subterranean laboratory has been brought to the surface, enlarged, developed and endowed, that its rays may illuminate the world—far and wide.

We chemists here assembled say to Yale that we are not envious—no, we are happy, felicitating you with all our hearts and with you thanking God

that Silliman, the elder, was born.

While to President Angell, I'd add:

As one arranges in a simple vase
A little store of unpretending flowers,
So gathered I these records of past hours,
And trust them, honored sir, to thy grace.

EDGAR F. SMITH

## PSYCHOLOGY AS A LIFE WORK

THE student facing the choice of his life work should consider two matters with especial care. These are his abilities and interests on the one hand and, on the other hand, the opportunities that are offered by a profession for personal development, public service, and the respect of those whose respect is most worth while to him. Ability and interest are personal. Their true estimation requires self-criticism and the advice of those who know one best. The opportunities that a profession offers may be learned from the candid statements of experts in the field.

*The field of psychology.*—Psychology is primarily the science of human experience, behavior and personality. It reaches down into childhood and animal life. It reaches out into the abnormal and the unusual, to depravity and genius. A sound psychology is needed in medicine and the social sciences, in religion and art, in education, law and politics, in industrial management, vocational guidance and social service. It is involved in our attempts to answer some of the greatest riddles of the universe, such as the relation of brain and mind, the origin of intelligence, and the basis of right conduct. It seeks to know the sources and organization of experience and motives, the integration of human personality, and the bonds that connect us with our fellows. Every phase of human feeling, thought and action from birth to death belongs to the field of psychology in as far as it is capable of scientific observation, description and analysis.

*Prerequisites to a career in psychology.*—The first prerequisite to a career in psychology is a systematic knowledge of its tradition. This is generally initiated by an elementary course which introduces the student to the entire field. It should be supplemented by courses in analytical psychology, genetic psychology, comparative psychology, physiological psychology and social psychology. In addition, the student should gain as extensive laboratory experience as is practicable. Command of the French and German languages is a necessary auxiliary since a large part of the scientific literature is published in these languages. The student who chooses psychology for a career should have a good foundation in philosophy, mathematics, biology, physiology, physics and chemistry. Courses in applied psychology should vary according to the interests of the student. They should be supplemented by thorough study of the several fields to which they relate.

Elementary work in psychology is provided for in every well-equipped college of liberal arts. For his advanced study the student who wishes to specialize in psychology should go to that university whose faculty most nearly meets the needs of his special interests.

*Types of careers in psychology.*—As in most of the sciences, there are three main types of careers in psychology. These are teaching, research and applied psychology. Of these three, teaching is the only standardized career at the present time. It is usually the base from which one may develop research or applied psychology. Teachers of psychology are employed in colleges and universities, normal schools and some other technical schools. There is room not only at the top but all along the educational line for intelligent, thoroughly trained and devoted teachers of psychology. All such can be certain of earning a living and rendering human service the value of which can not be measured in dollars.

A teacher of psychology should always be more or less of an investigator. This is probably true of all teachers. Unless one appreciates scientific problems as he meets them and tries to collect data for their solution he can scarcely appreciate the meaning of science, its evolution and the dangers that beset scientific generalization. Moreover, he will miss the joy that comes to the explorer who pushes the dark boundaries of the unknown a little further away. It would, however, be disastrous for a

teacher of psychology to supplant the great scientific traditions by his narrow lines of investigation.

Careers of pure research unmixed with other duties are rare in any field of science. They are especially rare in psychology and can scarcely be held out as an exclusive aim in the choice of psychology as a profession.

*Applied psychology.*—The applications of psychology are as numerous as human endeavors. Applied psychology, however, is still in its infancy though it has rendered notable service in several directions. Self-supporting careers may at present be found in educational psychology, in clinical psychology and in industrial and business psychology. Each of these lines will be described by an expert in the field. None of these divisions of applied psychology is standardized or developed to a point where one can rest content with present methods and results. In addition to a thorough grounding in his field of science and in the field of its application, an applied psychologist needs ingenuity, initiative and administrative ability. For those who possess the requisite qualities and training there is no limit to public service and financial rewards.

RAYMOND DODGE
WESLEYAN UNIVERSITY

## EDUCATIONAL PSYCHOLOGY

The most common career for a man or woman qualified in educational psychology is to teach in a department or school of education in a university or in a normal school. The qualifications are the same as for teachers in institutions for higher education in general, except that more skill and care in teaching itself is expected, and that a knowledge of the theory and practice of education is desirable.

There is an increasing demand for experts in psychological and educational measurements to work in the educational department of a state or city or in large private institutions. Such a position will usually be distinct from that of the clinical psychologist to be described later, though in some communities, one person will be responsible for both kinds of work. General scientific ability, knowledge of educational practice, industry, adaptability and good sense, are the most necessary qualifications. Mathematical insight, ability to organize a mass of details, and ability to manage children in interviews and tests are desirable.

In so far as he uses his undergraduate studies to prepare himself for either the teaching or the practice of educational psychology, the student may favor courses in physiological psychology, educational psychology, tests and measurements, the psychology of childhood, elementary education, secondary education and educational administration. His graduate studies should, if possible, include thorough work in individual psychology (including the psychology of exceptional children and the technique of standard tests), the psychology of the elementary school subjects and the theory and practice of psychological and educational measurements.

EDWARD L. THORNDIKE
TEACHERS COLLEGE,
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## CLINICAL PSYCHOLOGY

The rapidly growing appreciation of the value of psychological facts and principles in directing individuals who are poorly adjusted to their environments has opened up many lines of psychological research and practice. The federal government, state institutions and individuals are seeking psychologists to devise and apply tests to determine many things besides retardation, chiefly individual exaggerations, idiosyncrasies, aptitudes, tendencies and capabilities, with special reference to the prevention of adverse happenings and to the prediction of probable means of successful adjustments. This field is, therefore, closely bound up with educational, occupational and social applications of psychology, and also with the physical side of life which is cared for by the medical practitioner. It will be appreciated that preparation for practice or research in this field involves some acquaintance with the facts of disease from both the physical and mental sides, as well as with the means of treatment and their limitations and interrelations. Practice and research also require the physician's mental attitude; sympathy but not sentimentality, an interest in the welfare of the individual and of society which over-balances a natural shrinking from diseased states or the seamy side of life, and an understanding of the frailties and foibles of man. For the psychol-

ogist with special training and aptitudes the opportunities in private work or in institutional employ are not surpassed financially or scientifically by that in any other field.

SHEPARD I. FRANZ
ST. ELIZABETH'S HOSPITAL,
WASHINGTON, D. C.

## CAREERS IN INDUSTRIAL PSYCHOLOGY

The world of business and industry is not exactly clamoring for psychologists to come and show how factories should be operated, offices organized and sales increased. Indeed, hardly more than one or two men are earning a livelihood in industry to-day as *psychologists*.

There are, to be sure, several trained psychologists who are ably filling business positions—in personnel administration, industrial training, business analysis, sales promotion and management and advertising. Their duties, however, are much like those of other executives who may have studied only in the school of actual business experience. The doctor of philosophy who specializes in industrial psychology can not be confident of a chance to earn his living practicing the applications of his science in a business concern. He should first fit himself for university teaching and research, for this is the main trunk from which branch the opportunities for careers in industrial psychology.

Three outstanding assets for a career in industrial psychology are: a sound training in scientific method; the capacity to be genuinely interested in all sorts of people and the personality to deal effectively with them; and superior practical judgment, especially where money values are concerned.

It is a common error to imagine that an industrial psychologist does not need to be exacting in his scientific ideals and rigorous in his procedures, as does the experimentalist in a university laboratory. When selecting psychological methods for practical use—in an employment office, for example— he must know and evaluate all the considerations of reliability of one method *vs.* another, and *in addition* he must be able to evaluate relative costs in comparison with returns in dollars. For this reason it is essential for the industrial psychologist to have a good grounding in economics, including cost-accounting and industrial management. Mastery of the technique of constructing and administering tests is also of secondary importance, except as it may serve as a discipline in scientific method. The bulk of the training must be in general systematic psychology and in statistical and experimental method. To be an industrial psychologist one must first of all be a psychologist.

For the young man or woman, then, with a strong bent toward practical psychology, the first objective should be to secure the training necessary for doing good teaching and research in general and experimental psychology. Later, when one has made his place in a university or a research bureau as a teacher or an assistant investigator, the psychologist who combines practical good sense with scientific thoroughness and with ingenuity may be certain of finding opportunities in any industrial community for working on the most fascinating practical problems. His financial rewards will then be proportionate to his resourcefulness and his ability to produce an output of cash value to industry.

W. V. BINGHAM
CARNEGIE INSTITUTE OF TECHNOLOGY,
PITTSBURGH, PA.

## EDWARD WILLIAMS MORLEY

EDWARD WILLIAMS MORLEY was born in Newark, N. J., January 29, 1838. His parents were the Reverend Sardis B. Morley and Anna Treat Morley. Soon after his birth they moved to Hartford, Conn., and thereafter for the next twenty-five years his life was spent in New England. He graduated from Williams College in 1860, and from Andover Theological Seminary in 1864, and later taught in the South Berkshire Institute at Marlboro, Mass. He also spent a few years as minister in the Congregational church. In 1868 he married Isabella Ashley Birdsall, of Winsted, Conn., and a year later was called from the pastorate of the Congregational Church in Twinsburg, Ohio, to be professor of natural history and chemistry in Western Reserve College, then located in the neighboring town of Hudson. Later the college was moved to Cleveland and became Adelbert College of Western Reserve University.

During the first years at Hudson Professor