THE DESCRIPTION OF PERSONALITY. I. FOUNDATIONS OF TRAIT MEASUREMENT

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I. The Present Barrier in Descriptive Psychology

In spite of the impressive accumulation of data on personality in relation both to environment and heredity, advances in exactness of prediction or depth of theoretical understanding have shown a distinct lull in the past few years. It is as if the forces of research, while advancing by sheer pressure of numbers on the flanks, have been held up in the centre by an impassable bridgehead. The bridgehead controls transition from the habit of defining personality in the vague terms of popular speech to the practice of using exact and measurable variables based on clear theoretical conceptions. The present paper is a contribution to this transition.

Measurement of a kind—leading even to impressive statistical treatments—admittedly exists. But a closer examination shows the figures to be specious and lacking in some or all of the characteristics required of true mensuration. The proponents of measurement in this somewhat shadowy world of personality qualities stake their defence on the well known dictum of Thorndike (29) that "whatever exists, exists in some quantity, and can therefore ultimately be measured." Unfortunately the optimism engendered in some psychometrists by this excellent statement blinds them to certain basic conditions of measurement, notably to the rule of elementary algebra that added units must be of the same kind. Therefore our first step must be to emphasize that measurement can only follow upon the correct recognition and definition of qualitative characters, *i.e.*, upon advances in descriptive psychology.

Because of the demoralizing disappointments which have beset the prosecution of descriptive psychology—in attempting to describe the stream of consciousness, in 'faculty' psychology, in the *Gestalt* and the *Geisteswissenschaftlich* approaches, and even in some aspects of factor analysis (**12, 18, 25**)—it seems necessary to rally effort at this point by reiterating the obvious truth that personality research depends entirely on the soundness of personality description and measurement. For, stripped of particularities, all research methods consist of just this: measurement of personality at a given moment, followed by lapse of time or application of certain influences, and finally remeasurement. Consequently the ability to deal with morphology is a prerequisite in inquiring about growth and function. This is but another way of saying that the genotype can be understood only through studying the phenotype. Or again, looking at the matter from the mathematical standard of degree of accuracy, it may be said that the precision of predictions about the growth and dynamic interactions of traits is limited by the exactness with which personality can be described and measured in cross section, *i.e.*, statically.

This primary importance of description is not always adequately realized or accepted. For the starkness of the above methodological form is commonly hidden by complications. And occasionally the canon that description is primary may seem completely flouted, as when one observes the great progress achieved by psycho-analysis in understanding dynamics, in spite of its having been singularly negligent of description and measurement. But the contradiction is only apparent, for in fact the technical level attained by psychiatry in sheer description of psychotic and neurotic syndromes far exceeded that of psychology in detecting and classifying individual differences in normal subjects. Freud was able to clarify the mechanisms of hysteria because he could recognize when the hysterical syndrome became intensified or reduced; whereas the psychologist found out little about the origins of, say, suggestibility in children, because he was not able to delimit the trait of suggestibility. The law that nosology precedes etiology is not easily broken.

II. Present Frontiers in the Progress of Trait Definition

The contribution of this paper to the problem of personality description is, specifically, the propounding of a new hypothesis concerning the nature of traits and the description, in outline, of a methodology for the empirical determination of trait unities. It thus prepares the ground for trait measurement. The paper follows an earlier article (8) tentatively clarifying certain personality concepts, and precedes, as a theoretical introduction, two experimental researches (9, 10).

Reviewing the present position of trait theory, no one can doubt that the most widely accepted hypothesis, especially in educational, clinical, industrial and other branches of applied psychology—in which rating scales flourish—is that personality can be described in terms of discrete if not independent traits. By adopting the creed that traits are single functional entities, alike and comparable for different individuals, the psychometrist is enabled to pursue, without any sense of sin, the practice of converting merely qualitative into scientifically quantitative description. Factor analysis also subscribes to this hypothesis, but it can claim that its sins of assumption, if they exist, are small ones; for its major independent factor traits are built empirically on a foundation of many minor traits, each of which, as a trait, is so narrow and specific that no great assumption is made in presuming its unitariness.

This facile theoretical concession to the practical convenience of applied psychology has not, however, remained unchallenged. Psychologists of many different backgrounds have protested that (1, 32) independent traits do not represent the true structure of personality or have questioned the alleged range and consistency of the traits employed (20, 27, 28). But the urgencies of practice seem to have brushed these theoretical objections aside as so much hair-splitting. Indeed, as often happens, the sheer volume of applied psychological publication seems to have crowded more subtle argument from the field of discourse, to the extent that a casual reader might easily gain the impression that the critics,

rather than the proponents, of atomic traits, are intellectually in hiding.

Those who are concerned to go beyond the use of traits merely as counters, who wish to examine them more closely and who insist that realism must have priority over convenience or theoretical systematization, we may call, for this discussion, 'naturalists.' As representative of naturalism and of the advances that can be made by shrewd observation and insight, we may take the position of Allport. He begins by recording the important phenomenological difference between unique traits and common traits, saying (1, p. 297), "Strictly speaking no two persons ever have precisely the same trait" for, "What else could be expected in view of the unique hereditary endowment, the differing developmental history, and the never repeated external influences that determine each personality?" On the other hand, he argues, heredity and environment are sufficiently alike for the majority of people in one culture to give substantially the same form to the behavior of mature adults in many fields of quantitative individual difference, *e.g.*, in dominant-submissive behavior, or radicalism-conservatism. In this way arise traits which, by contrast to the above, may be called 'common traits.'

The view that all traits are essentially unique, but that uniqueness approaches asymptotically the state of commonness, is an indisputable conclusion alike of common sense and clinical observation.[1] By this view common traits would be measurable, in terms of a common direction and common units, but unique traits would not. Actually the mathematical psychologist can claim that unique traits are measurable in units unique to the individual, but this is rather a Pyrrhic conquest for measurement.

Allport's second division of traits follows one made by Stern (**26**) between driving traits (*Richtungsdispositionen*) and instrumental traits (*Rüstungsdispositionen*), which traits, for

[1] In agreeing with this view the present writer does not also subscribe to Allport's criticism that factor analysis is incompatible with giving uniqueness to the individual. As Guilford (14) very lucidly argues, the uniqueness exists in the combination of common factors. There are uniquenesses in Allport's sense, nevertheless, which escape representation by common factors.

conformity with modern terminology, are called respectively motivational and stylistic traits. The nature of the unity underlying these traits differs, the former being teleonomic (*i.e.*, resident in common teleology, dynamic root, purpose or goal of the parts) and the latter stylistic (*i.e.*, resident in a likeness of the parts with respect to the *way* in which an end goal—of any kind—is striven for).

If space permitted, a preliminary review of the present positions in regard to the nature of traits would illustrate also the comparatively naive orthodox nomothetic view (**3**, **18**), the view that there are not traits but only specific habits, a position closely associated with stimulus-response psychology (**28**, **32**), the Gestalt view (**4**, **19**), and the empirical statistical view that a trait exists where the intercorrelations of trait elements form a cluster of high values, *i.e.*, when there is an 'operational unity' (**13**, **15**, **31**). The utility of these views will be discussed explicitly or by implication below.

III. The Nature of Trait Unities

At this point we propose to describe the kinds of unity or integralness which, on a wide variety of psychological grounds, can be argued to constitute the possible binding unities in the elements of behavior. We shall discuss both the conceivable kinds of trait unity and the kinds which are actually implicit in some thousands [2] of trait terms in general use. Finally we shall ask which of these unities are real and which fictitious or misleading. In the ensuing section we shall try to determine by what methods of empirical observation these various types of true unity may be detected.

Any given unity is constituted by an integration of smaller behavior elements, which we will call 'trait elements' and the atomic nature of which, for the moment, may be assumed, by reason of their being the result of repeated subdivision. The words trait and syndrome are, therefore, used interchangeably

[2] The list in question is that of Allport and Odbert (3) compiled from Webster's dictionary, and the present comments arise from a detailed study of it in connection with a further research (9).

here, both being larger aggregates of putative elementary pieces of behavior.

The trait unity classification at which we arrive has six categories, as follows.

1. *Dynamic (teleological, teleonomic, motivational) unities.*— This form of unity is Allport's and Stern's directive unity, in which the parts are integrated by the fact that they all lie on the path to some one goal of the organism. They have a common purpose. A very appreciable proportion of the more important traits in trait lists [3] fall in this category, including the definitely 'dispositional' (21) traits, *e.g.*, timidity, amorousness, assertiveness, acquisitiveness.

It is at first surprising that although language is well supplied with trait terms corresponding to drives with a relatively generalized goal object, such as needs, propensities or ergs of any kind (8), it is practically mute with regard to terms for the dynamic, teleological unities centering upon special, immediate, local objects of the environment. These latter unities are sentiments, attitudes and complexes acquired in the individual life of the subject and may be covered by the categorical label 'metanergs' (8). It may be that these dynamic attachments of mixed ergic origin are generally too narrow, transient or unimportant, either from the standpoint of the single personality or of society, to earn a denomination. Yet to decide that they can be thus dismissed because language ignores them is too temptingly easy, and, to judge by clinical experience, quite fallacious. It is most likely that their great variety alone accounts for the failure of language to crystallize terms. For where we find a sentiment unity, or even a comparatively superficial attitude, that has some claim to being a common trait there is usually a term for its presence, *e.g.*, patriotic, domestic, communist, fatherly.

This discovery that traits are to be found corresponding

[3] Murray's scheme (22) for rating individuals according to 'needs' is based on just such an assumption of unity of behavioral intention or goal. The methodology suggested later in this article should be capable of revealing the exact boundaries of these important intentional unit systems and of deciding, for example, whether Murray's fifty-one needs, or McDougall's sixteen propensities, or some other approach to ergs most correctly depicts personality structure.

to sentiments as well as to native ergs or propensities, reveals that there are two senses in which the term 'dynamic trait' is actually employed. Rating an individual for an ergic trait, *e.g.*, a need, requires an act of abstraction, which infers the strength of a construct from analysis of a number of actual sentiment manifestations. Certain sentiments may be, among other things, manifestations of, say, acquisitiveness and the observer sums them from this aspect. The unity, in short, is imposed by the observer—though along lines indicated by biological and other considerations as to the nature of this potential structure, the erg. It also resides in the quality of satisfaction, as introspected by the subject.

On the other hand, the *actual* unities in the dynamic structure of personality, the sentiments, formed by conditioning etc., enjoying some degree of functional autonomy in their attachment to particular objects, are derived from diverse ergic roots. Without conditioning and all the environmentally determined processes of sublimation and aim-inhibition, these latter structures would not exist. Their existence makes it necessary to speak of two kinds of dynamic trait unities: (1) Those unified about a real object. They may be called *metanergic* dynamic traits; (2) those unified about a perhaps never attained and frequently never conceptualized biological goal, and which we may call *ergic* dynamic trait unities.

In view of the uniqueness of sentiments and of their ergic constitution, it might be contended that psychology, like language, should concern itself little with metanergic dynamic unities. But the clinician may reply that individual differences in ergic endowment are less important than differences in manner of cathexis or object attachment of these drives.

2. *Social mould (environmental demand) unities.*[4]—Many trait terms point to a unity from the standpoint of society's needs or as occasioned by the pressure of the environment rather than from that of the individual's ergic goals. For

[4] 'Environmental mould' would be more correct, because more comprehensive. But it is more cumbersome, and the great majority of such traits seem to be socially rather than physically moulded.

example, society needs, in certain fields of the individual's total activities, the quality of honesty. Educational pressure is brought to bear creating a number of specific habits, each of which is directed to the common social purpose of ensuring public honesty. These behavior elements may be attached to quite diverse dynamic systems within the individual, *e.g.*, to affection, fear or self assertion, to patriotism or filial loyalty. Such unities will arise when the press of the environment tends to act with equal strength with respect to all the elements demanded, as in a mould or die press. Thus with respect to honesty, if the individual has lived in a good environment he will have been strongly pressed for all kinds of honest behavior, whereas if one kind of honest behavior has been neglected in his upbringing it will be likely that all the rest have had an equally faint imprint. Consequently, as between individuals, the trait elements will vary together, and in one individual, will be united by common origin and fate, notably common rate of extinction, depending on common age of formation.

Traits which are largely social-environmental mould unities are conscientiousness, courageousness, trustworthyness, tactfulness, cynicalness, charm, superciliousness, humaneness, selfishness, general inhibitedness (one form of introversion?) religiosity, etc. It may be generalized that *they are largely traits for which there are opposites in the dictionary*, whereas this is not true of dynamic traits, at least of the ergic kind. Except where the opposites represent reactions against society's pressure they are generally merely colorless refractory or inertia states, *e.g.*, cowardly, untrustworthy, lacking in charm.

Most social mould patterns appear to have a name, but not all socially evaluated forms of behavior covered by a name need issue in a real pattern in behavior, as the fifth category (below) shows. Social moulding and conscious social recognition and labelling are not the same. The unity of the trait elements is one of common variation, the conscious social purpose being a common but not an invariable or basic character of the unity. It is conceivable and likely that many social and environmental mould traits exist for which

there is no name or social recognition, *e.g.*, a set of acquired habits may distinguish the good pedestrian from the bad pedestrian, or the citizen experienced in undergoing bombing from the inexperienced. With traits that develop through moral and educational exhortation, however, it seems likely that a better unity of the elements will arise when a trait name exists and the social need which it meets is explicit, conscious and educationally supported. Even then the unity may nevertheless be of a low order, because the term is differently understood by different educators and because punishment and reward do not always act in the area perceived only by the educator. Punctuality, for example, may be conceived to apply to different patterns of situation in different social groups (**13**), and even in the same social group the individual may be most heavily punished for something which never entered into the concept, *e.g.*, not appearing punctually for dental check-ups. On the whole, therefore, the common possession (covariation) of elements in the unity will not be great (**13**, **15**). Incidentally we may note that in so far as social mould traits form part of a single culture pattern they will also be related (*i.e.*, not statistically independent) in the individual, *e.g.*, if a culture demands of the good citizen, among other things, politeness and courage, the elements of each may show nearly as close an agreement with those of the other as among themselves.

A few social mould unities will also be quite highly developed dynamic unities of the second, acquired type (sentiments), but, as indicated in the last paragraph, there will be some social pressures which are the same for all people yet which are never verbalized enough to be conscious sentiments or sufficiently centered on a single object to be unconscious sentiments. For some purposes the making of a distinction between conscious and unconscious social mould unities might be useful: the former would commonly have some degree of dynamic organization as sentiments; the latter would be collections of discrete attitudes and habits.

3. *Constitutional, non-dynamic (temperamental) unities.*— There exist behavior elements united in a common variation

and common fate because they spring from some unitary constitutional endowment of the organism, which, however, is not of a dynamic teleological nature. The endowment concerned is one of physical energy, nervous sensitivity, fatigability, reaction-time speed, susceptibility to inhibition, or some other unitary character not imposed by the environment. Although the unitary character does not reside in the environment the behavior elements are, of course, an interaction between an heredity and an environment, and in some cases the role of the environment is evident in provoking the emergence of the pattern even though it plays little or no part in deciding the nature of the pattern, *e.g.*, in hereditary psychotic unities, as when manic depressive disorder is precipitated by environmental stress or epilepsy by a tumor. In a true constitutional trait, environment, in so far as it affects it, affects it as a whole. Prolonged excessive demands on the part of environment might reduce the trait of 'energeticness,' or disease (*e.g.*, myxedema) might affect general speed of response. On the other hand the 'general inhibition' or 'introversion' produced by an unduly punishing environment should be distinguishable from that general inhibition and introversion due to constitutional sensitivity by the fact that the former has a restricted pattern, depending on the elements of the environmental mould which have been repressive. Furthermore the constitutional trait will be more common and similar for all individuals, in so far as human genetic endowment is more uniform than are cultural patterns and accidents of upbringing.

Contingently the following may be thought of as illustrating constitutional unities: excitability, extraversion-introversion (in one usage), intelligence, manual dexterity, general inhibitableness, general emotionality, somatotonia, goodness of retention, and some psychotic and neurotic syndromes.

4. *Co-nascent (developmental, emergent) unities.*—A basis for classification which naturally occurs to one in thinking over the principal grounds for the classification of living objects and their characters is that of age and development. A trait would then be considered unitary if its parts emerge

at the same time, ontogenetically or phylogenetically. Incidentally the word co-nascent is employed because both 'developmental' and 'genetic' would be misleading. All traits develop, and genetic is best used as synonymous with 'hereditary.' Actual trait names of this class are to be found, though they are rare, somewhat anomalous and not particularly important. We find 'infantile,' 'adolescent,' 'mature' and 'senile.' 'Beastly' and 'monkey-like' perhaps illustrate the phylogenetic usage.

Syndromes of this type will be found to be in essence either of a constitutional or of an environmental mould type (almost invariably lacking dynamic unity), but possessing the added peculiarity that their parts emerge together. This historical 'accident' may be an aid in calling attention to the unity, but it does not add anything to its structural nature. Probably the greater proportion are unities of a constitutional variety, *i.e.*, syndromes determined by the constitution of the organism, *e.g.*, 'senility.' Some, however, *e.g.*, adolescent, as Mead's studies of adolescence in different cultures show, are combined products of the environmental mould and of environmental provocation of patterns intrinsically constitutional. There is thus no reason for considering con-nascence as an additional *essential* category.

5. *Logical* (*stylistic*,[5] *evaluative*, *semantic*) *unities*.—This category is suggested by Allport's stylistic trait (1), but extends much more widely. He contrasted such traits with dynamic traits, for the former describe the individual's characteristic way of working toward some goal whereas the latter are labelled by the goal itself. Examples are: forceful, polite, dainty, gruff, eloquent, direct, debonnaire and ceremonious.

[5] In certain cases the stylistic type of logical trait *may* be or may have been part of a dynamic unity. A trait such as politeness may have begun as an instrumental habit in a dynamic trait. And, since functional autonomy is never complete, even in the aged and rigid, the persistence of the style indicates some reinforcement and reward, however obscure. Stylistic traits in Allport's sense in fact would be variously classified here. Some are dynamic, some a result of a pattern of early training (social mould) and some may even be constitutional. When they are dynamic, however, they are mainly brief instrumental habits and skills which can be variously employed in the service of major traits. The majority of Allport's instances, however, seem to be logically bounded, in the above sense.

These traits have no claim to functional unity. Primarily the unity is an evaluative one, existing in the mind of the observer. Now this is only a special case of those perceived unities in which the classification of the elements together is performed on some purely logical basis, divorced from any intrinsic, functional unity. The logical bases may be very varied. The elements may be classified together because they have the same style, speed, social effect or purpose, moral valuation, aesthetic character, etc., etc. If they have the same social effect or purpose, *e.g.*, evoking friendly responses, performing services with respect to machinery, they may secondarily, as a result of the social response to them, acquire some functional unity, in which case they are also true unities—social mould unities—but this is comparatively rare. However, practically any basis of abstraction in the mind of the observer is likely in some special situation to have some practical use, so that every logical category is potentially a functional category. This point is developed below.

Examples of this wider logical unity are very common among trait terms. Many of the earlier (and, unfortunately, some of the later) 'special aptitude' categories in vocational guidance are purely evaluative, *e.g.*, clerical aptitude, social intelligence, and have no demonstrated functional, psychological unity in any of the above three senses. Personality traits such as trustworthy, obnoxious, decent, formidable, exhausting belong in this category.

An extreme variety of evaluative unity, in which even logical coherence is lost, occurs with what may be called semantic or etymological unity. Here the elements are bound by nothing more than the social habit of referring to them by the same name. This is the least excusable of the hypostatizations which some psychological critics so strongly deprecate. Pure instances are rare, but some degree of arbitrary, verbally-imposed unity may be suspected in such traits as lady-like, chauvinistic, Falstaffian, Prussian, Babbitt-like and bourgeois. The origins of these counterfeits seem to lie in a term having survived an historically real type, or in

etymological accidents, or in the far-fetched metaphorical usage of a term accurate enough in its own context, *e.g.*, 'musty,' 'flabby,' 'asthenic,' 'acrid,' 'lionlike.' As Zola's description of the Parisian woman or Kipling's description of the empire builder is said to have helped create the type, so these fictions may conceivably also provoke corresponding real functional unities (social mould .type), in this way resembling the true logical trait categories.

6. *Miscellaneous forms of trait unity.*—The kinds of unity according to which trait elements *could* be grouped in unitary traits are presumably unlimited. Classification could be made, for example, according to such bizarre features as the relative frequency of use of various motor organs or according to the alphabetical order of the stimuli which evoke the trait elements. Our task has been, however, to discover the senses in which the term trait is already implied by its dictionary examples, and to ask which of these or other senses are psychologically meaningful or desirable. The existing usages which remain to be surveyed are few or unimportant. Chief among them is the view that traits might be named by the stimulus situations which evoke them or the kind of response habit by which they are expressed.

Like most attempts at scientific description in terms of stimulus and response—neglecting that third class of variable, the state of the organism and its drives—this view seems to have fitted reality too poorly to have produced verbal symbols capable of standing the test of usage. One may track down such apparent instances as 'alcoholic,' 'music-loving,' 'mechanically-minded,' 'sailorly' or 'fond of gardening,' in which the stimulus situation labels the trait. But closer examination shows one is being deceived by the ambiguity which constantly dogs the term 'stimulus,' giving it at one time the sense of an initiating situation and at another the sense of a goal symbol. In so far as it is the latter, the labelling by a stimulus is not different from that labelling by goal which is characteristic of all dynamic traits. Indeed the above instances are seen to be metanergic (sentiment) dynamic unities.

These instances of relatively specific sentiment systems invite a discussion of the view that there are no 'traits' but only specific habits. As a representative of this view we may take Weiss, who, criticizing the habitual hypostatization of the nomothetic psychologists, says, regarding manifestations of the alleged trait 'benevolence': "From the sensorimotor standpoint these actions are all different, but because they have the same biosocial effect they may be classified as having . . . equivalence . . ." (**32**, p. 305). We argue, in opposition to his insistence on the sensorimotor standpoint, that it has been found of no use where traits are concerned. The widest variety of sensorimotor connections may be employed in the service of a single trait.

Occasionally one encounters instrumental sensorimotor habit systems, *e.g.*, auto-driving, footballing, verbal eloquence, chain smoking, or others of a more individual and unverbalizable kind, such as have been called 'actones,' skills and, sometimes, attitudes, which have reached such a degree of development that they are important enough to include in the category of metanergic dynamic traits. They are, however, so frequently attached as servants to some larger sentiment or complex integrate, or available for interchangeable service in the interests of a variety of sentiments and purposes, that they can scarcely rank as dynamic traits in themselves and belong rather in the realm of motor skills.[6]

The last conceivable criterion of trait unity which we have to consider is by no means the least, and has been left till last because it requires extensive discussion, running through the rest of this article. It is embodied in the view that the only real unity of trait elements lies in their correlating positively together in a 'cluster' or mathematical 'factor.' This empirical view has been uncompromisingly stated by Thurstone, in an article criticizing "The traditional methods of dealing with these complexities (trait structures)" because they "have

[6] The restricted trait spoken of here seems to be identifiable with Hull's (16) 'habit family hierarchy' defined as "a group of two or more habit sequences all of which may be initiated by a particular stimulus and terminated by a particular reaction."

been speculative, bibliographical or merely literary in character" (30, p. 2).

The view that traits are only to be discovered by empirical studies of covariance is strongly maintained and developed in all the following discussion. But it is equally strongly disputed that the definition of a trait merely as a mathematical factor or, still more inadequately, as a simple cluster of correlating elements, is defensible.

Our solution to the problem of traits is thus to recognize that several—basically three—distinct types of trait unity exist. Now in the past much discussion of the nature of traits and the methods whereby they might be investigated has been dogged by the misleading and often unconscious assumption that they are all of one nature, or that only one kind of unity matters. A consideration of something more tangible, say agricultural implements, which may be classified according to color, weight, cost, place of manufacture, agricultural function etc., each grouping having some utility and some groupings being more universally functional than others, will suffice to remind one that organization is relative to a purpose.

For most clinical work dynamic traits and constitutional traits seem to be of primary importance. In education there is relatively more attention to social mould traits. In personnel selection and vocational guidance, as already pointed out, the logical, evaluative trait has enjoyed great popularity. Such traits, *e.g.*, clerical aptitude, consist of functionally unrelated elements of behavior which happen to have in common certain social or physical effects. But even the logical unity may be false, for the trait in question is often philosophically hard to define. Does honesty, for example, include aesthetic and intellectual honesty? Each psychometrist draws his own 'logical' boundaries for the trait he is testing, turning applied psychology into a Tower of Babel.

Even if this difficulty were overcome, through agreement to define traits by fiat, the logical type of trait unity would remain an undesirable and unreal one. In this matter the

pure psychologist is at the moment being more practical than the practical psychologist who favors such traits. For although a test of, say, sociability, leadership or clerical aptitude, made up of a farrago of unrelated behavior elements falling in anyone of these fields, may tell us about the individual's behavior, from the evaluative standpoint of society or vocation (as the psychologist sees it), at that particular moment in that particular field, only measures of the real underlying unities of a dynamic, constitutional or social mould type can enable us to generalize about the person's performance in modified circumstances or to predict performance in years to come.

From this discussion it follows that there are only three kinds of unity which are truly intrinsic and functional (in respect to one or more senses of functional), namely, (1) dynamic trait unities, (2) constitutional trait unities, (3) social mould trait unities. For some social purposes it is useful also to consider logical trait unities.

IV. Basic Methods in Determining Trait Unities: The Case of Dynamic Traits

Accepting the viewpoint that the task of personality research is to investigate not one, but several kinds of trait unity, by the combination of examples of which the personality can be described, we may now ask how these unities are to be experimentally discovered. That is to say, by what methods may the boundaries of dynamic, constitutional and social mould traits be explored. (The boundaries of logical trait unities can, of course, be arbitrarily fixed.)

Let us admit at the beginning that the methods by which psychology—behavioristic psychology—*establishes* causal or functional connections are in essence no different from those of other sciences. Introspection, as involved for example in psychoanalysis and a great variety of current methods employing naive verbal report, may give guidance, but ultimately it has to be stiffened by objective proof. The methodology of psychology, in so far as it is concerned with establishing causal connections or functional unities, has to

proceed by the universal method of discovering *covariation and inevitable sequence*, among observed events. This fact is frequently overlooked but seldom contested: it is seriously contested only by the view that 'equivalence' of behavior elements can be established by intuition and observation of similarity of form, a view which will be discussed later.

The objective methods of establishing trait unities which have so far received approval are the calculation of correlations, the application of factor analysis or the use of analysis of variance. All these are methods which look for common variations in trait variables in the field of individual differences. The notion has been implicit, in such correlation studies, that the method is capable of detecting any kind of trait unity, and it has been suggested that it be applied to discovering dynamic unities and deciding, for example, whether the massive drives posited by Freud, or the smaller propensity units defined by McDougall, or the still finer differentiations represented by Murray's needs, give the most accurate account of the ergic structure of personality.

This suggestion seems to overlook the important principle that different kinds of trait unity will yield different kinds of correlation pattern. Dynamic traits, indeed, stand in a special position in this respect, and we may well approach the general problem of deducing trait structure from correlation data by devoting this first section to the special case of dynamic traits.

The basic generalization we wish to stress here is that, among individuals possessed of equal endowment in a particular drive, different manifestations will vary inversely and be negatively rather than positively correlated. The situation may be explored more fully by means of Fig. 1, in which we take a minimum population of two persons, possessing differing endowments in the basic erg (in this case sex drive) and differing amounts of investment in different manifestations. For clarity of discussion it is necessary, further, to introduce the notion of 'levels' of expression, representing stages in ontogenetic development and degrees of arborization in the dynamic structure. Thus in this case there is first a break between

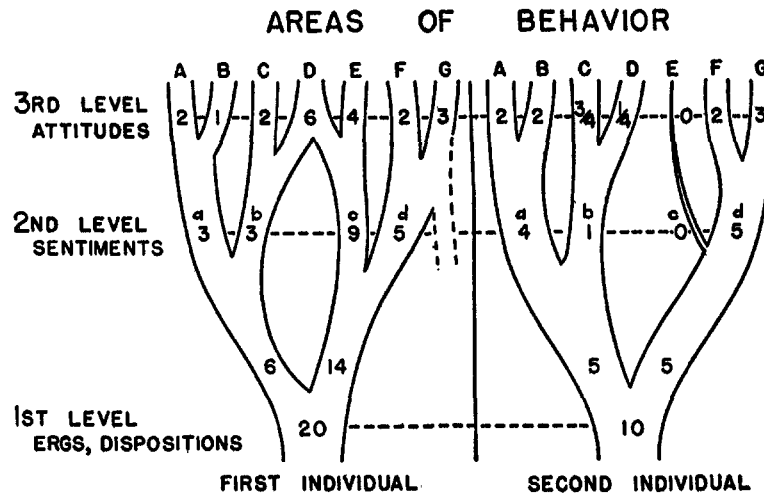

FIG. 1.

adult and infantile sexuality and then various levels of sublimation or complexity of expression of adult sexuality. The strength of the investments is indicated by numbers [7] which, at all levels, add up to the same quantity—that of the individual's total endowment, as indicated at the root.

It is obvious that in this, or any larger population, the

[7] The use of quantities here provokes discussion again of the meaning of common and unique traits, for it may well be argued that, especially in dynamic traits, the finer ramifications are unique. Our whole purpose is to measure common traits, but we must admit that the small *trait elements* out of which, by correlation, the larger common traits may be constructed, are themselves unique and measurable only in logical (metric) not population (normative) units. There are theoretically two ways of handling the measurement of these trait elements. We may make our small logical categories so fine and numerous that even the most bizarre form of behavior will find a category in which its presence or absence can be recorded. Or we may retain categories of reasonable size and record qualitative as well as quantitative variations in each, expressing the qualitative variations as directions of vector quantities. The latter seems impracticable, for we have no means of making a combined factor analysis of directions and quantities.

This consideration reminds one that all trait forms eventually depend on measurements in logical trait categories. All traits are relations between organism and environment. They do not reside only in the organism. Since the cultural environment, and to a lesser extent the heredity of organisms, slowly change, the functional unity of a given common trait is not eternal. The common traits of an ancient Egyptian might not be measurable in terms of common traits established today. But the logical trait categories of the trait elements are (or can be) permanent. They are the dust from which the organic, functional unities are built and to which they return.

manifestations a + b on the one hand and the manifestations c + d on the other, will tend to show a negative correlation because they are alternate and complementary manifestations of the individual's total endowment. They will also tend to show a positive correlation because they spring from the same common endowment. If a factor analysis is made of the correlations of the A, B, C, etc., variables we should expect that the factor pattern would yield (1) a general factor, corresponding to the total ergic endowment (11), (2) a bi-polar factor, positive in the c + d derivatives and negative in the a + b derivatives, (3) superimposed bi-polar factors subtending a smaller number of variables, actually two or three in these instances. The relation of the magnitudes of the variance due respectively to the positive general factor and the bipolar factors will depend on the relative importance of the (presumably hereditary) differences in total endowment in this erg (drive) and the (presumably environmentally-determined) individual differences in cathexis, or internal and external inhibitions.

It would seem, therefore, that with suitable criteria to permit a realistic rotation of axes, factor analysis could detect and delimit common dynamic unities. We could not, of course, measure directly the strengths at the deeper, non-overt levels of dynamic integration indicated in Fig. 1, but these could be deduced factor patterns, discovered as a plumber could deduce the volume of water running through street conduits merely from observing the faucets in use in many houses. The picture would also be complicated by the fact that the type of dynamic connection indicated only lightly in the diagram, namely a confluence of drives, through which any piece of high level behavior springs from several basic drives, would in most human behavior be far more frequent.

The mathematical picture would therefore be expected to be more complicated, involving many more factors, than that which we are at present accustomed to find in factor analysis of more constitutional kinds of traits. But the method, with suitable improvements, seems to be rightly oriented for discovering the major sentiments which form common traits.

An indication of its correctness and practicality is offered by one of the few soundly based analyses of orectic traits yet available, namely Burt's study (**6**) of recorded (not rated) emotional behavior in children. There emerged precisely the type of structure here argued on theoretical grounds: a general factor of total emotionality and various superposed bi-polar factors corresponding to alternative expressions. Even without elaboration of mathematical procedures the method could be successfully applied to animal motivation studies, in which the highly complicated sentiment and habit superstructure of human beings would only be faintly represented.

Dynamic traits, however, in contrast to the two remaining types of trait unity, can be investigated by other means than the factor analysis of individual differences in behavior. For there exist a number of approaches which we may call *temporal sequence methods*, or intra-individual studies.

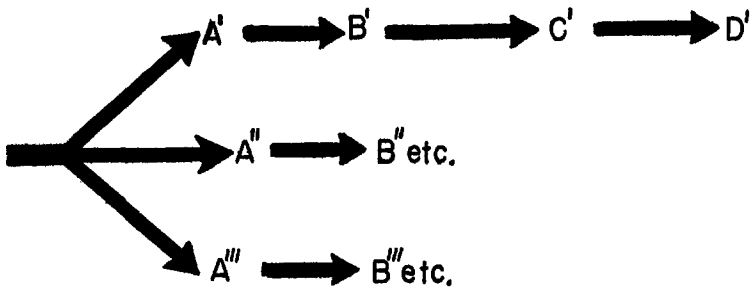

FIG. 2.

Temporal sequence study looks for covariations within the individual instead of variations between individuals, as in factor analysis. It is, in other words, an intra-individual rather than an inter-individual method, but this is only one aspect of the difference. There are really two problems and two methods here, and if we wish to use existing terms which approximately indicate the difference we have in mind we should call them the problems of equivalence and of subsidiation or purposive sequence. Figure 2 puts these problems schematically. A′, A″, and A‴ are forms of behavior

springing from the same ergic root and directed to the same biological goal. They are, in Allport's terms, equivalents. A′, B′, C′, etc. are successive pieces of behavior on the path to the goal by way of the A′ route. They are items in a purposive sequence. The investigation of the structure of a dynamic trait (in this case, of course, an individual, unique trait, though it may be common if others also possess it) requires elucidation of both kinds of connection: equivalence and purposive sequence. These correspond to bipolar and other factor structures in the factor analysis approach.

Now it is sometimes claimed that the first kind of connection—equivalence—can be established by inspection of the quality of the behavior, namely of the symbolic and other resemblances which enable the insightful psychologist to discover by intuition the equivalence of purpose, as when he explains to you that a man kicking a chair really wants to punch his opponent's head. Similarly some psychologists suppose that purposive sequence or subsidiation can be discovered without study of covariation, for in clinical practice and everyday life it is usual simply to ask a man for what more remote purpose he acquires a certain piece of behavior, or we make an intuitive judgment or we ask him to introspect by way of free association.

It is to be noted, however, that even in the hurried conditions of routine work we do not entirely trust these short cuts. We do not believe a conversion hysteric's explanation of why he cannot walk, or our friend's rationalizations; nor can one tell from inspection of style whether a man who is thumping a piano does so to release aggressiveness, lust or fear. In fact dynamic, teleological links have to be discovered, in the end, like any others, by observing how events vary together.[8] This bleak truth is less escapable when one considers studies of animal motivation.

[8] It is contended by Allport, on the other hand, that the unity of a trait is such that from understanding it one can predict the individual's behavior in a field with regard to which there have been no previous observations made. This is a prediction from the formal, essential nature of the trait. In the view of the present writer this might be done, but only when the formal or intentional nature of the trait has been established by factor analysis. Thus if we find that all the highly 'g' saturated performances involve the eduction of complex relations we may risk the prediction

Temporal sequence studies aim at detecting these covariations and they do so essentially in two ways, corresponding to the two kinds of problem. First we may observe temporal variations in two or more pieces of behavior and see if a sequence of observations on one correlates with a sequence of observations on the other. Thus if we plot an individual's sociability and his interest in the opposite sex and find the daily variations are negatively correlated we may conclude that these two kinds of behavior are equivalents, like A′ and A″ in Fig. 2. An all or nothing variation, as in the observation of the repeated disappearance of one symptom with the coincident emergence of another, constitutes a special case of such correlation. This *method of temporal covariation* permits experiment, in addition to passive observation, for one can, for example, remove one form of behavior, by deprivation or inhibition, and record changes in the other.

To interpret the structure and general nature of the dynamic connection in such a case, from the magnitude of the correlation, is, however, no simple undertaking. For example, a complete absence of significant correlation in temporal covariation studies does not prove absence of 'equivalence' in the two pieces of behavior concerned. Decline in A′ behavior may result in an increase of A‴ behavior rather than a change in the particular variable, A″, one has chosen to pair with the first. In fact we meet again here the problem we have already encountered in the cross-sectional, factor analysis approach, but here its manifestations lie in the variations in a single individual. For here too there will be a general factor among the increments, due to the tendency for equivalent elements of a purposive behavior trait to vary together as well as inversely. The common variation will arise here, not from differences in hereditary endowment but, for example, from endocrine changes or swings of appetite,

that a person with the trait of high intelligence will do well in a situation obviously characterized by the need for complex relation eduction, even though we have no previous experience of the correlation of this test situation with the tests by which the trait 'g' was identified. However, in so far as our conceptualization of the essence of the trait might be faulty or limited, such prediction would always involve some guess-work.

producing covariation in all manifestations of, for example, sexual behavior. On the other hand the bipolar factors will result, as in the previous case, from circumstances of internal and external inhibition, and will produce inverse common variation of equivalent (*i.e.*, alternative) manifestations of the disposition. It seems desirable, therefore, to pursue longitudinal, temporal covariation studies by observing variation in quite a number of manifestations at the same time, rather than in a pair only.

The second form of temporal sequence study, which deals with the unravelling of purposive sequence or subsidiation (**22, 11, 23**), we may call the *method of temporal invariance.* It is concerned with finding out what invariably follows what. It is therefore identical with the search for any kind of causal connection, except that in teleological, final causation one is interested in the sequence in both directions.[9]

The aim of temporal invariance study is to find out for what more remote purpose a given piece of behavior is being carried out, *i.e.*, to discover the A′ to B′ to C′ linkages in Fig. 2. One piece of behavior (a trait element) serves and is connected with another if the two form an invariable sequence. The more remote goal is the behavior or satisfaction, among many following pieces, which alone invariably follows. Psychoanalytic free association is a mathematically unchecked, introspective and loose application of this method. As in the preceding method, deliberate experiment, by manipulating dynamic successions and by stimulating and depriving, can supplement passive observation. Generally this particular longitudinal approach requires little or no mathematical elaboration, the task being one only of recording frequencies of behavior elements preceding or following a given piece of behavior.

Dynamic unities, we have argued, are of two kinds: ergic unities, *e.g.*, needs and dispositions, in which all behavior

[9] In efficient causality one looks for the invariable predecessor; in final, teleological 'causality' for the invariable successor. The present writer considers that all teleological causality in psychology is ultimately a manifestation of efficient causality, but that it may be advantageous to establish the latter by first establishing the former, which is simpler.

elements directed by intention to one biological goal are abstracted (this appears as a general factor in factor analysis); and metanergic unities, *e.g.*, sentiments, in which drives from different ergic roots fuse in a cathexis upon a single real object. Temporal sequence study, in either of the above sub-methods, seems to be the *only* means, in extra-individual study, by which either type of unity can be discovered. The method suggested by Baldwin (**5**) to explore the sentiments of a single individual by recording the frequency of coincidence of diverse emotional reactions to the same objects, is a variety of sequence study, since the identification of the drives involved in the sentiment fusions depends on sequence study.

Among other suggested alternatives to the basic methods here described as exclusive is the method of validating a trait entity by 'prediction.' One writer argues that "successful prediction from life history would establish traits and nothing in this process demands factor analysis, covariance or even quantity." But unless the prediction proceeds successfully from one observed element in the trait to *an entirely different element* (in which case the proof rests on exactly the same grounds as correlation through simultaneous covariation, above), the prediction provides evidence of nothing more than consistency, reliability or absence of function fluctuation in the trait element concerned. Function fluctuation is, of course, an issue distinct from, and simpler than, that now being discussed.

In exploring dynamic trait unities, then, we are confined definitely to the study of covariance, in inter-individual and intra-individual circumstances. Only the latter circumstance is capable of leading to knowledge of truly unique traits. The collation of both kinds of results, however, permitting sequence study to aid the choice of factors in factor analysis data, seems necessary at present for the successful exploration of common traits. For unless unforeseen methodological improvements make factor analysis more self-sufficient and definitive, and allow us to handle the problem of unknown and mixed levels of dynamic trait manifestation, the sequence study must remain not just an auxiliary but a necessary preliminary.

V. Basic Methods in Determining Trait Unities: The Situation for Traits in General

Traits other than dynamic traits cannot be investigated by sequence studies, for constitutional and social mould traits do not involve, in the trait unity, striving for a goal. The covariation of elements which constitutes the unity of these traits has to be discovered by that inspection of correlation coefficients which has been called factor and cluster analysis.

The straightforward application of factor analysis, however, may be insufficient to bring out these trait unities. For it is obvious, in the first place, that the factors, clusters or correlation patterns arrived at depend, in their nature and number, upon the sources of variability in the particular population used. In most factor analysis it has been customary to make the population homogeneous for those aspects of personality with which one is not particularly concerned, *e.g.*, age, sex, education, natio-racial sample, cultural background, etc., in which case one considers the pattern established only for persons with that background. For the shape of clusters, the factor saturations of variables and even the very emergence of a factor will depend on this preliminary arrangement. The point is illustrated by such a common observation as that stature or reading speed will correlate highly with the general ability factor in an age-extended child population, but little or not at all in an adult group.

Now it is argued here that a deliberate manipulation of the population sample and its circumstances, in order to contrast the results of different circumstances, may be necessary to discover trait unities of various kinds, and that factor analysis has to some extent failed in clarifying the field of personality because it has confined itself to analysis of variations as they exist in a typical mixed population at a given moment. This statement applies to Q-technique as well as R-technique, for though the former has certain advantages in exploring personality aspects otherwise difficult to approach, it yields, as Burt has shown (**7**), the same factors as R-technique on similar populations.

An important new source of variations for exploring trait unities lies in the *increments* obtained in a population with age, with training or cultural influences with physiological influences and with experiences affecting personality. If one employs this method as a check on the ordinary factor analysis, the emergence of the same factors would indicate that one is dealing with real functional entities instead of mere mathematical conveniences. Thus if, for example, the 'c' factor of surgency (extraversion core) is found by static factor analysis to saturate especially such traits as sociability, quickness of apprehension, originality, informality and cheerfulness, we should expect the same factor to emerge and saturate, proportionately, the same traits in an analysis of the increments of these traits occurring in a given group of individuals with increasing age. That is to say, not only should the more sociable individual be more quick, but, if surgency is to be considered a real, psychological, functional entity, we should find that the individual grows more quick as he grows more sociable.

Other studies which do not depend on existing individual differences in a group would be found in measurements of *fluctuation* of traits (not steady increments with age or other influences but short term variations), for we should expect the elements of a true functional unity also to fluctuate together.[10] Again analyses could be made of the correlations of the differences of twins reared apart, a procedure which might be expected to eliminate the correlation clusters due to constitutional traits leaving only those due to dynamic and social mould traits. Incremental, fluctuation and hereditary relation factor analyses might be grouped apart, under the general label of *differential factor analyses* to distinguish them from those *static factor analyses*, on homogeneous or non-homogeneous populations, in which the existing differences in a group of individuals at a given moment are taken as the basis of correlation. Our contention is that personality study requires the extension of the present static factor analysis

[10] This is the method, though without factor analysis, already implied by, for example, the study of cyclothyme traits by Johnson (17).

researches by the inclusion of differential factor analyses, and that the only factors which can be regarded as corresponding to real trait unities are those which emerge from both approaches.

Even with this principle in mind, however, the research worker has still the task of extracting, from any given set of correlations, clusters and factors, the psychologically meaningful unitary traits which may lie behind them. How this task may be accomplished is best seen by imagining unitary traits of the types set out above and deducing the structure of variables which would follow from them. By this approach from within we may see how the researcher will need to proceed in the reverse process of trying to arrive at the traits from the correlations.

In Fig. 3 the eight lines beneath the letters represent a set of trait elements—fragments from the total surface of personality—chosen for rating and inter-correlation in a typical sample of the population. Let us suppose that there were

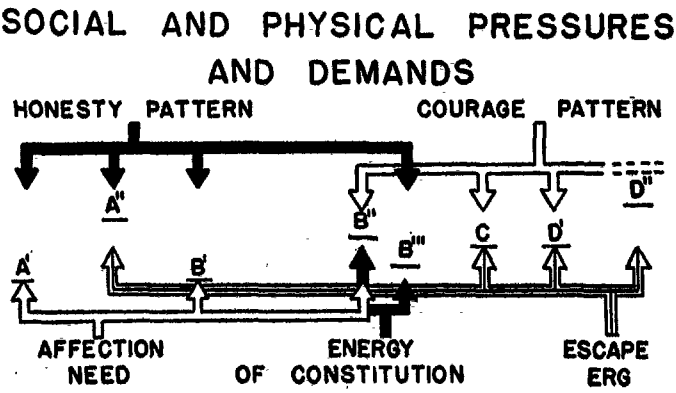

FIG. 3. Definition of trait elements.

A′. Respecting property of friends.
A″. Respecting property of strangers.
B′. Being truthful to friends.
B″. Being truthful to strangers.
B‴. Avoiding exaggeration in relating stories.
C. Facing physical dangers.
D′. Keeping one's head in emergencies.
D″. Magnitude of vegetative n. s. response in fear.

originally, in the mind of the investigators, four traits—A, B, C and D—each constituting some logical, traditional, stylistic or semantic unity, and that they were broken down into narrower, behaviorally-defined traits—A′, A″, B′, B″, B‴, etc.—as a precautionary step, to avoid the trap of false presuppositions from verbal unities.

Trait elements which vary together, in magnitude of and direction of variance, will be drawn, by convention, at the same level on this diagram. Now the forces which act upon these behavior elements and which cause them to vary and covary are of two kinds. On the one hand there are patterns of external stimulation and inhibition, corresponding to the social and environmental mould or die as already described. By reason of the slight or deep impress of any particular die, *i.e.*, of any group of environmental forces which, for social or other reasons happen to operate together, from a single focus, the individual will have a high or low development of the set of trait elements constituting that pattern, *i.e.*, they will covary within the population. On the other hand there are patterns arising from dynamic and non-dynamic constitutional unities in the organism and these also will tend to produce covariation in the elements which belong to them. The problem is to see what covariations of the elements will result from these super-posed patterns of covariance.

Emergence of covariance patterns (illustrated by imaginary example).—It is obvious, as illustrated by the example, that neither the internal nor the external patterns of covariance will succeed in impressing themselves on the superficial, observed variability of the trait elements. The highest correlations, the manifest correlation clusters, will occur where a group of trait elements share both common constitutional elements and common environmental mould influences, as in C and D′, or A′ and B′. Trait A″, which is part of the same honesty trait and trait B″ which is part of the same dynamic need (with regard to A′ and B′, respectively) do not show more than moderate correlations with other items in the same trait. The most negligible correlations are those among elements in logical, stylistic, semantic unities (*e.g.*, B′ with B″).

Our conclusion therefore is that *factors*, which represent sources of covariance, rather than high *clusters*, correspond to traits in the above senses. This conclusion, incidentally, does not deny the fact that there are great difficulties in the way of choosing, from a great variety of factor sets arrived at mathematically, the one set which alone represents the psychological reality. That one should follow this difficult and uncertain path of discovering factors, instead of accepting the view that an empirically obvious correlation cluster [11] constitutes a trait, requires some justification. The justification is (1) That meaningful traits, in the sense of dynamic, constitutional and social mould unities, correspond to factors rather than clusters. (2) That factors may be expected to recurr, in identifiable form, in a variety of populations, circumstances and modes of factor analysis (*e.g.*, in differential as well as static correlation analyses). A constitutional hyper-thyroid pattern, for example, may appear identifiably in different cultural groups. A cluster, on the other hand, may be a local artefact, corresponding to a chance overlap of social mould and constitutional trait factors. (3) That the factor traits have the value of being more widely useful in calculation and prediction, for they correspond to the influences that are functionally distinct in the growth of personality. This is true even of social mould traits, which have no functional unity in the individual, being only a collection of correlating habits, but which represent the influence of a single force in the environment. Even if this force may never operate again,[12] in that the connection of the elements is purely historical, the factor constitutes a con-

[11] It should be made clear, perhaps, that the term 'cluster' here is used in its simple, obvious sense, not in the special technical sense employed by Tryon in his technique of 'cluster analysis' (31). The latter seems to be a novel way of arriving at factors of a general character.

Moreover, it is necessary to remember that *some* clusters will be due to all the component traits' having a high saturation with one factor. To say that clusters are factor overlaps assumes that other things (factor saturations) are approximately equal.

[12] This observation reminds one that the social mould patterns may be expected to be far more complicated than the constitutional ones. This occurs not only because of the great variety of social mould influences and their changes with place and time, but also because, as the individual grows older, they operate differently or vanish entirely. His nature is, in respect to these patterns, a geological deposit.

venient measuring rod, for it has once operated with a similar pattern on all individuals, producing similar features.

The above discussion illustrates a certain danger in the term 'operational unity,' which has sometimes been applied to simple, empirical clusters of correlation coefficients, on the grounds that the trait elements involved certainly do, operationally, 'go together.' Strictly, this term should be applied just as much to factors. For what shall be called an operational unity depends on the nature of the operations one has in mind, and if they are widely conceived, to include all varieties of psychological circumstance and situation, the factor is the truer [18] operational unity.

To avoid undue complication of presentation the problem was not raised, in relation to the diagram above, that the ergic or constitutional roots of a given social mould trait pattern might be different for different people. The mathematical analysis takes care of this, presenting a composite, average picture. It seems extremely likely (indeed certain if one adopts a holistic psychology) that each constitutional trait shows itself to some extent in every piece of behavior. That is to say it will appear as a general factor. Its saturation of any trait element will thus be a function of the average extent to which, in the population, the particular ergic root or constitutional tendency enters into the formation of the trait.

Finally we have to note that all the above methodology says nothing about the permanence of traits within the individual. Except in factor analysis one is taking a picture with a flashlight, discovering configurations that exist at a given moment. (In most rating, as opposed to test, studies, it would be a fairly long 'moment.') Thus one might catch, in addition to what are usually called traits, the patterns of states of maladjustment or even moods, needs-in-action, and physiological transient states. These patterns could be sorted out from the more permanent ones by examining consistency coefficients over various intervals.

[18] This does not deny that some clusters may correspond to traits. The highest observable cluster may, even so, be an overlap of two such 'real' clusters.

What degree of permanence is required to constitute a trait rather than a state is a relatively arbitrary issue.

VI. The Utilities of Traits, Attitudes, Sentiments and Interests, as Concepts

The present discussion on methodology cannot be seen in the general perspective of personality research as a whole without a brief clarification of the relation of traits to sentiments, attitudes and interests. The present writer has pointed out elsewhere (**8**) the confusion and loss brought about by incoordinated terminology in this field, and has suggested that the trend of discourse has been to crystallize 'attitude' to mean a finer ramification of a sentiment (related to it as a twig to a bough), so that a collection of attitudes grow out of a sentiment, in its interactions with environment. The sentiment, being deeper, expresses itself more often in feelings and actions; the attitude in opinions. This relationship, of course, dismisses the use of attitude to describe a merely momentary mental stance, state or experience of derived emotion, and retains the term strictly in the sense of a neuro-psychic disposition, *i.e.*, a mental structure, or, if structural connotations are not desired, in the sense of a potential and recurrent pattern of behavior.

It has, further, been suggested in the above systematization that 'interest' best applies to the quantitative—as contrasted to qualitative or directional—vector aspect of metanergs (attitudes, sentiments) and ergs (primary drives). An interest, however, may loosely be used to define also, in terms of its goal object (direction or quality), any erg or metanerg of which it is the quantitative aspect. Thus we properly speak of amount of patriotic interest, but we loosely speak of patriotic interests instead of sentiments.

What, then, is the relation of the term trait to these terms? That depends upon the trait. Only dynamic and social mould traits have any relation to sentiments, attitudes and interest. Indeed, the second, metanergic form of dynamic trait is nothing but a sentiment, being an organization of drives about a real object. Social mould traits, on the

other hand, are collections, often dynamically unintegrated, of sentiments, attitudes and habits.

Actual language usage, as already indicated, gives heavier emphasis to the use of 'trait' with respect to constitutional and ergic (dispositional type) dynamic traits. Such usage implies that sentiments (metanergic dynamic traits) are more specific and local than traits, as attitudes are more specific than sentiments. The justification for this habit of language lies in such observations as that of a recent research (**2**) to the effect that individuals can undergo a complete cultural transplantation, changing attitude and even sentiment attachments, without manifesting any appreciable transformation of what is generally spoken of as personality (traits). But, as we have seen, all traits, even common traits, slowly change.

Great as the need is for some general term to refer to species of personality manifestations, the practice of restricting 'trait' to the deeper, more important, stable and abstracted variables of personality has some justification, in usage and meaning. For normally we infer a sentiment from a collection of observed attitudes and we similarly abstract an individual's trait rating from observations of the character of his sentiments. Thus, for example, we judge that a man has an assertive disposition because we are presented with an accumulation of sentiments and attitudes loaded with assertiveness. He may be very assertive in some and submissive in others. We strike an average.

The abstraction which we perform in rating a trait is also indicated by the fact that the object of an attitude, and to a lesser extent of a sentiment or complex, can always be designated, whereas the trait is an attitude to life generally. (Where ergic dynamic traits are concerned it is the attitude of stressing a particular biological goal.) This generalization of the trait, in contrast to attitude, is only another way of expressing the mathematical statement that it is a 'factor' derived from a collection of particular responses intercorrelating; or of saying that this conception of trait is of common traits, whereas sentiments and attitudes are more frequently unique 'traits.'

Nevertheless, it is not possible simply to equate the antithesis 'common-vs.-unique' with 'constitutional and ergic-vs.-metanergic,' or with 'important, major trait-vs.-unimportant, superficial trait.' For a very narrow, superficial attitude, and one not even remotely related to constitution, may yet be a thoroughly common trait. Again, a constitutional trait (as produced by biological variation or mutation) may be highly specific and unique. Similarly a unique trait may be highly important, at least in relation to the individual personality. In short, we have to admit three or four [14] distinct characteristics of traits, even though they correlate so that in general the more constitutional is also the more common and the more important. In conclusion, therefore, this semantic problem seems most reasonably solved by applying the term trait generically to all manifestations of personality. Where the dictionary or a factor analysis indicates 'common traits' we are dealing with the more substantial manifestations, whereas unique traits are more likely to be found among such slighter manifestations as attitudes and some sentiments.

The general question of the relationships between various types of trait unity cannot be left without some brief, and necessarily rather speculative discussion concerning the issue of the relative 'importance' of common-vs.-unique traits and of the three varieties of common traits. A language count would, of course, vote that common traits are far more important than unique traits, and the views of many psychologists imply the same judgment. It is probably true that the behavior of most individuals in a mass-educating culture can be fairly completely predicted in terms of common traits; but under more special circumstances the unique trait can be the major factor in personality prediction. Again the dictionary gives, among common traits, a seeming predominance of dynamic terms, supporting the clinic in its emphasis on the first of the three varieties of unity.

[14] Another characteristic difference, implied by the above discussions, is that common traits can be measured in units derived from the dispersion of a population (which, for lack of a better term, we will call 'normative' units) whereas unique traits, having to be defined logically, can only be measured in 'metric' units. Common traits can be measured in both metric and normative units.

The relative importance and utility of the three varieties of common traits could theoretically be expressed precisely in terms of the proportion of the total variance (in a number of representative fields of behavior) contributed by traits of each type. From a glance at available factor analyses one might hazard the guess that constitutional traits, *e.g.*, surgency, intelligence, general emotionality, take an appreciable slice of the variance. Further, there is some clear evidence, *e.g.*, in the lower 'g' saturation of intelligence tests with adults, and in the higher inter-correlations of forms of honest behavior in older and mentally older subjects (15), that social mould traits become more definite and account for more of the variance as individuals become longer exposed to the culture. Certain social mould traits, notably the 'w,' character integration factor, obviously contribute a major amount to the variance in very important fields; but in general one may suspect that the utility of social mould traits is reduced by the fact that they are specific to a culture—to some extent even to the provinces of a culture—so that their predictive value is apt to be local or temporary.

VII. Résumé

1. All traits are really unique, but in a population with common racial and cultural backgrounds a majority are so nearly common that they can be treated as common traits, measurable on common axes.

2. It is contended, with Gordon Allport (1), that "it is more important to discover intelligible traits than independent ones," *i.e.*, mathematically independent ones, for the former have functional existence in the personality and society, and can be more widely used in prediction. Such intelligible unities seem to be of three kinds—*dynamic*, *constitutional* and *social mould*. *Co-nascent* and *logical* trait unities also have utility in special circumstances, but their present too facile and frequent use in education and guidance seems mistaken.

3. These three kinds of traits manifest themselves as mathematical factors (not necessarily, or even probably, of an independent kind) in the factor analysis of trait element

inter-correlations. To discover them, however, it will be necessary to collate a variety of *static factor analyses* with a well chosen variety of *differential factor analyses*, thereby evolving criteria for the rotation of axes distinct from the unpsychological methods—such as 'simple structure'—now employed.

4. Dynamic traits alone may be supplementarily investigated, both as unique and as common traits, by *temporal sequence studies* which are longitudinal, intra-individual methods.

5. Clusters (of highly positively inter-correlating trait elements) are unlikely to be traits. Dynamic traits, one may deduce, are likely to manifest themselves as general factors with superimposed bi-polar factors. Constitutional traits will appear as simple general factors, probably with a more even saturation of behavior elements than is found for dynamic general factors. Social mould traits are likely to appear as much restricted group factors. Such considerations contribute towards, but do not provide, a unique determination of trait unities by factor analysis. The possibility of a truly unique solution to a factor analysis, yielding the psychologically real trait unities in personality, is discussed in a later article (**10**).

6. All traits, being relations between a changing organism and a changing environment, are only temporary patterns. The common traits, however, are likely to be at least as stable as a culture pattern.

7. Common traits can be measured in either metric or normative (population relative) units; but unique traits, having to be defined by logical dimensions, can only be expressed in metric units.

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