

THE SCIENCE NEWS-LETTER

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EDITED BY WATSON DAVIS

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EDWIN E. SLOSSON, Director
WATSON DAVIS, Managing Editor



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HOW MENTAL ABILITY VARIES WITH AGE AND RACE

How psychologists measure the workings of the mind, and how the results of their studies are applied to everyday life, were described by Dr. J. McKeen Cattell, editor of "Science", before the American Association for the Advancement of Science, of which he is retiring president.

"The life of the unicellular ameeba consists largely in reacting to the immediate environment, and this holds through the whole range of animals to our own behavior in daily life," Dr. Cattell said. "The creature whose responses are prompt and correct, not disturbed by irrelevant conditions and events, is the one that survives and succeeds. There are some 700,000 motor-car accidents annually in the United States, about ninety per cent of which are due to the human factor.

"It is a satisfaction to be this year associated with the work of the Highway Safety Conference arranged by the Secretary of Commerce, which is to determine the physical and mental examinations for drivers and public chauffeurs that should be adopted for a uniform system of licenses in the several states and thus to apply laboratory experiments to a useful purpose," he continued. "Psychological methods are now used for the selection of taxicab drivers in a number of cities with resulting increase in efficiency and decrease in accidents. The most important work for psychology and its most useful applications are the measurement of individual, group and racial differences, and the determination of the extent to which these depend on native endowment and on subsequent experience," Dr. Cattell went on. "Indeed it is arguable that this is the most pressing problem of science and of society."

"If each of us from the moron to the federal president were selected for the work that he can do best, the work fitted in the best way to the individual and the best training given to him, the productivity of the nation would be more than doubled and the happiness of each would be correspondingly increased. If the best children were born, and only they, the welfare of the world would be advanced beyond the reach of practical imagination."

"The human mind reacts to different stimuli at different ages in various ways, and accurate knowledge of these changes is important," according to Dr. Cattell.

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"How we learn, the best way to learn, the right age at which to learn different things, the transfer of learning from one field to another, are subjects of fundamental importance in psychology and in education," he said.

"The age curve is of fundamental interest for psychology. Thus, for example, a child can learn to pronounce his own or a foreign language best at the age of about three years; there is then a drop and after about twelve years he can not learn correct enunciation.

"Perhaps a boy can learn to ride a bicycle best at the average age of ten, to drive a motor car at the age of sixteen. Our most original ideas probably come in the early twenties. Some of us may hope that the curve for forming correct judgments rises at least to the age of sixty-five."

"Our primary school system consists largely in trying to teach children with much labor and resulting stupidity on the part of both teacher and pupils, mathematical relations a couple of years before the organism is ready and could respond to them without effort. Then as this is the easiest subject in which to examine children, they are promoted from grade to grade mainly on performance in arithmetic without regard to individual differences in other kinds of work.

Reading character by external physical signs is difficult and unreliable," Dr. Cattell said; "no correlation has been found in the Columbia laboratory between size or shape of head and ability of any sort. There is no known relation between complexion, forehead, nose, chin or other features and psychological traits.

"The reading of character by physiognomy or graphology is the occupation of charlatans. It is difficult or impossible to tell even the sex of the individual from the features of the face or from the handwriting. These are, of course, legitimate subjects of study."

Dr. Cattell also explained how curves could be drawn showing the historical distribution of eminent men by nationality and performance.

"An analysis of the kind of performance shows that France has excelled in war, science and scholarship, England in politics, poetry and philosophy, Italy in art" he said. "Of the eighteen great musicians, Germany has produced ten, Italy six. Of the fourteen great explorers, England has produced five, Spain four.

Though text-books and treatises on history, at least until the most recent period, are mainly concerned with wars and politics, there have been fewer eminent sovereigns, soldiers and statesmen than scientific men, philosophers, poets, artists and the like.

The rising curves for science, the falling curves for philosophy and the church are significant. Soldiers have been surpassed in numbers by men of science and the curves predict a gradual cessation of war and the predominance of science.
