of the pattern of behavior is not "simply a combination or coordination of reflexes" originally isolated from each other.

One outstanding difficulty is that the number of factorial units analyzed from any one set of data depends on the nature of the mathematical operations employed. Herein the various schools of factorial analysis at present differ, reaching interpretations of any specific investigation as different from one another as the schools of Freud, Jung and Adler in their analysis of the role of the unconscious would reach in any particular case. For Spearman factorial analysis yields each time but two factors—a "general" factor known in some circumstances as general intelligence and a "specific" factor peculiar to each ability. Associated with this finding has developed his *neo-genetic school,* which refuses any countenance to *Gestalt* principles and spreads its net far more widely than can be suitably covered by its two most important principles—the "eduction of relations" and the "eduction of correlates." Their value is particularly evident in clarifying the definition of general intelligence.

Wherever we turn, whatever methods we consider, it would seem that both the total wholes and the component parts require appropriate study in order to arrive at a true and complete psychology. Once again, we are forced to the conclusion that psychology needs to be studied not only from the mathematical and the mechanistic but also from the humanistic and teleological standpoints, and alike from the introspective, behavioristic and *Gestalt* standpoints, according to the purpose which the study is intended to serve and the conditions under which the study is undertaken.

At a time when physicists are complaining that they do not know now what mechanism means nor what matter means, when many of them realize that what "scientific" or mathematical investigation has to say about the universe represents by no means all that is significant about it, when biologists recognize self-conservation—the struggle of organisms for their existence—and are no longer confident about the blindness of evolution, it would be rash to condemn any standpoint or any school of psychology among those we have examined. We may justly complain that any single current concept, *e.g.*, that of the reflex, of association, of *Gestalt,* or of factors, is inadequate, and that broader or multiple concepts are desirable. At the present time we observe a growing tendency of these schools to welcome each other's features that can usefully blend together. Orderliness and teleology are not inconsistent with one another: generalization and individuation are of equal importance. We have good reason, in view of the many-sidedness of psychology, to welcome, not to deride or to suspect, the active energy displayed by its various schools—so long as intolerance, injustice and the other evils common to dictatorship and totalitarianism are avoided. We have only to look back a half-century to realize the enormous strides that psychology has made, in refinement and expertness of introspection, observation and interpretation, in delicacy of discriminating terminology, in the conception of the unconscious, in the application of mathematical methods, diversity of aims, concepts and methods of approach and in the rich harvest that has resulted from the uses of psychology as an applied science.

# OBITUARY

## EUGENE DAVENPORT

EUGENE DAVENPORT was born in Woodland, Michigan, on June 20, 1856, and died in his old home on March 31, 1941. His parents were pioneers and the boy was brought up under pioneer conditions. While helping his father on the farm as a lad he made up his mind to get a college education. In due time he entered the Michigan State College of Agriculture, receiving the B.S. degree in 1878. This was followed by the M.S. in 1884, the M.Agr. in 1895 and the LL.D. in 1907. In 1920 Iowa State College conferred on Dean Davenport the LL.D. degree, as did the University of Kentucky in 1913 and the University of Illinois in 1931.

The ten years immediately following his graduation from college were spent in operating the home farm. In 1881 he married Emma J. Coats. They had two children, one of whom died in infancy. In 1888 he was appointed assistant botanist at the Michigan Agricultural College and Experiment Station and the following year was made professor of practical agriculture and superintendent of the college farm, a position which he held for two years. The year 1891–92 was spent in São Paulo, Brazil, as president of the Collegio Agronomica. Owing to the failure of that institution to receive government support, Dr. Davenport returned to the United States and in 1895 and 1896 was appointed dean of the College of Agriculture and then director of the Experiment Station of the University of Illinois. Here his great career really began. His task was to build a college and put agricultural education on a college level. In order to accomplish that purpose it was necessary to change public sentiment in the state.

When Dean Davenport went to Illinois there was a college of agriculture only in name. It was not that there was no work in agricultural education being done, but it was on a low level and wholly unsys-

tematized. There were only a few students. He found opposition both in and out of the university. The prevailing opinion was that the farmer did not need education, or if he did it should be vocational in a narrow sense. Dean Davenport had a different view. He believed that every young person should be educated both culturally and vocationally. He often remarked that what is technical and professional to one is humanistic to another and that "every man to be efficient needs the vocational; to be safe and happy he needs the other." He held the view that the country needed not "half men" but "whole men" in the sense that each should be man, citizen and farmer.

These views led the dean to insist on a college level for agricultural education and to oppose separate vocational schools. He insisted on a single system of secondary schools in which the people of all classes should be educated together with different courses of study for different classes.

He worked through the earlier years to get these views accepted before he could get the necessary support. As one of his colleagues has remarked: "Thus did Dean Davenport exert his powerful faculties towards seeing that instruction of less than college grade should be broadly developed in the secondary schools and that it should be developed as a part of a unified system of secondary education. Perhaps this is the most significant contribution which the university has made in the development of agricultural instruction at the sub-college level."

Public sentiment slowly changed, influential farmers were converted and through their support adequate appropriations to develop the college and experiment station were secured and an agricultural building was finally erected in 1900. The dean soon gathered around him an able staff in both the college and the experiment station.

From researches conducted in the experiment station have come discoveries that have added largely to the welfare of the people of the state. Without lessening in the least degree the credit due members of his distinguished staff, it may be truly said that Dean Davenport participated in every line of investigation, although he always gave the credit to others. He took an active part in developing the system of permanent agriculture, the soil survey and many other research projects. Concerning the policy of a permanent agriculture he wrote: "It can easily be shown that good farming which cares for the soil by restoring fertility as fast as it is taken out, can be made to pay the farmer better over a period of years than poor farming which destroys fertility."

Dean Davenport's views on education and agriculture are set forth in four books and numerous pamphlets. The books are: "Principles of Breeding," "Education for Efficiency," "Domesticated Animals and Plants" and "The Farm." These volumes and the numerous addresses frequently given in the state led in a few years to a complete change of attitude on the part of the farmers towards higher agricultural education. Indeed, so great was the change of public opinion that, as the dean often told me, he found it necessary at times to check impulsive projects designed to stimulate more rapid development. He always succeeded in this, even to preventing a movement for separating the College of Agriculture from the rest of the university. The confidence of the people in his judgment was deep and wide-spread. Indeed, it may be said of him that the College of Agriculture was in reality a creation of his own. The confidence of the people rested not only on the obvious sanity of his plans, but also on the fact that he had a thorough knowledge of practical farming and could speak to the farmers of the state as one of themselves.

When the World War came to us in 1917, Dean Davenport took an active part as an adviser of Mr. Hoover in promoting a food policy for the country. He and his colleagues outlined such a policy with the idea of having their proposal enacted into law. At the dean's request I personally took their recommendations to Washington, where they were incorporated into a bill and introduced in one of the houses of Congress. However, it was obviously desired to have such a project originate with the existing administration. Therefore the bill was never brought to a vote, although the policy finally adopted was substantially that embodied in the bill.

A true estimate of Dean Davenport as a citizen and educational leader can not be formed without a glimpse at what may be called his social philosophy. This is well set forth in the latter part of his last book, "The Farm." He remarks: "The conscientious farmer will remember that while his first duty is to himself and his family, yet, after all, he holds his land in trust because the man who comes after him will also have a family and will also have problems of his own to be met. He has no more right to skin the land for his own profit than has a business to issue long-time bonds for expenditures whose benefits will be gone before the people are born who will pay the bonds." This is an application of the sound doctrine that in industry and the professions the element of the public interest is always present and should never be forgotten.

The dean had some views in these later years on the Federal agricultural policy. He praised the liberal policy of previous years which promoted agricultural education and such projects as flood control, drain-

age and similar activities. He believed, however, that "To go further than this and attempt to coerce in the management of land, as is often suggested, is of doubtful expediency. . . . One thing is certain, agriculture can not be hampered by any form of gigantic administrative machinery, governmental or private." To the end he believed in individual initiative and self-reliance as the primary conditions of success. He expressed these views to me in his home only a few months before he died.

Dean Davenport also had pronounced views on the international situation. In an article written for the United States Boys' Working Reserve during the World War, he wrote: "Unless we win this war, all the world will work for Germany. She has a definite plan for the conquest of the earth, a piece at a time, and whosoever she conquers will be bled white. . . . Germany has been getting ready for this war for forty years." He quotes Bismarck as saying, "For a hundred years war must be the chief industry of Germany, and every war must pay for itself with a profit." So the dean goes on to remark, "Germany has threatened to bleed France and England and America, and so she will in good time if she comes out of this war with her army." These words might have been written in 1940 instead of 1917.

Dean Davenport did not limit his interest to education and agriculture. He was interested also in the fine arts and the proper use of leisure. Once in a while he emphasized his interest in the latter by taking extensive tramps with his family in various parts of our western land. "Vacation on the Trail" is a delightful story of their experiences in high mountain trails and a fine illustration of a good use of leisure.

Broadminded, liberal in his views, always courteous, helpful in his attitude, sound in his judgment and devoted to his ideal of duty, he was a tower of strength in the University of Illinois and the agricultural circles of our country. His influence will last down through the years.

DAVID KINLEY

URBANA, ILL.

### RECENT DEATHS

DR. GEORGE ELLETT COGHILL, member of the Wistar Institute of Anatomy, Philadelphia, where he was from 1925 to 1935 professor of comparative anatomy, died on July 23 at the age of sixty-nine years.

FREDERICK WILLIAM HEHRE, head of the department of electrical engineering at Columbia University, died on July 27.

THE *Journal* of the American Dental Association reports the death of Dr. Robert Boyd Bogle, Nashville, on May 25; Dr. Edward Jay Tinker, Minneapolis, on May 8, and Dr. John Albert Marshall, San Francisco, on May 7.

PROFESSOR THOMAS GIBSON died at Kingston, Ontario, on July 2 at the age of seventy-five years. At the time of his death he was professor of the history of medicine and earlier was professor and head of the department of pharmacology of Queen's University, Canada.

## SCIENTIFIC EVENTS

### AMERICA AND BRITISH SCIENCE

DR. H. H. DALE, director of the National Institute for Medical Research, London, and president of the Royal Society, has sent the following communication to *The British Medical Journal:*

Some of your readers may have seen my letter to the *Times* of June 20, on the generous gifts recently made to the Royal Society by scientific societies of the United States of America—an earlier one of $10,000 from the American Philosophical Society "for the aid of science in Britain," and now, last week, a gift of $5,000 from the American Physiological Society "for the support of scientific publications in Britain, especially in physiology."

A natural and helpful comradeship between medical men of different countries has always been at least as strong among the physiologists as among those whose work is in other branches of medical science or practice. Certainly we British physiologists are on terms of sufficient intimacy with our American colleagues to know well that the American Physiological Society, like our own, depends for existence and support on the efforts and the contributions of members who are working men of science. Their gift will assuredly have a direct importance for the object which they named in making it; but while we gratefully recognize its immediate and intrinsic value, we shall not miss the wider meaning of the fraternal impulse which determined this fine and generous action. We shall be sure that it symbolizes a desire of our American friends to share with us, as far as national policies allow, in the losses which are being encountered in defence of ideals which are theirs as much as ours.

Such gifts, indeed, are among many signs of the fuller understanding which comes with the recognition of a common peril and a common duty. An interchange of medical personnel has begun. The generosity of the Rockefeller Foundation is enabling a chosen batch of students to go to American medical schools; there must certainly be more of such interchange after the war, and in both directions. Qualified American medical volunteers are arriving in this country. Close collaboration in scientific researches more directly concerned with warfare has for some time been