine my person in its passivity, like some superficial encrustment, first I perceive all the perceptions which come to it from the material world. These perceptions are clear-cut, distinct, juxtaposed or mutually juxtaposable, they seek to group themselves into objects. Next I perceive memories more or less adherent to these perceptions and which serve to interpret them ; these memories are, so to speak, as if detached from the depth of my person and drawn to the periphery by perceptions resembling them ; they are fastened on me without being absolutely myself. And finally, I become aware of tendencies, motor habits, a crowd of virtual actions more or less solidly bound to those perceptions and memories. All these elements with their well-defined forms appear to me to be all the more distinct from myself the more they are distinct from one another. Turned outward from within, together they constitute the surface of a sphere which tends to expand and lose itself in the external world. But if I pull myself in from the periphery toward the centre, if I seek deep down within me what is the most uniformly, the most constantly and durably myself, I find something altogether different. What I find beneath these clear-cut crystals and this superficial congelation is a continuity of flow comparable to no other flowing I have ever seen." [1] And this " continuity of flow ", the like of which he had nowhere seen, became the essential truth of universal reality, which he called the *èlan vital.*

This approach to Reality is most interesting and bears fine witness to the line of approach followed in India most generally. The human individual is surely a part of the universal reality and it should be possible to contact this reality within him and know its essential nature and character. This truth has been in Indian Philosophy a common methodological principle and we, therefore, find a general predisposition to seek Reality, where it is directly available in its highest and best expression. And because of this approach Indian philosophy addresses itself to an examination of man and his nature, his *Dukkha* and the cause of the *Dukkha.* However, in the Vedas and the Upanishads the objective approach to Truth and Reality, that form Nature, too is vividly and strongly present. In the Vedas, in particular, the adoration of Nature and the curiosity to know the forces that govern her activities is the stronger interest. In the Upanishads the approach through the individual's personality tends to become more prominent. But later on this approach becomes almost *universal.* Buddhism is a complete philosophy built upon the individual's *Dukkha* and the remedy of it. Human personality, its exploration, its understanding and its discipline become the sole pursuit of Buddhist life. So far as the traditional systems of Indian philosophy are concerned Yoga and Nyaya follow the subjective approach and consider the individual personality as their primary concern. Vaisesika

investigates and explains the categories of cosmic existence among which mind and soul are recognised as two different substances. Sankhya gives an elaborate account of the process of evolution of Prakriti or Nature. But Purusha or the conscious person is a separate existence. Mind is, however, an evolute of Nature. Here too the approach is primarily objective. In Vedanta, the most popular of these systems, the object of inquiry is the *Brahman,* the Absolute Spirit. However, it has to be realised through a personal discipline of yoga involving growth out of the normal consciousness of ignorance and illusion into one of clear-sighted spiritual intuition of the Absolute. Here so far as the human personality is concerned we have two broad positions. According to one it is a real fact, according to the other it is purely phenomenal. But even when it is regarded as purely phenomenal, which is dissolved with the attainment of knowledge of Reality, as in Shankara, the normal personality is yet the starting point for the discipline that leads to truth and, therefore, its working and conditions have been observed and mastered in order that they may be transcended. Methodologically, the human person is thus always the starting point ; his nature, his mind, his personality as a whole are, therefore, a supreme value. This truth has been so deeply and widely appreciated by Indian philosophy that it has passed down into Indian cultural life and given it a trait of individualism and personal reflectiveness and introspection. This trait has, in fact, tended to grow even at the cost of the necessary social and political demands of life and undermined collective existence. But psychologically it has meant the observation and cultivation of the individual personality.

We must now really ask what is in substance the contribution to our knowledge of personality, which this long course of Indian philosophy has been able to make ? What is the measure of assured knowledge that it has given us and how far it can really give us some additional light in our present state of obscurity and uncertainty.

The first and the foremost truth, which this interest and inquiry into human personality extending over several millenia, affirms with a unified and concurrent force is that mind is not the central truth of personality. That mind is essentially *Bahirmukha* (outward directed), really an instrument for action and relation to the environment. The essential truth of personality is the soul, which is an essential wholeness, not necessarily involved in the environment and dependent upon it. This soul is normally not in the front of our consciousness and is, therefore, not commonly felt and recognised. But through a proper discipline of self-education it can be brought into the front and made normally operative. That, if done, would bring about a substantial change in the status of being of the person, since he would now know, feel and act out of a felt essential wholeness and mastery over the environment and not out of a compulsiveness of involvement in it. This would also transform the divisions and conflicts of the normal personality and replace the egoisms and aggressions of the animal instincts into a full sense of harmonised life and action.

This inner consciousness, affirmed by Indian philosophy as the true person in our personality is the psychological fact of the first importance. It gives a new vision

and possibility to life, individual as well as social ; it opens up for normal life the sources of a higher energy, which can more effectively integrate the energies of our normal personality. Jung, on purely empirical considerations, has felt impelled to affirm a ' centre ' in personality and endow it with the power to integrate the diverse facts and experiences of personality. But that is to him a hypothesis, necessitated by a body of facts. To Indian philosophy and psychology the soul is not a hypothesis, but a fact of experience to be obtained by a process of personal training and perfection.

In connection with his discussion of the ' centre,' Jung advances an interesting argument. He says that the normal life is a matter of habit and custom. In any situation we tend to act as we have done in the past under similar circumstances. But when an unprecedented situation arises, then we are at a loss, we do not know what to do. Then ' personality ' shows its supreme worth, since it is able to act in an original way. ' Personality ' truly speaking is the function of the unique centre within us, which stands independent of the external part of our nature.

Indeed, the soul, with its internal wholeness, is truly independent of the environment and, therefore, capable of acting on it with freedom. The mind part of us is involved in environment and is subject to the limitations of habit and custom.

Madam Montessori in a book of hers " Education for a New World " develops the thesis that new education must aim at producing a personality that will be a master of his environment and not a slave. Her perception of the need of the times is superb. Indeed science has not made man a master, inspite of the power she has given him. His sense of helplessness to manage his life, overcome fear and arrive at harmonious relations is very acute today. But what she recommends to achieve this goal does not carry conviction. She lacks the perception of the free soul and in consequence remains caught up in a mere reorganisation of the normal involvements. Evidently unless education undertakes to bring the free soul into the front and make it the leader of the march of life it cannot hope to create the personality, which will be a master of the environment.

This soul-consciousness also reveals to us the realm of intrinsic values as directly enjoyable goods of life and thereby gives to the normal external values their proper secondary significance. Should the experience of the soul-consciousness and the intrinsic values that it carries become a more common fact in life, it will evidently influence the present day cultural life profoundly. If the values that individuals and nations today fight for become less attractive in the face of the higher values, which are available to everybody for the seeking, the present relations of struggle and conflict will tend to give place to other relations of peace and harmony.

The principal truth of personality affirmed by Indian philosophy is, therefore, of very great importance. For the science of psychology, it unravels the essential mystery of personality, its source of uniqueness. It also illumines up the process of creativity and the secret of the genius. It, in fact, obliges a complete reorientation

of the existing judgments of personality, since what is now held as the last facts of personality, conflict, repression, sex, environment-conditioning and the rest of them are not present in the whole consciousness of the soul. And this inner consciouuness makes available qualitatively another energy, whole and harmonious, which can effectively integrate and harmonise our normal personality. For education, it presents the possibility of a personality, which we seek but do not know how to realise. It also presents the prospects of a real revaluation of values in the socio-cultural life of individuals and nations.

However, this fact of personality, the soul, is not the only contribution of Indian philosophy. In the Upanishads themselves we find a full-blown view of personality, which has largely prevailed throughout afterwards. Personality is there conceived as consisting of five concentric formations. These are called the *Annamaya Kosha*, the *Pranamaya Kosha*, the *Manomaya Kosha*, the *Vijnanamaya Kosha* and the *Anandamaya Kosha*. They are the sheaths or zones of body, life, mind, knowledge and delight. The former three constitute the normal personality, but the impersonal and universal consciousness of knowledge and the consciousness of essential delight and bliss are superconscious to it. These, however, are realisable by an intensive inner discipline and, they realised, we will have achieved the full stature of human personality. This personality will be in possession of its complete resources of beings, all parts developed and integrated, free from conflict and anxiety, filled with a sense of wholeness and self-existence, independent and masterly with regard to environment, and completely blissful, at peace within and harmonious with others.

This conception of personality is evidently very vast and large. This is reinforced and confirmed by another conception of Upanishadic psychology too. The Upanishads recognise four main classses of psychological states. These are the waking, dreaming, of sleep and of deep sleep. The first three cover the states and processes of normal personality. However, in the parlance of Western psychology the processes of the waking state constitute normal psychology and sleep and dream are regarded as abnormal phenomena. But Western psychology too now regards the normal and abnormal as continuous in nature and not as two disparate kinds of facts. However the states of the deep sleep are of a special significance, since they are given the highest significance in Indian psychology, and in Western psychology they are not recognised at all. These are the states of deeper soul consciousness, when the normal outer personality is in a state of effective quiecence. These are the states of higher luminosity and intense delight and when they occur they leave an after-state of their own to the waking consciousness. These are the states of the superconscious. The subconsciousness too is recognised in and through the doctrine of *Samskaras*, which are of many kinds. There are those that are recent and active and those that are of old accumulation and so on. How a *Kshaya*, exhaustion of these, is achieved shows the process of transformation and reintegration of the unconscious.

While the force of the past is fully recognised in the form of the *Samskaras* of the unconscious and the necessities of the present too are adequately recognised in the *Bahirmukhta* (outward-directedness) of mind and its involvement in the environment, the highest recognition is accorded to the superconscious states of higher luminosity, intenser delight and wider integrations. It is these that are sought to be mobilised for the enhancement and integration of the personality as a whole. They constitute the true teleological ends of Indian psychology. In Western psychology, goal-seekingness and teleological determination are clearly recognised as the characteristic differentia of the subject-matter of psychology. But having affirmed it, it easily returns to the antecedent conditions to explain them. McDougall, for example, so complacently reduces the purposiveness of mind and behaviour to instinctual predisposition. The purposivism of human personality receives its true substantiation in Indian psychology and this is a great point for the contemporary science of psychology.

These are a few of the important ideas regarding the essential nature of human personality, which Indian philosophy and psychology give to us. It is obvious, these give the general scope of personality and its-major parts or aspects and a proper order and relationship of these parts and aspects. Western psychology, on the othe hand, gives us a detailed analysis and elaborate knowledge of the various processes of the mind-consciousness or the outer personality, which has grown up and works in relation with the environment. A synthesis between the two is perfectly possible and, when and if it is achieved, it will serve to bring into being a greater or a more integral psychology of the future.

The account of Indian psychology given above is all on the basis of the ancient and the traditional philosophy of India. But recent India has carried forward its traditions of philosophy and psychology to many interesting new developments and these bring further light to bear upon human personality. Since the middle of the last century, the leaders of thought and life have in general emphasised certain new values of personality. These have been those of world—and life—acceptance in place of the medieval values of world—and life—denial. This has been, however, in the practical sphere of life. So far as the developments of philosophy and psychology themselves are concerned, we find in Sri Aurobindo an outstanding contribution. He has carried forward the Vedantic traditions of Indian philosophy to a new form and synthesis, whi h accepts the problems of present life, gives a deep analysis and reading of them and attempts a thorough going philosophical solution of them. The ultimate reality is to this new Vedanta too the absolute Brahmán. But the world is an evolving manifestation of it, which has so far put forth the qualities of matter, life and mind (Annam, Prana and Manas of the Upanishads) and is steadily heading forward to the evolution of a more integral consciousness of the *Chaitya Purusha* called by Sri Aurobindo the Psychic Consciousness. However this is only the next objective of the evolutionary process. He mentions and characterises a number of ascending levels of consciousness, each a unique formation, which are inferrable from the

character of the evolutionary process and which are amenable to the direct experience of an individual, if he is able to accelerate and expedite his growth through yogic discipline. An investigation of these higher ranges of consciousness was the special interest of Sri Aurobindo and these he analysed and characterised in great detail and also developed a practical method of Integral Yoga by which these could be realised by individuals.

Brahman and an evolving world are thus the two primary truths of the philosophy of Sri Aurobindo. The world is a manifestation of the Brahman and is tending to become a fuller expression of the hidden spirit. The material world is, therefore, not a denial of the spirit, but a field for its realisation. The individual too is a significant factor in the scheme of manifestation. It is a unique representation of the universal and the human individual, being the leader of the evolutionary march, will evidently be the first to realise the higher terms of evolution. Human individuality is, therefore, the supreme truth of cosmic existence and its value is the highest in the world. In this view of Reality, science, culture and religion have all value, in as much as they contribute to the growth and enrichment of consciousness in its evolutionary journey. The relation of the individual and society has been a weak point in our past philosophies. They tended to be individualistic, since at the last instance it is the individual's salvation that mattered. In Sri Aurobindo salvation is not the objective of life, but the progressive manifestation of the spirit, the realisation of Divine Life upon earth. And this has to be a universal fact *i.e.* the human race as such has progressively to achieve it. The individual is in this process an integral part of the whole. It is a unique fact, but it is a part of the human consciousness, which is the whole truth in this reference. The individual and society are thus intimately related and in the evolutionary progress they mutually contribute.

Since man is the leader of the evolutionary march and in humanity the individuals have to take the initiative, the individual human personality acquires, as a practical fact, supreme value. And Sri Aurobindo's yogic work, in fact, consisted in the exploration of the fullest resources of the individual personality and the discovery of the methods of developing them.

His view of personality is both a systematisation and an elaboration of the past Indian views on the subject and, being supported by fresh yogic exploration and experience, it acquires a great significance for the present. To Sri Aurobindo too the mind is an outer formation, produced by nature and adapted as an instrument of action on nature. The real personality is the spirit within, however, while in the past Indian philosophy has called it an unchanging soul, Sri Aurobindo affirms it as a fact of evolution and calls it the psychic consciousness. This psychic consciousness is, according to him, slowly growing up as a potentiality and is due for expression as an actuality in life in the normal course of things. This makes a great deal of difference so far as the previous position is concerned. The spirit is not indifferent to and detached from our normal life, but involved in it and seeking

to express itself in it. This spiritual principle, which is of itself seeking expression, would naturally admit of an easier realisation or at least would be directly helpful in the transformation of existing life. Soul, as a substance, detached and independent, however, is not denied, but that is affirmed as another fact of personality serving as its static basis. The psychic being is the dynamic counterpart of it. This is one capital point of Sri Aurobindo's view of personality.

Another is the relation of the unconscious, the conscious and the superconscious. Evolution, cosmic and individual, is a hearty principle with Sri Aurobindo. All nature is moving up towards higher and higher levels of consciousness. Out of the unconscious matter has emerged life and out of subconscious and semiconscious life, has emerged the mind of man. The unconscious is, therefore, progressively becoming conscious and the conscious rising to higher degrees of consciousness, which are now superconscious to us. The whole process is determined teleologically, by a pull and attraction of the superconscious states. However, the growth of consciousness is a difficult and a slow process since the unconscious offers resistance and seeks to persist in its own action. This is the principle of mechanism in personality, but the fact that a progressive growth of consciousness does take place and that at the higher stages of growth the attraction of the superconscious states tends to become clearer, the chief causal factor of personality is the ends and goals of the superconscious. This gives a new orientation and movement and thereby accords to the " teleological determination " and " goal-seekingness " its full validation.

Western psychology normally does not even recognise the fact of the superconscious. A psychologist like Jung too, who has made illuminating studies of yogic practice and affirms progressive integration as almost the law of personality, contends that the " wholeness," of which, he admits, the yogis are " past-masters, " is reducible to the unconscious. But the unconscious, which is essentially " chaotic " in character, could not in the same breath be credited with the quality of wholeness. Besides, in an evolutionary process, if there is a past and a present, there must also be a future, unless we affirm that the process has entirely run its course. The human consciousness is, in fact, a superconscious state to that of the animal and likewise there must be states of yet higher order to the present human consciousness. The yogic discipline is able to demonstrate these in individuals. And what is achieved in such cases is surely indicative of racial possibilities.

The superconscious has been the special field of exploration and mastery for Sri Aurobindo and he has identified many successive levels of its reaching up to that of the completest integration, which he has called the Supermind. The significance of this work is really tremendous. It gives a new basic orientation to personality for the science of psychology, releases new forces for the change and growth of human capacity and character for education and creates new prospects for the cultural advancement of the race as a whole.

Sri Aurobindo has also identified a further part of personality and yogically demonstrated its reality as a fact. This is what he has called the subliminal in personality. The normal personality, which plays up in interaction with the environment, is a self sharply set against a non-self. It is a finite particular in the language of philosophy. Now if an individual by a progressive self-dissociation separates himself from this finite self-hood, he may discover within himself a form of consciousness which is felt as widely continuous with others. Here we participate in the universal consciousness and then get into direct contact with other minds. This consciousness is not superconscious to our individual mind, but is of the same level and order though universal in character. Suprasensory phenomena of psychical research and parapsychology, which are causing so much difficulty, are to Sri Aurobindo, primarily the behaviour and action of the subliminal in human personality. This part is, in some personalities normally more active and therefore they are able to display suprasensory capacity. But it admits of cultivation as the superconscious states do.

This is a broad outline of the view of human personality, which Indian philosophy, in the person of Sri Aurobindo, has contributed to the subject. This view, by virtue of its wide comprehensiveness and due appreciation of the different aspects of personality, can truly be called the integral view of personality. It can easily accomodate within its broad scope the Western Science of Psychology as a most useful body of knowledge of the outer personality, of the environment-dependent mind and of the subconscious. And in doing so it will give it the larger perspective of the integral personality ; in particular, the determining orientation of the superconscious. In this, the gain of the integral view too would be great. It will get annexed to it a vast body of detailed knowledge of the interrelations of the organism to the environment.

Evidently this is a possibility of a great and a wide synthesis and in consequence a tremendous advance in the knowledge of human personality. A corresponding synthesis in the objective life of human culture will also go with it. And that will mean a reorientation of whole life through a reorientation of human personality.

REFERENCES

1. BERGSON HENRI, 1946. *The Creative Mind, p.* 191.
2. JUNG, C. G., 1940. *The Integration of Personality.*
3. MURPHY GARDNER *Main Currents in Modern Thought, Vol.* 9, *No.* 2. *New York.*

Covert and Overt Personalities

BY

T. E. SHANMUGAM

Department of Psychology, University of Madras

Introduction

An interesting phenomenon which has been observed by many psychologists is the fact that the overt personality is different from the underlying personality in its trends. Adler (1) describes this as the compensation for the feeling of insecurity or inferiority. Jung (2) refers to this as the outward *Persona* (mask) and the inner *anima*. Werner Wolff (16) and Korchin (8) have experimentally demonstrated the oppositeness of the overt and covert personalities. Korchin, for instance, using two tests, a direct picture-frustration test and a fantasy test (TAT) found that frustrations which were reacted to by direct aggression in the first test were reacted to by self-punishment or rationalisation in the second test wherein fantasy situations were presented. Symonds (14) also got similar results. The evidences quoted above reveal as though behaviour is different and opposite at the various levels of personality.

Aim of the present study :—In this study an attempt is made to verify the hypothesis that there are two levels of personality function, each opposite to the other.

Procedure adopted in Conducting the Study

The Tests :—In order to verify the above hypothesis the data * collected from two psychological tests were made use of. The tests are the Personality Inventory (P.I.) and the Verbal Projection Test (V.P.T.), both devised by the author for use with the Tamil speaking population of Madras, India. The tests and the details connected with them have already been published. However, a brief account of them are given here.

The Personality Inventory :—The Personality Inventory consists of 100 questions, the items for which were originally taken from Woodworth's (17) ' Personality Data Sheet '†, Thurstone's (15) ' A Neurotic Inventory ', Burt's (2) ' Questionnaire on Neurotic Symptoms ' and Eysenck's (4) ' Medical Questionnaire ' The Personality Inventory is made use of to measure the level of emotional stability. Items for the Inventory are grouped into syndromes ; hypersensitivity, excitability,

* I wish to acknowledge my indebtedness to Dr. Robert R. Holt, Director of Mental Health, New York University, U.S.A., for many valuable suggestions, which are incorporated in this paper.

† The data were collected for a different study of which the results presented in this paper form an aspect. (13)

neuresthenic, psychasthenic tendencies, paranoid tendencies, orientation towards reality, socially inactive, anxiety, sleep disorders and somasthenic tendencies.

The Personality Inventory is a self-rating method. As such, when the questions like, " Do you feel self-conscious in the presence of superiors ? ", " Do you have too many head-aches ? " are asked, they are able to bring out what the subjects are aware of. The Personality Inventory is composed of questions like the above and the subjects are asked to respond with ' Yes ' or ' No ' replies. From the nature of the questions and the kinds of replies, it is reasonable to say that the Personality Inventory brings out materials from the conscious mind. As a matter of fact, if we ask the subjects ' Why they have too many head-aches ? ' or ' Why do they feel self-conscious in the presence of superiors ? ' they may not know to reply. And even if they reply, their replies may not be correct. The subjects may be aware of the symptoms of their ailments, but may not know the ' real ' causes of the syndromes. As such, the Personality Inventory, may be considered to reveal what the subjects ' can ' give.

The Verbal Projection Test :—The Verbal Projection Test consists of 20 items called armatures, 19 referring to different aspects of adolescent life and one item asking the subjects to write a story with a boy as the hero. The study of personality by the Verbal Projection Test is similar to that of the Thematic Apperception Test (T.A.T.) and other projective tests. It involves the " presentation of a stimulus situation designed or chosen because it will mean to the subject not what the experiment has arbitrarily decided it should mean but rather whatever it must mean to the personality who gives it or imposes upon it, his private idiosyncratic meaning and organisation." (6).

From the very nature of the test, the V.P.T. was assumed to bring out materials which the subjects are not normally conscious of. In other words, it was assumed that it will bring out materials from the ' deeper layers ' of the mind. In fact this assumption was found to be true when the V.P.T. data were compared with the T.A.T. data collected on the same subjects (11). It is a well-known fact that the T.A.T. is an established technique for the study of those aspects of human personality which are not possible to study with questionnaire techniques.

The Subjects :—The subjects for the study were 220 boys studying in the various Corporation Schools in Madras. They were identified as belonging to low-socio economic families. Their ages ranged from 12 to 18, with mean age of 14.4. They were all found to be of average intelligence as inferred from their school records and as rated by their teachers.

Administration of the test and collection of data :—The tests were administered to a group of twenty boys at a time. They were administered in the schools where the boys studied. Before and after administering the tests, the boys were individually interviewed.

The Analysis of the Data :—The data from the Personality Inventory were scored with the help of a prepared key. After scoring the data, the reliability of the data was found by the split-half method (odds and evens) using the Spearman-Brown prophecy formula. It was found that the reliability was very high.

The V.P.T. data were analysed with the help of an Analysis Scheme, a copy of which is given as the Appendix III in this paper. This is a modification of R. M. Clark's Scheme (3) used for Group Projection Tests (TAT). It contains five main divisions such as NEEDS (I), Influence of Environment on the Individual (II), Reactions of the individuals to the Environment (III), Adequacy of Principal Characters (IV) and Ending (V). Under each of these main divisions, there are sub-divisions. In the category Needs, there are 17 kinds of needs. In the category, Influence of Environment there are three sub-divisions, and under each such sub-division there are a number of items. Similar sub-divisions and number of items under each sub-division are in the Categories, Reactions of Individuals (III) and Adequacy of Principal Characters (IV). In the Analysis scheme, all *A* parts are negative or unfavourable, *B* parts positive or favourable, and *C* parts are neutral. When the scores are recorded on the tabulation sheet a quick survey will indicate the trend of the Personality being evaluated.

The reliability of the VPT could not be found out. As a matter of fact, the workers in the field of Projective Tests feel that the concept of reliability may not be applicable because the items in the projective tests vary in style, content and amount. The split-half reliability assumes a certain amount of uniformity among the items of the test, which are separated randomly into halves. When the instrument lacks uniformity among the items of the test of which it is composed the significance of split-half reliability is greatly diminished. The second reliability test, namely, Test-Re-test was tried. But it was found that the subjects in the Re-test situation, merely repeated the responses given at the first time. The armatures did not stimulate fresh fantasies but acted simply as a stimuli to recall stories given on the first occasion. Memory was found to be an important factor in the Re-test situation. The aspect of memory, though an important issue by itself, when we pose question like *why* should the subjects remember at all those plots given earlier, it makes the Re-test reliability useless.

Statistical treatment of the data :—Two statistical techniques were made use of. They are Co-efficient of Variation and the Product-Moment Correlation using Scattergram (6). Co-efficient of Variation was made use of to find out the relative positions of the subjects in the performance of the two tests and the Product-Moment Correlation to find out the relationship between the Personality Inventory and the V.P.T. data. The Formula for the Co-efficient of Variation is :

$$V = \frac{100 \times \sigma}{M}$$ Where V = Co-efficient of Variation.
σ = Standard Deviation.
M = Mean Co-efficient of Variation expressed in terms of percentage.

The formula for the Product Moment Correlation is :

$$r_{xy} = \frac{\frac{x'y'}{N} - cx'\,c'y'}{(\sigma' x)\quad(\sigma' y)}$$

Where

$x'\,y'$ — deviations from the guessed means in terms of the class interval as the unit.

cx' and cy' — Corrections in x and y.

σx and $\sigma' y$ — Standard deviations in x and y in the terms of the class interval as the unit.

Results :—The results are presented in the following three tables. Tables I and II show the Co-efficient of Variation and the Common Variation for the scores of P.I. and V.P.T. and Table III, the correlations between the scores of P.I. and the scores under the different divisions of the V.P.T.

Table I Showing Co-efficient of Variation for the P.I. and V.P.T. Scores

Tests	Mean	S.D.	V.
P.I.	39.94	12.08	30.25
V.P.T. N. Hunger	6.12	2.68	43.79
V.P.T. N. Succourrance	5.65	2.50	44.25
V.P.T. N. Aggression	2.91	2.74	94.16
V.P.T. N. Security	2.57	2.42	94.16
V.P.T. II A	8.6	2.76	32.12
V.P.T. II A1	3.74	1.96	52.41
V.P.T. III A	11.32	3.41	30.11
V.P.T. III A4	4.23	1.63	38.52
V.P.T. III A1	2.88	1.62	56.25
V.P.T. IV A	11.4	3.37	29.52
V.P.T. IV A3	4.44	2.18	22.2
V.P.T. IV A4	4.17	2.18	20.85
V.P.T. V A	10.38	3.14	30.28

Table II Showing Common Variation between P.I. and V.P.T.

Common Variation between P.I. and V.P.T.	Per cent.
P.I. and V.P.T. N. Hunger	69.
P.I. and V.P.T. N. Succourance	68.
P.I. and V.P.T. N. Aggression	32.
P.I. and V.P.T. N. Security	32.
P.I. and V.P.T. II A	94.2
P.I. and V.P.T. II A1	57.7
P.I. and V.P.T. III A	99.6
P.I. and V.P.T. IV A4	78.5
P.I. and V.P.T. III A3	53.7
P.I. and V.P.T. IV A3	97.6
P.I. and V.P.T. IV A3	73.3
P.I. and V.P.T. IV A4	68.9
P.I. and V.P.T. V A	99.9

A study of the figures in the Table II will show that except in the case of two categories, P.I and V.P.T. N. Aggression and P.I. and V.P.T. N. Security, in all other categories, the common Variation is high, ranging from 53.7% to 99.9%

For the purpose of finding out the correlation between the two tests, the gross score, (i.e., the total unfavourable responses) in the case of P.I. and the scores under the various divisions of the analysis scheme of V.P.T. were taken. The various divisions of V.P.T. considered for this purpose are :—

The scores under :—

I. Need Hunger, Need Succourance, Need Aggression and Need Security.

II. Total unfavourable influences from the environment (II A) and Thwarts, punishes and harmful (II A 1).

III. Total score under 'Reaction of emotional instability' (III A) and scores under categories ' Ambivalence, anxiety, fear, despondency, sorrow,' (III A 4) and ' Aggression, hostility, resentment and disgust ' (III A 1).

IV. Total score under ' Maladjustment traits ' (IV A) and scores under the categories ' Anxiety, fear, insecurity, unhappiness, sorrow ' (IV A 3) and Hardship, deprivation, sacrifice, self-punishment (IV A 4).

V. Total scores under unsatisfactory Ending :

The items selected under each of the main divisions were found important in the stories of the present subjects, earlier (13).

Table III Showing Correlation between the P.I. Scores and Scores under the various Categories of V.P.T.

Items of Correlation	Correlation	Significance
P.I. and V.P.T. N. Hunger	.12	No
P.I. and V.P.T. N. Succourance...	.19	No
P.I. and V.P.T. N. Aggression	.09	No
P.I. and V.P.T. N. Security	.11	No
P.I. and V.P.T. II A	—.03	No
P.I. and V.P.T. II A1	—.08	No
P.I. and V.P.T. III A	.02	No
P.I. and V.P.T. III A1	—.08	No
P.I. and V.P.T. III A3	—.16	No
P I. and V.P.T. IV A	.09	No
P.I. and V.P.T. IV A3	—.11	No
P.I. and V.P.T. IV A4	.07	No
P.I. and V.P.T. V A	.02	No

A study of the above table will show that the correlations between the gross score of the P.I. which was taken to indicate the level of emotional stability and the scores under the different divisions and items of the V.P.T. are not significant. It will be particularly interesting to note that there is no relationship between the P.I. score and the scores under the main divisions and sub-divisions of V.P.T., namely, ' Reactions of emotional instability (III A), " Ambivalence, anxiety, fear despondency and sorrow " (III A 4) ' Aggression, hostility, resentment and disgust ' (III A 1). Similarly, it may be seen that the correlations are not significant between

the scores of P.I. and maladjustment traits (IV A) and scores under the sub-divisions of ' Maladjustment traits ', namely, ' Anxiety, fear, insecurity, unhappiness, sorrow ' (IV A 3) and ' Hardship, deprivation, sacrifice, self-punishment ' (IV A 4).

The results of the present study may be taken to confirm the first part of the hypotheseis, namely, there are two levels of mental function, different from each other. But they do not definitely support the latter part of the hypothesis, namely, that these two levels of mind are opposite to each other in their trends. The results of the study may be taken to indicate the existence of another level of personality function different from the one referred to by Adler, Jung and other Psychologists mentioned earlier.

Summary of the results and conclusion :—The present study was directed towards the verification of the hypothesis that the covert personality is different from and opposite to the overt personality. For this data collected from 220 boys belonging to the low socio-economic families by administering two tests were used. The two tests were the Personality Inventory and the Verbal Projection Test. From the nature of the tests, it was assumed that the Personality Inventory brings out materials from the conscious mind and the Verbal Projection Test from the covert personality of the individual. When the results of the two tests were correlated, it was found that the correlations between them were not significant. This finding confirmed the first part of the hypothesis that there are different levels of personality function but rejected the second part of the hypothesis that these two levels are opposite in character and function. With the limitations pertaining to the tests used, it is suggested that there may be another level of personality function which is distinctly different from those suggested by Adler, Jung and other Psychologists mentioned earlier. This may be called as the fantasy level.

REFERENCES.

1. A. ADLER (1917). *The Neurotic Constitution*, New York : Dodd Mead & Co.
2. C. BURT (1935). *The Subnormal Mind*, London : Oxford University Press. 352–361.
3. R. M. CLARK (1944). ' A Method of administering and evaluating the Thematic Apperception Test in group situation.' Genet. Psychol. Monogr. 30. 3–58.
4. H. J. EYSENCK (1948). *Dimensions of Personality*, London : Routledge Kegan Paul, Ltd. 61–73.
5. L. K. FRANK (1939). ' Projective methods for the study of personality ' J. Psychol. 8. 389–413.

6. H. E. GARRETT (1944). *Statistics in Psychology and Education*, New York : Longmans Green & Co.
7. C. G. JUNG (1923). *Psychological types*, New York : Harcourt Brace Co.
8. S. J. KORCHIN (1943). ' A Camparative study of three projective techniques in the measure of frustration-reaction types ' Clark University. Bull. 70–72.
9. T. E. SHANMUGAM (1946). *An Analytical study of juvenile delinquents and adult criminals*, unpublished M.LITT., Thesis, University of Madras.
10. T. E. SHANMUGAM (1950). ' A Study of adolescent phantasies '. J. Madras University (A), 11, 44–68.
11. T. E. SHANMUGAM (1951). The Verbal Projection Test Stories and the Thematic Appreception Test Stories, J. Madras University (A), 12, 106–118.
12. T. E. SHANMUGAM (1953). A Personality Inventory—Its Reliability and Validity ' J. Madras University (B), 23, 252–258.
13. T. E. SHANMUGAM (1956). *Adolescent Personality—An Investigation of emotional instability in the Adolescent boys of low socio-economic families*, Unpublished. PH.D. Thesis, University of Madras.
14. P. M. SYMONDS (1949). *Adolescent fantasy*, New York : Columbia University Press. 368.
15. L. L. THURSTONE and T. G. THURSTONE (1930). ' A Neurotic Inventory '. J. Soc. Psychol I, –30.
16. W. WOLFF (1943). *Expression of personality—Experimental depth Psychology*, New York, Harper Bros.
17. R. S. WOODWORTH (1920). ' A Test of Emotional Instability ' in S. S. Franz, *Handbook of Mental Examination Method*, New York, Macmillan & Co., 170.

APPENDIX I.

THE PERSONALITY INVENTORY.

					Symptomatic Responses.
1.	As a child did you like to play alone ? ...	Yes	No	?	Yes
2.	Have your relationship with your mother been always pleasant ?	Yes	No	?	No
3.	Have you ever had the habit of stuttering ? ...	Yes	No	?	Yes
4.	Do you lose your head in dangerous situations ?	Yes	No	?	Yes
5.	Do you laugh easily ?	Yes	No	?	No
6.	Are your day dreams about improbable occurrences ?	Yes	No	?	Yes
7.	Do you often feel lonely even when you are with other people ?	Yes	No	?	Yes
8.	Do you love your mother more than your father ?	Yes	No	?	Yes
9.	Do great many things frighten you ? ...	Yes	No	?	Yes
10.	Do ideas often run through your head so that you cannot sleep ?	Yes	No	?	Yes
11.	Are you frequently bothered by indigestion ? ...	Yes	No	?	Yes
12.	Are there many people that you dislike intensely ?	Yes	No	?	Yes
13.	Do you usually trust people ?	Yes	No	?	No
14.	Do you lose your temper quickly ?	Yes	No	?	Yes
15.	Is your mother's nature usually cheerful ? ...	Yes	No	?	No
16.	Do you usually feel fatigued when you wake up in the morning ?	Yes	No	?	Yes
17.	Do you ever talk in sleep ?	Yes	No	?	Yes
18.	Do your feelings alternate between happiness and sadness without apparent reason ? ...	Yes	No	?	Yes
19.	Have you ever had an arm or leg paralysed ?	Yes	No	?	Yes
20.	Are you troubled with shyness ?	Yes	No	?	Yes
21.	Have you ever been afraid of going insane ? ...	Yes	No	?	Yes
22.	Have you ever seen a vision ?	Yes	No	?	Yes
23.	Are you often frightened in the middle of night ?	Yes	No	?	Yes

APPENDIX I—(Contd.)

					Symptomatic Responses.
24.	Do you know anybody who is trying to do you harm ?	Yes	No	?	Yes
25.	Were your parents partial to any of your sisters or brothers ?	Yes	No	?	Yes
26.	Did you have a strong desire to commit suicide ?	Yes	No	?	Yes
27.	Do you day-dream frequently ?	Yes	No	?	Yes
28.	Did you have a happy childhood ?	Yes	No	?	Yes
29.	Do you often say things at the spur of the moment and regret for them ?	Yes	No	?	Yes
30.	Have you ever had spells of dizziness ? ...	Yes	No	?	Yes
31.	Have your relationship with your father been always pleasant ?	Yes	No	?	No
32.	Do you have a great many headaches ? ...	Yes	No	?	Yes
33.	Did you ever have a strong desire to run away from home ?	Yes	No	?	Yes
34.	Did you ever have convulsions ?	Yes	No	?	Yes
35.	Can you stand pain quietly ?	Yes	No	?	Yes
36.	Do you like to be by yourself a great deal ? ...	Yes	No	?	Yes
37.	Are you easily moved to tears ?	Yes	No	?	Yes
38.	Do you dread the sight of a snake ?	Yes	No	?	Yes
39.	Do you like to take responsibilities ?... ...	Yes	No	?	Yes
40.	Have you ever felt that somebody is hypnotising you and making you act against your will ?	Yes	No	?	Yes
41.	Can you stand criticism without feeling hurt ?	Yes	No	?	No
42.	Do you have difficulties in making friends ? ...	Yes	No	?	Yes
43.	Have you ever had a strong desire to set fire to something ?	Yes	No	?	Yes
44.	Has any of your family been epileptic, insane or feeble minded ?	Yes	No	?	Yes
45.	Are your day-dreams about unpleasant things ?	Yes	No	?	Yes
46.	Are you happy with your present life ? ...	Yes	No	?	No
47.	Does your mind wander badly so that you lose track of what you are doing ?	Yes	No	?	Yes

APPENDIX I—(Contd.)

					Symptomatic Responses.
48.	Did you have ever a sensation of falling when going to sleep ?	Yes	No	?	Yes
49.	Do your eyes often pain you ?	Yes	No	?	Yes
50.	Do you walk in your sleep ?	Yes	No	?	Yes
51.	Do you have great fear of fire ?	Yes	No	?	Yes
52.	Are you ever bothered by the feeling that people are reading your thoughts ?	Yes	No	?	Yes
53.	Do you have the habit of contradicting people ?	Yes	No	?	Yes
54.	Were your parents happily married ? ...	Yes	No	?	Yes
55.	Do you think you are often regarded as queer ?	Yes	No	?	Yes
56.	Are you troubled with thoughts of death ? ...	Yes	No	?	Yes
57.	Have your friends ever turned against you ?	Yes	No	?	Yes
58.	Have you ever been blind or half-blind or deaf or dumb for a time ?	Yes	No	?	Yes
59.	Are you physically inferior to your associates ?	Yes	No	?	Yes
60.	Has any of your family committed suicide ? ...	Yes	No	?	Yes
61.	Are you troubled with poor health ? ...	Yes	No	?	Yes
62.	Are you often in a state of excitment ? ...	Yes	No	?	Yes
63.	Do you ever cross a street to avoid meeting somebody ?	Yes	No	?	Yes
64.	Can you stand the sight of blood ?	Yes	No	?	No
65.	Are you usually in good spirits ?	Yes	No	?	No
66.	Do you think that people have made quite a lot of fun of you ?	Yes	No	?	Yes
67.	Have you ever been bothered by vomitting ? ...	Yes	No	?	Yes
68.	Is your mother dissatisfied with her lot in life ?	Yes	No	?	Yes
69.	Do things often go wrong for no fault of your own ?	Yes	No	?	Yes
70.	Do you ever have queer feeling that you are not your old self ?	Yes	No	?	Yes
71.	When you were young did other children regard you as queer ?	Yes	No	?	Yes
72.	Are you frequently troubled with nightmare ?	Yes	No	?	Yes
73.	Do you usually feel well and strong ? ...	Yes	No	?	No
74.	Do you normally sleep well ?	Yes	No	?	No

APPENDIX I—(Contd.)

					Symptomatic Responses.
75.	Have you ever had the habit of twitching your face, neck or shoulders ?	Yes	No	?	Yes
76.	Do you often have the feeling of loneliness ?	Yes	No	?	Yes
77.	Do you often feel self-conscious in the presence of your superiors ?	Yes	No	?	Yes
78.	Do you get tired of people quickly ? ...	Yes	No	?	Yes
79.	Do you lack self confidence ?	Yes	No	?	Yes
80.	At nights are you frequently bothered by the ideas that something or somebody is following you ?	Yes	No	?	Yes
81.	Do you think you are usually unlucky ? ...	Yes	No	?	Yes
82.	Do you sometimes have shooting pains in the head ?	Yes	No	?	Yes
83.	Do you often have a queer unpleasant feeling in any part of the body ?	Yes	No	?	Yes
84.	Are you afraid of getting any disease ? ...	Yes	No	?	Yes
85.	Are you afraid of crossing a bridge over a river ?	Yes	No	?	Yes
86.	Are you frightened by lightning ?	Yes	No	?	Yes
87.	Do you feel that you must do a thing over several times before you leave it ?	Yes	No	?	Yes
88.	Are you troubled with feelings of inferiority ?	Yes	No	?	Yes
89.	Do you often have a feeling of suffocation ? ...	Yes	No	?	Yes
90.	Have you any physical defects ?	Yes	No	?	Yes
91.	Do you let yourself go when you are angry ? ...	Yes	No	?	Yes
92.	Do things get misty before your eyes ? ...	Yes	No	?	Yes
93.	Have you a good appetite ?	Yes	No	?	No
94.	Have you ever lost your memory for a time ?	Yes	No	?	Yes
95.	Is your home environment happy ?	Yes	No	?	No
96.	Have your family always treated you right ? ...	Yes	No	?	No
97.	Since you were five years old have you ever had the habit of wetting the bed ?	Yes	No	?	Yes
98.	Are you frequently troubled with the fear of being crushed in a crowd ?	Yes	No	?	Yes
99.	Are you generally regarded as indifferent to the opposite sex ?	Yes	No	?	Yes
100.	Are you cynical about the opposite sex ? ...	Yes	No	?	Yes

APPENDIX II.

THE VERBAL PROJECTION TEST.

Armatures—

1. While other boys are playing one boy is standing in a corner.
2. A boy is walking in a narrow street looking behind often.
3. A boy is lying on a couch with his eyes closed. Sitting beside him is an elderly man.
4. Figures of two boys standing naked are seen in the darkness.
5. A winding road is between two high hills ; a dim figure is seen in the distance.
6. A girl is walking alone with books in her hands ; Boys are looking at her.
7. Brother and sister are together. A grey haired man is standing near a window with his back turned towards them.
8. Teacher is conducting a class. One boy is inattentive.
9. It is mid-night ; a figure is seen walking in the distance.
10. A boy is standing in a crowded place and is staring at the people.
11. In the operation theatre, a figure is found lying, instruments are there.
12. A boy is clutched from behind by some people, who are not visible.
13. A boy is hesitatingly standing outside a temple.
14. Father and son are facing each other. Father is with a stern face ; Mother is by their side.
15. A boy with books in his hand, is hesitatingly leaving a field where people are ploughing.
16. A boy is rolling in his bed without sleep.
17. Mother embracing her child, kisses it ; father is present. A boy is looking at them.
18. A boy, standing on a bank of a river, is looking at the still waters.
19. A corpse is being taken, a boy is looking at it.
20. A story with a boy as a hero.

APPENDIX III.

THE VERBAL PROJECTION TEST.

Analysis Scheme.

I. Needs—*

1. Achievement.
2. Acquisition (a) Social ; (b) Unsocial.
3. Affiliation.
4. Aggression.
5. Autonomy.
6. Belongingness.
7. Dominance.
8. Excitance.
9. Recognition.
10. Security (a) Harm avoidance ; (b) Infavoidance.
11. Succourrence.
12. Hunger.
13. Sentience.
14. Sex.
15. Play.
16. Sleep.
17. Other needs.

II. Influence of Environment on the Individual—

A. Frustrating :

1. Thwarts, punishes and is harmful.
2. Dominates.
3. Unfriendliness and Rejection.
4. Poverty.
5. Prolonged illness, Physical defect.

B. Helpful :

1. Recognises and accepts.
2. Submissive.

* The kinds of needs are adopted from the list of needs given by H. A. Murray's in his book *Explorations in Personality*, 1938, New york. Oxford University Press.

APPENDIX III—(Contd.)

B. Helpful :—(Contd.)

3. Co-operative and understands the need for self-expression and development.
4. Pleasant and desirable.
5. Loving.

C. Neutral :

1. Mysterious.
2. Monotonous.
3. Indifferent.

III. Reactions of the Individual to the Environment—

A. Unfavourable :

1. Aggressive, hostile, resentful, disgusted.
2. Submissive, dependent, punishes self.
3. Withdraws, escapes, becomes insane.
4. Ambivalent, anxious, fearful, dependent, sorry.

B. Favourable showing self-sufficiency and emotional instability.

1. No conflict.
2. Compensates and sublimates (socially acceptable).
3. Attains.

IV. Adequacy Level of the Principal Characters—

A. Not adequate—Maladjusted.

1. Discouragement and despair.
2. Hate, revenge, crime, rebellion, violence, suicide.
3. Anxiety, fear, insecurity, unhappiness, sorrow, failure.
4. Hardship, deprivation, sacrifice, self-punishment, striving.

B. Adequate-Adjusted :

1. Hope, courage, confidence, faith, curiosity.
2. Love, conciliation, peace, trust, protection.
3. Emotional and physical satisfaction, joy, success, contentment, security, fearless, happiness.
4. Ease, attainment, reward, comfort, encouragement.

A. Unsatisfactory to the society.

B. Satisfactory to the society.

Personality Structure of some inmates of the Madras Vigilance and Rescue Homes *

BY

SHRIMATHY RAJANGAM,

Introduction

The problem of sex has become a topic of vital significance today. In fact, there is hardly any other question which arouses such a wealth of controversy and such a riot of prejudice as this. The reticence that was observed in the past on this subject has now been broken down with a vengeance and, from hearing nothing at all about sex, we are now in the danger of hearing too much about it. Sex is understood and interpreted in many different ways. To the scientist, it is a mere biological fact ; to the eugenist it is a matter of hygiene ; to the moralist it is a question of ethics and to the man in the streets, it is just human nature.

The two aspects of sex, the physiological and the psychological have been explored fairly thoroughly and what is of interest to us as psychologists is the psychological aspect, comprising the normal and abnormal modes of sex behaviour.

The present study deals with just one aspect of abnormal sex behaviour, namely, the sexual abnormalities of women as gathered by a study of some prostitutes and other sex-delinquent girls.

At the outset, the meanings of the terms sex-delinquency and prostitution, as implied in this study, must be understood. Broadly speaking, prostitition is a form of sex-delinquency. But the term " delinquency " is generally applied to offences committed by minors. There are several prostitutes, who have outstepped the boundaries of minority. Besides, prostitution is a more serious social problem than the other forms of sex-delinquency. Generally, prostitutes are found to be more aggressive and promiscuous than other sex-delinquent girls. Sex-delinquents, are supposed here to include illegitimate mothers, concubines and those girls who ran away from their homes. But prostitutes are " those women who sell their bodies for the exercise of sexual acts and make of this a profession " (4).

Aim, Scope and Significance

The main object of the present research is to examine the personality structure of some inmates of the Madras Vigilance and Rescue Homes. Here personality is conceived as a dynamic organization of interlocking cognitive, conative and affective aspects. The physiological and morphological aspects could not be brought within the scope of this investigation due to lack of adequate facilities.

* Based on a thesis approved by the University of Madras for the degree of Master of Letters. The research work was done under the supervision of Dr. G. D. Boaz, Professor of Psychology, University of Madras.

Besides, with the aid of the present inquiry, the investigator has tried to bring out the role of psychological factors in the etiology of such misconduct with a view to providing scientific and effective methods for the rehabilitation of these unfortunate women and giving them a helpful correctional treatment. Incidentally such an investigation will also enable society in general to develop a proper and more sympathetic attitude to these problems.

In undertaking the present study, the investigator is aware of the immense significance of the problem. While many types of studies have been made especially for the purpose of promoting programmes of prevention and of providing better facilities for the treatment of such offences, much needs to be done still to ascertain the basic causes of prostitution and other forms of sex-deliquency. This is particularly serious in our country where work of this kind is meagre.

Since a knowledge of the past influences of a delinquent person is important, this study also attempts to determine how far the background of each offender is responsible for her offence. One of the important causes of sex-delinquency and prostitution is the ignorance of a proper knowledge of the workings of the sex-impulse. The present study shows to what extent this ignorance is responsible for such misconduct and herein lies another major significance of the study.

The investigation has several limitations. The chief amongst these is that the number studied, namely, 100 cases (50 from the Rescue Home and 50 from the Vigilance Home) is not large enough to enable the investigator to draw any valid conclusions. The study, therefore, is mainly of a qualitative nature and is not intended to provide any statistics on the subject of prostitution and sex-delinquency.

Although the reliability and the validity of the tests used could not be found out due to various practical difficulties, the results obtained are still worthwhile because these tests are chosen carefully to suit the conditions of the problem.

The investigation also suffers from a drawback, which is inherant in the subject itself, since it deals with the intimate details of the sex-life of the offenders (as the offenders were all charged for misdirecting their sex-urges). So, there is the possibility of obtaining inaccurate and partial answers to various questions on account of the delicacy of the subject-matter. Still, great care was taken to verify the answers by questioning the subjects in different ways and at different times.

In spite of these short-comings, the investigation has its value, for it is an intensitive study of 100 girl offenders and the results obtained, though of no great statistical value, are quite illuminating. Further, this inquiry is almost the first one of its kind in India and it is hoped that it will pave the way for more elaborate investigations in this field in future.

Place of Study

The Madras Vigilance Home in Mylapore and the Stri Sadana Rescue Home in San Thome, Madras, are the two institutions where most of the investigations were carried out.

The Vigilance Home consists of about 250 inmates below 30 years of age, who were all detained there for violating the rules of the Madras Suppression of Immoral Traffic Act of 1930. Most of them are charged for street solicitation. They are detained in the institution for a certain period usually ranging from 2 to 5 years after which they are discharged and sent out if they want to go.

The Rescue Home consists of about 90 inmates below 25 years of age and they are of four types. The first is the " voluntary " type. Voluntary cases are admitted on the application and recommendation of parents, guardians or social agencies. This group can be sub-divided into the " Preventive " and the " Protective " types. The former are admitted for care and protection, because of bad environment, poor home conditions or apparently loose character. The " Protective " type consists of chiefly those who are illegitimate mothers and whose parents admit them for fear of scandal. The second type are the " kidnapping " cases. These include girls who run away from their homes or are carried away from their people. These cases are usually handed over by the police. The third type consists of girls who come under the category of " certified " cases. These are girls who leave their homes without their parents' knowledge and permission and later, due to delinquent conduct, are certified by the Juvenile Court to be detained in the Rescue Home. These girls are generally of an all-round delinquent character. The last type consists of " rescued " cases. These are girls (usually minors), who are rescued from brothels.

Fifty non-delinquent girls were also studied, mainly, for purposes of comparison. Care was taken to select only those who came from a more or less similar socio-economic status as the offenders. These were not chosen from any particular institution but were scattered throughout Madras. This was an advantage, for the delinquent girls and prostitutes also came from several places.

Methods of Study

The subjects studied are classified into three groups. The first group consists of 50 cases from the Rescue Home ; the second group consists of 50 cases from the Vigilance Home and the 50 non-delinquent girls formed the last group. The girls of the two Homes form the " Experimental " group while the non-delinquent girls form the " Control " group.

Since the major interest of the enquiry centres around examining the personality structure of the offenders, only such methods were employed as would furnish the necessary data. The following methods were used :—

(i) Case Histories.

Case histories of the inmates were easily secured from the records of the institutions. The investigator also asked the subjects to narrate their histories. The histories thus obtained were checked with the record sheets, court records or police records.

In the case of the non-delinquent girls, no records were available and the investigator had to depend entirely on direct questioning.

(ii) Interviews.

These were of a intensive nature taking about two to three hours with each subject. A great deal of useful information was obtained by this method as the investigator was able to establish a close personal contact with each subject.

(iii) Observation.

The subjects were observed (without their knowledge) in their more natural surroundings with their friends, class-mates and teachers. Their behaviour in the prayer-hall, dining room, class-room, play-ground, etc., gave an insight into their personality make-up.

(iv) Questionnaires.

This was the most objective of all the methods used. Here since most of the subjects were illiterates, the questions were read out to them and their answers recorded.

The following tests were given to all the subjects :—

(a) *The Neymann—Kohlstedt Diagnostic Test for Introversion—Extroversion.*

This test is composed of 50 statements, each being followed by the words " yes " and " no ". There is no implication of right or wrong in any of the statements and the subjects are asked to consider them from the view point of personal like or dislike. From the answers obtained, the degree of introversion or extroversion is calculated as a percentage using the scoring key.

(b) *The Personal Social Maladjustment Inventory.*

This is made up of 77 questions each demanding an answer " yes " or " no ". The questions cover twelve traits. The questionnaire is divided into two parts: The first part consists of 40 questions and deals with self or personal adjustment and tests such traits as self-reliance, sense of personal worth, sense of freedom, feeling of belonging, freedom from withdrawing tendencies and freedom from nervous symptoms. The second part consists of 37 questions and deals with social adjustment. It tests the subject's conception of social standards, social skills, freedom from anti-social tendencies, the subject's family relations, school relations, and community relations.

(c) *The Emotional Response Test.*

This is a free-answer test in which the subject is asked to mention three experiences in her past life which had made her happy, three which had made her afraid, three angry, three sad and three ashamed.

(d) *The Moral Ideology Test.*

This is also a free-answer test in which the subject is asked to mention nine examples of good behaviour and nine examples of bad behaviour in a girl of her age.

(v) Intelligence Tests.

Here only performance tests could be given as many of the subjects were illiterates. These tests were used only to make a general comparison and not to find out the I.Q's. of the subjects.

(a) *Alexander's Pass-Along Test* (1).

Here there are nine designs drawn on different cards. The subjects are given red and blue blocks, prearranged in a particular way in a box and are asked to form the standard designs shown on the cards without lifting the blocks.

(b) *Koh's Block-Design Test.*

Here there are 17 designs and several blocks. A specified number of blocks are placed before the subject and she is asked to arrange them according to the design on the card.

(c) *Cox's Cube-Construction Test* (3).

There are three designs here and as in the previous cases the subjects are required to form standard designs.

In all the three performance tests there is a fixed time limit. The subject is asked to stop if she does not finish the test within the time-limit. If in spite of three attempts, a subject does not complete the test, she is considered to have failed. In the case of Block-Design and Cube-Construction Tests, the number of moves are also taken into consideration for scoring.

The subjects were all in the age-group 13 to 26. The majority of them were Hindus. Only some of them were married. Many of them were extremely retarded educationally or were totally illiterate. A large number of them appeared quite healthy and robust, though among them, there were some who were suffering from veneral diseases and other skin diseases.

Before undertaking the present investigation, a pilot study was made. Here several tests were administered to 10 inmates of the Rescue Home and 10 inmates of the Vigilance Home to see whether the tests served the purpose. The pilot study helped to eliminate some of the items which did not evoke proper response. So, the tests described here were those tests which were finally made use of. The results of these tests are discussed in the succeeding pages.

Results

A. *Causes of Sex-Delinquency and Prostitution as revealed by the present Inquiries*

These can be summed up under two broad heads, *viz.*, environmental and personal.

The environmental and personal factors involved in the problem are rather closely linked up with each other and it is some what difficult to distinguish their separate influences. Still it is desirable for the purpose of this study to analyse them separately.

(a) *Enviornmental factors.*

These include the home conditions of the offenders, the influence of companions, neighbourhood and employment conditions, school influences and the effects of recreation.

The home conditions were appalling in the case of most offenders. Homes were poor in every way—physically, intellectually, economically and morally, but of these, the moral degradation was, probably, the most conspicuous. The parents themselves were immoral and in many cases they even induced their daughters to immoral modes of conduct. In some cases, incestuous relationships existed between the father and the daughter. Besides, the relationship between the parents themselves and between the parents and their daughters was of a very undesirable kind.

Next to the influence of bad homes was the influence of companions and gangs. A large number of the girls studied, seldom committed their delinquencies alone. In certain cases, there were regular professional gangs which trained these girls in prostitution.

The effect of neighbourhood and the influence of school were not marked. In fact, many of the offenders had never been to a school at all. Cinema was the only source of recreation for most of the girls. They had no recreation available to them in their homes. This complete lack of recreational outlets at home was, probably, responsible to some extent for the girls going astray.

(b) *The personal factors physiological and psychological :*

(i) Physiological.

Heredity, physical defects and endocrinal imbalance are generally regarded as the important physiological factors involved in the problem. In the present study, some influence of each was observed but the evidence available was not, conclusive.

(ii) Psychological.

Psychological factors have certainly played the predominant role in the downfall of these girls. Their misconduct was in almost all the cases, the outcome of a failure to satisfy certain fundamental needs or urges, such as the wish for a new experience; the wish for security, the wish for response as expressed in love and friendship and the wish for recognition (6).

A close questioning of the girls revealed that many of them had committed their first delinquent acts during their adolescent years. Adolescence, in general,

is marked by biological and psychological changes, each influencing the other. The adolescent girl has a lot of energy for action and the several fundamental needs are felt to a greater degree than before. Naturally, the non-fulfilment of these needs, should in such cases, also be considered seriously. The offenders had some conflict as to whether the impelling urge should be satisfied or not. In almost all the cases, the urge was either forcibly suppressed or (unconsciously) repressed, and as a result, a sense of frustration developed. This in turn gave rise to feelings of inferiority and inadequacy. The subjects tried to overcome or compensate for these feelings by exhibiting an aggressive behaviour. This aggressive behaviour was of three types—directed towards themselves (as in illegitimate motherhood) directed towards others (as in prostitution), and of a general nature (as in other forms of sex-delinquency like running away from home with a lover).

Thus these psychological factors " predisposed " the offenders to various forms of sex-delinquency and led them to the edge of a precipice from where even a slight additional inducement was sufficient to make them fall over the edge.

B. *Personality of the subjects.*

In making an intensive study of the structure of personality in its various aspects, attempts were also made to study some of the outstanding traits of the subjects. A rough outline of their personality development was also obtained with the help of case-histories, interviews, observation and questionnaires.

(a) *Personality-Structure.*

The term " personality-structure " is used here to denote " the dynamic organization of interlocking systems of cognition, conation and affection that each develops through learning processes as a man grows from a biological new-born baby to a bio-social adult in an environment of other individuals " (2).

The cognitive processes here studied included intelligence, fantasy, interests and wishes. Of these, intelligence was given a greater emphasis. The several performance tests mentioned earlier in this paper indicated that the offenders were intellectually quite inferior to the non-offenders.

The offenders, on the whole, were not excessive day-dreamers. Those girls who indulged in day-dreaming mentioned that day-dreams often served them as pleasant escapes from the hardships of reality. Running away from home, cruelty of parents, self-glorification and self-condemnation were some of the contents of their day-dreams.

Many of the offenders had no specific interest or ambition in life. The few who had some aspirations seemed quite unsuited for their fulfilment.

The affective aspects of personality studied included the temperament, the motives and the emotions of the subjects. The Neymann-Kohlstedt Diagnostic Test for Introversion Extroversion revealed that a large number of the offenders

were extroverts whereas the majority of the girls in the Control group were introverts or ambiverts.

Many of the sex-delinquent girls and prostitutes suffered from intense feelings of inferiority and inadequacy. They had had many unhappy incidents in life. They were discontented and extremely disturbed on account of emotion-provoking situations and experiences.

Analysis was also made of certain emotions operating in the subjects under study. Anger, fear and love were given the major importance although feelings of joy, sorrow and shame were also studied to some extent. Information on this matter was gathered through interviews as well as by the Emotional Response Test. While the girls of the Control group showed more feelings of joy and love, the other subjects revealed fear, anger and shame.

A brief analysis was also made in regard to the attitude of the subjects towards sex, love and marriage. The sex-delinquent girls and prostitutes betrayed a complete lack of correct knowledge of sex-matters. Many of the subjects had had pre-marital sexual relations either with strangers or with some one of their close relations like father, brother or uncle.

Homosexual tendencies were noticed in some girls but information on this subject could not be obtained easily. In fact, even the girls who discussed the intimate details of their sexual experiences unreservedly, seemed strangely reticent on the subject of their homosexuality. Sadistic and masochistic tendencies were also present in some subjects.

Most of the subjects were devoid of the loftier aspects of love. They were callously selfish and had no sense of loyalty either towards their husbands or towards their lovers. Even their attitude to marriage was coloured by similar selfish motives. They cared for their husbands only so long as the latter were able to provide them their various needs. The maternal instinct seemed totally absent in many of the girls. They wanted sex relations but did not wish to be bothered by children. They felt that having babies made them less beautiful, less free, more tired and more responsible and so regarded them generally as a nuisance. On the whole, the maternal instinct, seemed eclipsed by the sex-instinct.

The conative aspects of personality studied included those aspects of the behaviour of the subjects which were modified by their adjustment or maladjustment and were governed by their code of ethical values. To find out the degree and nature of adjustment or otherwise, the Personal Social Maladjustment Inventory was administered to all the subjects. The results showed that the offenders were clearly far more maladjusted than the girls in the Control group. Even among the offenders themselves, the inmates of the Vigilance Home revealed a greater degree of maladjustment than those of the Rescue Home. While the offenders were more maladjusted in the social sphere than in the personal, the reverse was the case with those in the Control group. Of the traits which make up personal adjustment,

the offenders appeared to lack self-reliance and a sense of personal freedom. They also exhibited maladjustment in their family relations. Many of them showed anti-social tendencies too.

In order to determine whether the subjects had any conception of what was right and wrong and whether they were able to judge similar acts and to find out their behaviour when they were required to pass judgments on similar actions in others, the Moral Ideology Test was employed.

In general, the inmates of the Rescue and Vigilance Homes usually mentioned those bad traits which they had while they gave those good traits which they did not have, but admired and liked to have. For example, non-interference and non-quarrelsomeness were often given as instances of good behaviour, while quarrelsomeness, homosexuality and stealing were given for bad behaviour. The offenders generally identified themselves with girls of their own age upon whom they projected their good and bad traits. On the other hand, this attitude was present only to a small degree in the girls of the Control group, who seemed more objective and impersonal in their judgments.

In spite of the extreme variations and strangeness in responses, the inmates of the Rescue and Vigilance Homes did show some discrimination between good and bad behaviour.

(b) *Some Outstanding Personality-traits.*

Most of the offenders were extremely emotional and impulsive. In fact, their misconduct itself was the result of an impulsive act, which rarely possessed any cognitive element. Further, irrespective of their mental status, the delinquent girls and prostitutes were found to be egotists. They were, therefore, naturally irritable and extremely short-tempered. They were also selfish, vain and quarrelsome. Some of them stole, some uttered lies often and some others wished to become notorious. Many of them were fond of luxury and easy living. They were lazy, secretive, pessimistic, assertive, irrational and extremely suggestible. Almost all of them lacked sincerity. Many of them had no ties or attachments in their lives.

(c) *Development of Personality.*

In studying the sex-delinquent girls and prostitutes, it was noticed that the development of their personalities did not take the normal or natural course. The development was, in several ways, undesirable.

When the childhood of these girls was analysed two groups were recognized. In the first group were those few girls, who had fairly good records as children. Their parents or guardians said that they never gave much trouble during childhood. in the second group came many girls who had a bad record as children. From early childhood they showed some difference between themselves and their siblings. They were exceedingly egoistic, quarrelled with other children in the house, broke

things and beat their playmates. They did not show love or even affection, but were always trying to get what they saw and liked. Love or affection did not make them happy or joyful, but when they obtained the things they were after, they were full of joy and secluded themselves to enjoy what they had obtained. They were always markedly selfish and showed wild temper.

In these cases, the ego, in Freudian terms, was still under the dominance of the pleasure-principle and for this reason impulses were acted out more easily than in a person whose ego was governed by the reality-principle.

To the query why normal development did not take place in these girls we have the answers as follows :—

These girls suffered deprivations of love in infancy as well as later on and henceforward their behaviour was an attempt to satisfy these unfulfilled needs. It is now generally accepted that the deepest psychological need of the young child in its early years is for an inner emotional security such as can only be maintained in the presence of steady and persistent parental protection and affection. The child learns to trust and love in return and to meet life positively and with confidence. Where it is lacking, or more accurately, where the child *feels* it to be lacking, there may follow one or other of a whole series of psychopathological reactions of great import for subsequent mental health or social stability as an adult.

This deprivation of love and care in the lives of the offenders accounted for their inability to plan for or postpone gratification of their desires and also for their hostility and aggressiveness. This was also the cause of another feature of their personality, which was found in the lack of durable intimate relationships in their lives.

Delinquents and prostitutes are often spoken of as having a weak super-ego, because they do not show the usual response to loss of approval and threat of punishment. This can be understood in the light of the delinquents' discomfort in the presence of love and intimacy and their relative comfort when they are the recipients of harsh treatment. This had come about because of a lack of experience of love in their lives.

On the contrary, in the Control group, there were striking evidences of influential ties to some person, nearly always a parent, whose esteem was desired and was obtained and retained if the child remained non-delinquent. The importance of building-up standards through such relationships can hardly be over-rated.

Another feature in the history of the sex-delinquent girls and prostitutes must be mentioned because it occurred with such a surprising frequency that it might possibly have been one of the pre-requisites for the development of their misconduct. It concerned a situation in which the girls were exposed to some injustice on a reality-level. It is conceivable that the delinquent was exposed to a kind of trauma. For instance, some of the girls studied reported that even though they were honest and obedient, their parents or other relatives would

always criticise them unjustly. These girls were greatly disturbed when adults expressed doubts about their behaviour. Nothing angered these young individuals (particularly in the adolescent stage) more than to be warned about or accused of indiscretions of which in fact they were not guilty. Such a lack of good faith in them threatened to break down their repressive defences and lowered their sense of self-esteem and the feeling that they should do the right thing. It suggested an alternative mode of behaviour which at their age frightened them. Not getting the attention they really deserved, they vowed to do that thing of which they were not guilty of but were unjustly accused. In this way, they tried to gain the attention which could not be secured otherwise.

It would seem that the essential feature of this life (of delinquency and prostitution) is an existence without a goal or an existence indifferent to goals. This had come about because for many of them, possible goals had been cut off, by social barriers ; for others, by psychological or biological limitations. Originally, for most of them, these limitations appeared as frustrations. Prolonged frustration led in turn to prostration, resignation, apathy and purposeless behaviour. At length, goals were forgotten and were no longer a part of reality. Internal motivation for behaviour vanished, and behaviour became simply an attitude or condition.

Conclusions

The investigation showed that, like any other psychological disorder, such as neurosis, the several causes of sex-delinquency and prostitution could be brought under the following four-fold scheme :—

(1) Predisposing causes ;
(2) Precipitating or Exciting causes ;
(3) Factors leading to symptom-formation ; and
(4) Maintaining causes.

Unhealthy home-conditions formed the predisposing causes. Even though the second and third factors could not be clearly distinguished, the fulfilment of needs (affectional as well as economic) and biological predisposition (like extreme passion) were the factors which led to the delinquent act or prostitution while the other environmental factors formed the precipitating factors. Then, the factors of persuasion, physical disability, extreme laziness on the part of the subjects coupled with their vanity and love of luxury and fear of social stigma were the maintaining causes.

It was brought out that intellectual inferiority was not solely responsible for the misconduct of the offenders ; nor were these girls " moral imbeciles " as regarded by earlier investigators in this field. It was an inadequate development of the affective processes which was at the root of their misbehaviour. The development of the emotion is the most important aspect in the development of personality.

In the girls under study, the development of the emotion was found to be far from good. Though an analytical examination into the lives of these girls could not be carried out, it will not be absurd to venture the hypothesis that these girls were emotionally infantile and their misconduct was more or less a direct consequence of their emotional immaturity. It was noticed that when they committed the delinquent act, they were under the power of emotions and that during the deciding moment, the intellect played no role whatsoever, nor did their sense of moral values come to their rescue.

REFERENCES

1. ALEXANDER (1935). *Intelligence : Abstract and Concrete.*
2. N. CAMERON (1947). *The Psychology of Behaviour Disorders, p.* 16.
3. M. COLLINS and J. DREVER (1949). *A First Laboratory Guide in Psychology,* 134—136.
4. ELLIS HAVELOCK (1924). *Sex in Relation to Society.* 224—226.
5. R. J. HAVIGHURST and H. TABA (1949). *Ed. Adolescent Character and Personality.*
6. W. I. THOMAS (1923). *The Unadjusted Girl.* 4—40.

Edited and Published by Dr. G. D. Boaz and Printed by M. G. Daniel at Thompson & Co Private Ltd (Minerva Press) 33 Broadway Madras 1

MADRAS PSYCHOLOGICAL SOCIETY

EXAMINATION BUILDINGS

MADRAS 5, INDIA

OFFICE BEARERS (1956-57)

President :	Dr. G. D. BOAZ
Vice-President .	Dr. S. P. ADINARAYAN
	Dr. (Miss) J. F. FORRESTER
	Major S. PARTHASARATHY
Secretary :	Dr. T. E. SHANMUGAM
Associate Secretary :	Mr. C. R. PARAMESH
Treasurer :	Mr. M. NOORUDDIN

Executive Committee Members :

Miss R. I. BEDFORD
Mr. C. T. PHILIP
Mr. S. RAMANUJAM
Mr. P. RAMA RAO
Mr. S. SATTAR MIAN
Mr. H. T. SCHUELKE
Mr. M. VIVEKANANDA

Membership is open to graduates in Psychology, Education, Sociology, Anthropology and Medicine. Membership fee is Rs. 6/- per annum which includes free supply of Journal. Others interested in Psychology may become associate members by paying Rs. 2/- per annum.

Register No. JANUARY 1957

JOURNAL OF PSYCHOLOGICAL RESEARCHES

Issued Thrice A Year

(JANUARY, MAY AND SEPTEMBER)

THIS JOURNAL PUBLISHES ORIGINAL INVESTIGATIONS CONTRIBUTING TO THE ADVANCEMENT OF PSYCHOLOGY

Annual Subscription :

Rs. 10/- (for non-members of The Madras Psychological Society Institutions & Libraries, in India)

Single Copy Rs. 4/-

£ 1 (for Sterling areas)

$ 3/- (for Dollar areas)

(Subscription payable to the Treasurer, Madras Psychological Society)

PUBLISHED BY

THE MADRAS PSYCHOLOGICAL SOCIETY

UNIVERSITY EXAMINATION BUILDINGS

MADRAS 5 — — INDIA

Edited and Published by Dr. G. D. Boaz and Printed by M. G. Daniel at Thompson & Co. Private Ltd (Minerva Press), 33, Broadway, Madras 1