SCIENCE

VOL. 94 FRIDAY, JULY 25, 1941 NO. 2430

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. MCKEEN CATTELL and published every Friday by

THE SCIENCE PRESS

Lancaster, Pa. Garrison, N. Y.

New York City: Grand Central Terminal

Annual Subscription, $6.00 Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary in the Smithsonian Institution Building, Washington, D. C.

ASPECTS OF MODERN PSYCHOLOGY[1]

By Dr. CHARLES S. MYERS

ENGLAND

Two hundred years ago psychology had no independent existence. But it was fast developing in importance and towards differentiation from the universe of philosophy to which it then belonged. In the year 1740, Berkeley and Hume were still living; Kant was in his teens; Locke, Malebranche and Leibnitz had not long since died, and the elder (James) Mill, Herbart and Lotze were yet unborn. Hitherto the concern of philosophers with what was to become psychology had had chief reference to their speculations upon the nature of knowledge and understanding and upon the relations between mind and matter. But now their interests and observations were becoming increasingly psychological in other directions; and they were fore-shadowing views and attitudes which were to achieve prominence and importance throughout the history of psychology after its emancipation.

It was the mathematical and biological sciences that helped finally in the birth of psychology as a separate field of study and as an experimental science; they likewise played a part in the emergence of political economy and education, respectively, also out of philosophy. After a sterile mathematical treatment by Herbart of the higher mental processes in the early

[1] Address delivered at the Bicentennial Celebration of the University of Pennsylvania, September, 1940.

years of the nineteenth century, came Fechner's more attractive mathematical study of the relation between sensation and stimulus. At the same time Flourens, followed by Helmholtz, Hering and others, was applying the methods of physiological experiment to the study of the functions of the central nervous system and of the sense-organs. Wundt, who had taught physiology at Heidelberg for seventeen years under Helmholtz, came to take an increasing interest in philosophy and psychology on the transfer of Helmholtz in 1871 to the professorship of physics in Berlin. In 1875 he was offered a professorship in philosophy in Leipzig. At that university, Fechner, like Helmholtz and Wundt, a graduate in medicine, had been working, at first occupying the chair of physics until a long illness enforced his retirement. Thereupon he took up the study of philosophy and psychology, with especial devotion to psycho-physics and esthetics. With the practical aid thus received from mathematics and physiology, together with the motherly support of philosophy, Wundt founded at Leipzig the first "institute" of psychology—the first laboratory of experimental psychology. Although formally established in 1879, his institute was not recognized by the university until 1886.

In France the encouragement of experimental psychology came not so much from physiologists and their interests in sensation and in sensori-motor response, as from medical clinicians engaged in the treatment of disorders of personality, in the study of hypnotism and in the problem of the mentally defective. It was thus that the early work of the first psychological laboratory in Paris came to center about suggestion, fatigue and intelligence. These problems, although emanating from medical practice, received experimental investigation in a purely normal, purely scientific, atmosphere.

To Wundt at Leipzig, mainly on account of his keenness for experiment, and partly because at that time Germany was educationally their "spiritual home," flocked numbers of American students who were later to become the leading psychologists in this country: from England he received but two pupils, Titchener and Spearman, who afterwards achieved distinction in the subject. Of all these Titchener, who throughout the long tenure of his professorship at Cornell retained his British nationality, alone remained faithful to the main articles of faith emanating from Wundt's institute. For Titchener as for Wundt, psychology's task was to analyze mind, in the fashion of the chemist, into its simplest components and to re-synthesize these elements under experimental conditions; for him the elements consisted of sensations, images and feelings.

The living mind soon began also to be systematically studied in much the same way as the living body; and this application of the biological standpoint to psychology quickly led to a differentiation of the subject into various branches according to the aspect from which it was being thus scientifically investigated. Initially, as we have seen, there had arisen *psychophysics* and *physiological psychology*—each directed to discover the relations between mental, neural and physical processes. Encouraged by the new doctrine of evolution, *animal psychology* rapidly came to the fore; and simultaneously came the study of the development of the mind in the human being—during infancy, throughout childhood and adolescence—and its regression in old age, *i.e., genetic psychology.* Next came the study of mental differences between the races of mankind (*comparative psychology,* as it is sometimes called), the study of the mental life of communities and their institutions (*social psychology*) and the study of mental differences between human individuals (termed by one of its founders *differential psychology*).

In Great Britain the application of scientific psychological methods to the last-named study, of individual mental differences, is immortally associated with the name of Francis Galton; and in the United States of America with that of James McKeen Cattell, whom, now in his eightieth year, it is especially fitting to mention on the present occasion because of his connection with the University of Pennsylvania. Cattell was one of Wundt's earliest students. There is a story told of him that one day he approached Wundt, saying "Herr Professor, you need an assistant, and I will be your assistant." And Wundt's first assistant in the Leipzig institute Cattell became. In 1886, on his return to America, Cattell lectured at the University of Pennsylvania and here in that year laid the foundations of a psychological laboratory, although it was not until 1889 that the laboratory was adequately equipped and formally opened. The claim has therefore been made that this university possesses the oldest psychological laboratory in America that has had an uninterrupted existence from its foundation down to the present day. Here, too, the first American chair in psychology was founded: it was occupied by Cattell until, in 1891, he went to Columbia University, where he established another psychological laboratory.

Professor Cattell's interests lay not in introspection, one of the main pillars of the Wundtian school, but in the psycho-physical and statistical problems underlying mental measurement—interests which have been continued by Professor S. W. Fernberger, who occupies a professorial chair here to-day. They lay especially in the study of individual mental differences as revealed and measurable in human behavior; and these originated experimentally in the "personal

equation" which had for some time disturbed the observations of astronomers and had received close study in the early years of the Leipzig laboratory under the form of "reaction times." It became Cattell's aim to estimate human capacities: indeed he was the first to use, exactly fifty years ago, the now familiar expression "mental tests," urging with prophetic insight their future importance. His work, thus begun at the University of Pennsylvania, paved the way for the later "schools" of behaviorism and factorial analysis.

Yet another branch of psychology, which so far I have left unmentioned, with the early development of one aspect of which the University of Pennsylvania has again been intimately concerned, is *abnormal psychology.* This university was the first to found a "psychological clinic" for the study and treatment of mentally abnormal children. It was formally established here by Professor Lightner Witmer in 1897. Witmer, like Cattell whom he followed in the directorship of the psychological laboratory and in the chair of psychology at this university, is happily also with us. Like him, Witmer received his doctorate from Wundt at Leipzig and, like him, his interests have been mainly centered in individual mental differences. But these differences have been of a psychopathic order, relating mainly to those revealed in the school-room or in the juvenile court. The success of his pioneer work is attested by the fact that "psychological clinics," or "child guidance clinics" as they are now often called, are to be found to-day in every community that can claim to be interested in its own social welfare.

Witmer's efforts afford an early example of a series of further, later, *applications* of psychology, not only to education, delinquency and medicine but also to other branches of sociology—to art, religion and especially to occupational life. One of his pupils, Professor M. S. Viteles, of the University of Pennsylvania, is one of the most distinguished "industrial" psychologists throughout the world.

It should not be a matter for surprise that the scientific, biological study of mind has opened out so many different aspects or branches of psychology. In biology, the science of the *living body,* a corresponding number of sub-divisions can be easily recognized. Biology comprises—botany and zoology, with their numerous sub-divisions into mycology, bacteriology, protozoology, helminthology, etc., up to anthropology; the different aspects of study indicated by physiology, pathology, anatomy and histology, together with embryology, genetics, bio-chemistry, neurology, cardiology and so forth; and their various "applications" to medicine, surgery, hygiene, agriculture, etc. It is therefore no disparagement to psychology, the science of the *living mind,* that, with its differentiation as a separate discipline of knowledge and research, we are able similarly to record the development of physiological, animal, comparative, genetic and differential psychology, psycho-pathology (*i.e.,* medical or abnormal psychology), educational psychology, industrial (or, better styled, occupational) and social psychology, and the special relations of psychology to religion, art, crime, etc.

The one important branch of psychology which finds no real analogy on the biological side is "differential psychology." As a natural science, psychology studies individual *mental* differences from the functional standpoint—in order to arrive at a clearer idea of the nature of mind. *Average* memory, *average* threshold, *average* imagery, *average* personality, "mind in general," these pall in interest compared with the psychological study of the *individual* and of *individual* differences. To the biologist, on the other hand, individual *bodily* differences among the members of a species have so far offered little or no attraction from the standpoint of function. His only interest in them comes with an approach from the genetic side—the inheritance of characters and the acquisition of new characters through environmental changes. The biologist in the past, like the physicist, has been largely interested in classification. Classification was for Aristotle a main *raison d'être* of science; the individual peculiarities of cases had therefore to be ignored so far as possible; cases had to be placed as comfortably as possible in the nearest class or type into which they would fit.

It was in imitation of this early procedure of the natural sciences and in the desire to make psychology a branch of natural science, that neither Wundt nor Titchener, with their accent on introspection, took any real interest in individual mental differences. Moreover, despite their devotion to introspection, they did not wish to accentuate the necessarily personal, "private," feature of the *mental* objects of psychological study, compared with the "public" character of the *material* objects of physical and biological study. For the same reason (introspection here being impossible or unreliable) animal and child psychology did not interest them; nor could they find room for abnormal and applied psychology, as they were undertaking pioneer work for the recognition of a pure science.

As has been pointed out, psychology shows at least as many different aspects, judged by the number of its branches of study and the diversity of its applications, as does biology. Appealing as they must to an enormous variety of interests and talents both among psychologists and biologists, they can in every way justify their existence. But in the case of psychology, there is another series of aspects which finds little or no analogy in biology nor indeed in any other natural science. These aspects reflect individual differences in

attitude, of a more profound philosophical character, among the past and present leaders of the subject, which have resulted in the development of a number of *schools* of psychology—some now defunct or moribund, others still active and, until recently at least, in violent opposition to one another. To the outside world it may seem that, if psychology is to be regarded as a natural science, there can be no reason for the existence of these antagonistic schools, unless it be the unsettled state of the whole subject or of the particular branches of it with which they deal, or the fanatically narrow and intolerant mentality of those who are at their head. Wundt provided a striking example, *more Germanico,* of this dictator-like attitude of a school head; it was faithfully copied by Titchener in America, and was later adopted in Vienna by Freud. A young student of mine happened once to mention to Freud the name of Alfred Adler, one of his most distinguished pupils, who had been driven from his school because of disagreement on scientific matters: "ich kenne ihn nicht" was the reply that he received.

And yet, despite their radical differences of outlook, Freud, Jung and Adler have doubtless had equal success in their medical practice. In the matter of treatment, therefore, the extent to which "sexuality," the "collective unconscious" and "inferiority" play their roles, as variously advocated by the leaders of these three schools, would seem to be of secondary importance, compared with the enormous influences of suggestion and the revival, explanation and redintegration of repressed, distorted complexes. Each was neither by temperament nor by training a man of science. He attempted to build an incomplete system of psychology based fundamentally on the observation and treatment of psycho-neurotics. In the case of Freud, at least, this embodied a gloomy, cheerless view of life, a life of incessant conflict and repression, in which consciousness was of relatively little concern or potency and was always being caught off its guard by the irresistible, subterranean, hostile, unconscious, mental forces of the libido. Each leader poured forth floods of hypotheses and explanations, and these attracted (strangely like psychical research) literary people and physicists rather than those who had received a systematic training in psychology. Freud himself once said about certain views that he had proposed, "I am neither convinced myself nor am I seeking to arouse conviction in others. More accurately I do not know how far I believe in them." Starting with tentative hypotheses, he would too often raise them quickly to the status of important principles, and later be equally ready to abandon them. Loose terminology, needless anthropomorphisms and ridiculously wild generalizations have, from the scientific standpoint, been the ruin of these men of genius.

It remains for the future to sift out and to combine into an integrated system what is, and will undoubtedly be found to be, true in the teachings of these three schools—of psycho-analysis, analytical psychology and individual psychology. Assuredly their leaders' influence will never die; psychology will never be the same as it would have been, had they never lived. We know now from their labors that there is no hard and fast line to be drawn between the normal and the psycho-neurotic—just as we know now that the people of intelligence shade imperceptibly into the mentally deficient. Our scientific concepts of the unconscious and of mental inhibition or repression have become vastly changed and widened; our old ideas of the relative importance of reason and emotion in determining human conduct are now almost reversed; and such current popular expressions as "wishful thinking," "extraversion" and "inferiority" attest the wide-spread influence of these schools of "depth" psychology. Who can read Freud's "Traumdeutung" without admiration for his original, ingenious and invaluable analysis of what he calls "the dream work"?

Yet another rival leader in psycho-pathology, Janet, has developed concepts which will be everlastingly useful in general psychology, those, for example, of dissociation and of psychic stress and tension. But some schools of psychology are not to be ascribed to the particular genius—or to the failings—of their founder. They are inevitable, because inevitably psychology can be approached from very different standpoints with different aspects of truth peculiar to each. These different approaches are beneficial to the progress of the entire subject, because they enable quite different paths to be cut with the aid of quite different weapons. The weapon may be sometimes borrowed from physiology, psychiatry, education, zoology or mathematics, experts in which are attracted to psychology often without having received adequate training in it. Their contribution is frequently helpful in a circumscribed field: their failure comes when, founding a school, they attempt to extend the fruits of their narrow specialization to gathering a wider harvest—when they come to believe that the weapon which they are using is the sole weapon by which progress is possible, whatever be the psychological path taken.

There have been psychologists like William James, whose outlook was too wide and catholic, whose weapons were too varied, to found a school; of the schools that have developed since his time, many could have turned to him, each claiming encouragement and support. G. E. Müller, the beauty of whose experimental methods in psychology has never been approached, was another who did not attempt to establish a school. Not less distinguished a psychologist, Stumpf, left behind him these words:

I have never endeavoured to found a school in the strict sense, and have found it almost pleasanter, certainly more interesting, to have my students reach different conclusions than to have them merely corroborate my theories.

The inadequacy of the early schools of Wundt and Titchener was soon recognized. They both did admirable work, and were often criticized unjustly for views which they could never literally have accepted. Broadly speaking, they regarded the mental world as the physicist regarded the material world—as a vast mechanism driven by discoverable laws (among which those of association loomed large), analyzable into elements, and describable in abstract terms void of purpose, value or meaning. They regarded psychology, to use their own language, as the study of experiences considered as dependent on a central nervous system and on an experiencing person. They were distantly interested in the relation of the central nervous system to these experiences, but they made no attempt to bring the psychology of the experiencing person under scientific examination. As a natural science, psychology had discarded the soul; and with the soul went the self or ego, the most obvious discovery of introspection!

In the time of Wundt, atoms too small ever to be visible were the ultimate particles recognized by physicists. The latter, in accordance with the second law of thermodynamics, regarded the world as a huge mechanism running down after having been once wound up—as if it were the creation of an *engineer*. To-day mathematical physics, dealing with electrons and quanta, has entered the field. It regards the world as unsubstantial—as if it were the creation of a *mathematician*. The individual electron has no real separate existence: it is in this respect a mathematical fiction, sometimes needing to be regarded as a particle, sometimes as the center of a wave disturbance. The experimental physicist is in danger of being ruled by the mathematician, his discoveries having to be incorporated within an unreal world of mathematical relations connecting unimaginable entities. The pass to which mathematics has thus reduced physical science is the ultimate issue of its own procedure. The more exact a physical experiment, the more artificial, unreal and abstract it becomes. At each stage of analysis, as lower and simpler levels are reached, something is lost: for the whole is more than the sum of its parts. As by synthesis we pass upwards from what we have ultimately reached by analysis, new properties, new characters, "emerge" which are not in the parts: so the properties of water emerge from the union of hydrogen and oxygen, and the characters of the living emerge from those of the lifeless world; and so too conscious activity would be described as emerging from reflex activity, could we succeed in analyzing the former into the latter. In such analysis ultimately a scheme of purely symbolical data is employed, conjoined by mathematics. Science, as thus engaged, has no concern with meanings or values, nor with history or purpose.

Psychology can do the same, it can pose as a natural science and reduce itself to mathematical symbols. But it can also pose as one of the humanities. It is perhaps this dual aspect of the subject that has attracted those who have achieved the greatest distinction in it. They have been men imbued with a love for experimental and analytical science combined with a love for living experience and for philosophy or the other humanities. And according to their major interest they have leaned rather to the mechanistic or to the humanistic standpoint. In Germany extreme regard for the latter standpoint has produced a school of *Verstehende Psychologie* under the successive leadership of Dilthey, Spranger and others, who have felt that for the true "understanding" of the individual human mind the principles not of natural science but, as they term it, of *Geisteswissenschaft* are needed, the latter starting with the totality of mental structure, the former with the study of physical elements. This school does not hope to reach more than broad types, ideal not real, of personality, culture, etc., by generalization and abstraction from the observation of individuals, the study of autobiographies and history, etc. Its real aim is the study of the *unique* individual and of the laws governing the individual, that will indicate, to use G. W. Allport's words, "how uniqueness comes about," corresponding to the objects of the study of history, religion, art, etc., to which psychology must ever furnish an important base.

The contrast between the ideals of this school and those of Titchener's "existential," "structural" or "introspective" school, as it has been variously named, could not well be greater. But however "scientific" its intentions and tenets, Titchener's school did not, as a school, outlive its founder. However valuable, introspection and observation came to be regarded as insufficiently trustworthy for the discovery of mental elements. It became increasingly clear that structurally all mental experiences can not be analyzed into, and expressed in terms of a mosaic of sensations, images and feelings, and that learning and remembering (at all events where meaningful matter was concerned) depended on other important mental processes than on merely mechanical associations. Moreover, in the first place, it was felt, especially by psychologists in America, impossible to neglect the study of the "functional" aspects of mind—the study of the vital services rendered by consciousness to the organism in the adaptation of the latter to its physical and social environment, the special needs of the organism served by per-

ception, emotion, etc. Thus Dewey, followed by Angell, started in America the *functional* school of psychology, Jastrow stressing its *genetic* aspect.

In the second place, the *dynamic aspect* of mind was also stressed, by Woodworth, as deserving of closer study. There is far more in a percept than a "bundle" of sensations, far more in thought than a train of images; and there is far more in perceiving or thinking than mere percepts or thoughts. A part of that "more" consists in the character of the operation or "act," and in the direction and determinants of the responsible forces of mental activity. Thus we are led to study the roles and the varieties of "drives" and motives, interests and attitudes, instincts and habits, alike in experience and in behavior, and the general study of conduct in relation to the unconscious, as well as to the conscious, mind. "Dynamic" psychologies arose which originally had for their object the discovery of a relatively small number of basic elementary units in the various forms of instincts, propensities, tensions, needs or motives—common, it was believed, to all individuals and adequate, it was hoped, to account for the unique conduct and the unique personality of each. But the insufficiency of this simple "scientific" standpoint is becoming increasingly recognized, as has been lately emphasized by G. W. Allport in his admirable volume, "Personality: a Psychological Interpretation." The complex systems of motives in later life are functionally unrecognizable in their crude infantile and childhood origins.

Thus came about a tendency, even also among experimentalists, to start from and to stress the unique, unitary self or personality, with its drives, needs, interests, traits, attitudes and purposes, and its universe of meanings and values. This tendency arose also from the realization that living processes, whether mental or bodily, can not be *completely* studied from the synthetic direction, owing to their possession of the character of "goal-seeking." It led to the schools of *hormic* (or *purposive*) and of *personalistic* psychology founded by Nunn and McDougall and by Stern respectively. For Stern the "person" was of a psychophysically "neutral" nature—neither psychical nor physical but transcending each: thus he hoped to bridge the gulf between abstract scientific knowledge and psychical reality!

Such a revolt from the contemporary standpoint of natural science was bound to have its consequences on those who approached psychology from that standpoint. What is it, they asked, that prevents psychology from being treated as a natural science? It is because the characters of mind, as observed by introspection, are the *private* concern of the introspecting "subject." They can only be communicated to others by oral or written report, *i.e.,* by movements; they can only be studied and measured by their actual expression, *i.e.,* by movements. Movements are like the other "objects" studied by natural science; they are the *public* concern of all who care to attend to them. Natural science has to exclude, as Piéron well expresses it, what "can not become the object of collective experience." Why then, it was asked, should we not make psychology a natural science by studying exclusively the movements, *i.e.,* the behavior, of the individual in response to the stimulus and with regard to its environment? And thus arose Watson's *behavioristic school,* an extremist attempt of the animal psychologist to dispense with all reference to consciousness in any form.

With the same aim Pavlov and Bechterew in Russia started their schools based on their independent discovery of the "conditioned reflex." (This was also simultaneously and independently discovered by Professor E. B. Twitmyer, a member of the present staff of the psychological department in the University of Pennsylvania.) They held firmly to the idea that all mental responses could be derived from the reflex. They were fully satisfied with the sufficiency of the old doctrine of associationism to account for mental integration, the learning of ideas and of skills and their reproduction. What could be simpler than to construct an analogy between the higher neurones, united one to the other by synapses, and ideas, united through association? But extreme behaviorism, through its unreflecting imitation of the procedure of natural science, is confronted with the same abstract, unreal situation as physics—a situation which is logically and mathematically correct, but which is not the teaching of common-sense every-day life. It is forced to maintain the two absurd standpoints that consciousness is of no biological, functional, significance whatever in human and animal life; and that the highest, noblest mental responses and personality itself are nothing more than the mechanical integration of the lowest and simplest reflexes.

Eddington has remarked of physics, "we rig up some delicate physical experiment with galvanometers, etc., specially designed to eliminate the fallibility of human perceptions; but in the end we must trust to our perceptions to tell us the result of the experiment." So too, in fact, it is impossible for the extreme "behaviorists" to dispense entirely with consciousness. Their successors, indeed, the milder "neo-behaviorists," could not fail to recognize the part which their own conscious selves play in their interpretation of their animals' behavior; as they admit, the introspections of a conscious subject are merely replaced by the interpretations of a conscious experimenter. Indeed by one of these "behaviorists" mental processes have been freely accepted as "inferred determinants of behavior

which ultimately are deducible from behavior," instead of being as the "mentalist" assumes, "essentially inner happenings primarily available to introspection only." A broadly "behavioristic" attitude has spread widely among experimental psychologists during recent years. But the tenets of the school are far from being accepted in such an extreme sense as its founders desired. "Conditioning" in the laboratory proves to be definitely different from "association" in every-day life. There is a growing recognition, too, that if the "behaviorist's" observations are to be confined exclusively to animals and infants, experimental conditions must often be artificial and unnatural; while the urges, drives and tensions studied must relate largely to sex and food, to the exclusion of the higher moral and artistic needs and creative activities of man.

Allied to this school is that of *operationism,* recently welcomed from the side of physical science, according to which a concept can only be defined in terms of some objective technique, *e.g.,* by the corresponding set of "operations" that have been designed to assess it. For many years psychologists engaged in mental testing have had to be content with defining "intelligence" "operationally"—as being what is measured by intelligence tests. Adherents of this school have attempted to give similar operational definitions to other mental terms, thus, in *quasi*-behavioristic fashion, hoping to establish a psychology which will give an objective rendering of all subjective terminology. It is possible, but, as I have urged, it is insufficient, to regard psychology as a science in which the "private," personal, nature of mental experience is transformed into arrays of symbols which have been derived from "publicly" observable events, *i.e.,* behavior.

(To be concluded)

IS THIS SUCCESS?

By the late Dr. ROYAL N. CHAPMAN[1]

TO-DAY I shall be alone. So far as I know there is no one on the boat who would recognize me. Tomorrow the passenger list will be published, and then there will be introductions and interviews. It has come to the point where I find seclusion only on an airplane where the roar of the motors precludes conversation, on a train or on a day like this on a boat. It is a far cry from a youthful ambition for the life of a naturalist emulating Thoreau and Burroughs to a strenuous program of consultations and the direction of research.

It required a great mental adjustment to pass from a self-supporting student interested in the development of socialism to the direction of a research institution on which a great, highly capitalistic industry depends. It has meant the transition from the problem of choosing each meal according to the money in the pocket to the problems in which millions are won and lost. More than all else it has involved ideals, the realization of which I once thought to be the object of my life.

A former college mate with whom I shared the struggle for advanced degrees in a well-known graduate school recently reminded me of one of our idealistic discussions, in the course of which I had expressed myself as to a salary which would satisfy all my financial ambitions. He called my attention to the fact that my present salary is ten times the maximum that was specified in those days of the graduate grind. He asked what it was all about. Had I forgotten that we had pledged ourselves to the exploration of nature, not for material wealth but for the discovery of her laws of the interrelationship of organisms? Did I no longer share that aversion for a materialistic world which spends half its time chasing the almighty dollar only to spend it on movies, motor cars and jazz? Was it not as true as ever that society must learn to use its leisure with books and nature rather than at horse racing and dancing, if a high order of civilization was to be maintained?

I have been searching for the answer to his questions in the snatches of time when I have been looking down from the clouds or across the sea. The question was presented anew day before yesterday when an interviewer began with one of those flattering introductions, saying that she was writing a series of articles for a well-known magazine on successful men, and that I was on her list. The interview was postponed, but it renewed my reflections.

After all, is this success—this crowding out of

[1] This essay by Dean Chapman was found among his papers after his death, December 2, 1939, at which time he was dean of the Graduate School of the University of Minnesota. It was written in December, 1938, when he was director of the Experiment Station of the Pineapple Producers Association of Honolulu, Hawaii, and while he was on the boat going from Honolulu to this country. It was on this trip that he received and accepted the offer to become dean of the Graduate School at Minnesota, which office he assumed in the summer of the following year, 1939. During his short term of office as dean of the Graduate School he took up again his early morning insect research on "little universes under controlled conditions" and happily returned, as far as the administrative duties of his office permitted, to a realization of the ideals of his youth's enthusiasm.