

THE USEFUL GENIUS

Intelligence, Creativity, and American Values

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WITHIN the past two or three years the American public has been informed, through a wide range of national magazines, of a new enthusiasm of educational psychologists—the measurement of creativity, both potential and actual. Parents, accustomed to seeing their children subjected to various forms of mental measurement from kindergarten on, are now being told that none of the tests presently in use presumes to measure one of the most important of human attributes—



—Henry Grant.

Creativity is a general human characteristic that can be found and measured even in the very young.

the capacity for creation. Young people seeking college scholarships are finding that evidence of their “creativity potential” is being weighed along with their examination grades and high school records. And of the several critiques of mental testing published recently, all have suggested that some of the major shortcomings of the I.Q. tests would be met if the testers could give credit for

“imaginative” as well as conventional answers to their questions.

Creativity testing is not yet common in the public schools, nor has it been used even experimentally on vast numbers of people. Already, however, the psychologists of creativity have attracted the attention of some powerful national institutions, including the National Aeronautics and Space Agency, which now tests the creativity of prospective employees. For this reason, and because those engaged in research on creativity have been seeking a large audience for their findings, it is time that the public examined the values guiding this research and became aware of the intellectual climate in which it has flourished. Such an inquiry may suggest some reasons to be cautious in optimism about the benefits of the new tests and may raise some doubts as to whether the new tests are really avoiding the defects that marred the conception and execution of I.Q. tests in America.

The progenitor of present creativity research, the mental testing movement that began early in this century, did not arise out of a desire to locate the creative members of society. Almost the reverse was true. Creativity was a concept that had been long and exclusively associated with artistic and literary activity. These in turn were linked with non-conformity, unconventional behavior, and even to insanity and feeble-mindedness. Popular folklore had long included a belief in the kinship of creative genius and insanity, and the early mental testers, though contemptuous of other manifestations of the popular mind, subscribed unanimously to this assumption. The pioneers of the mental testing movement—among them, J. McKeen Cattell, E. L. Thorndike, and Lewis Terman—shared the mistrust and even disdain for the creative arts that had long been a part of America’s intellectual baggage.

By the time of the First World War, intelligence tests were respectable enough to find widespread use in testing the mental ability of Army recruits. About 1,750,000 men received mental tests, and in consequence 8,000 were recommended for discharge because of extreme subnormality, 10,000 were assigned to tasks demanding only a low

level of intelligence, and a top 10,000 were sent to special battalions for further training.

The shortcomings of the Army tests were appalling, and the distortions made of the results were both extensive and influential. To Lewis Terman, the Stanford psychologist who did more than any other single man to popularize the concept of the Intelligence Quotient, the Army tests seemed to prove above all that the hopes of nineteenth-century egalitarian democrats had been a delusion. Even with the advantages of universal education, not all men were intellectually capable of deciding their own affairs wisely. Some were apparently not even capable of wielding a pick and shovel in the Army!

Terman saw cause for hope, however. Intelligence tests, he thought, could locate in childhood those who were most able, and such children might be given special educational and cultural advantages to prepare them for leadership. Equally important, such children could be encouraged to select intelligent mates and so help to breed superior offspring. Thus in the early 1920s Lewis Terman selected 1,000 school children who scored above 140 on the Stanford-Binet examination and termed them potential geniuses. For the next thirty years he studied these people extensively, hoping to find out what methods best helped genius to develop, what sorts of personalities geniuses really were, and how well they got along with others.

Terman’s critics were many and vocal. What none of them ever pointed out, however, was the contrast between Terman’s definition of genius and the traditional meaning of the term. Whenever one finds a word being used in a very new way, it is worth inquiring why that word has been emptied of its old meaning and what the significance of the change may be. An awareness of the contrast might have put a different light upon the exertions of the mental testers back in the 1920s. Such an awareness might still prove instructive to the new creativity testers.

The conception of genius is ancient if imprecise. Always, however, it has carried connotations of a *qualitative* difference between the genius and the ordinary mortal. For the nineteenth-

century Romantics in particular, the genius was characterized by his devotion to beauty and by his access to a kind of truth that escaped other men. Most often the genius was seen as an artist or poet, vastly different in appearance and mode of life from the generality of men, and with little reverence for social convention.

Of one thing in particular the Romantics were absolutely certain: neither the scientist, the inventor, nor the man of commerce could be a genius. Success in science, invention or trade was dependent not upon the exercise of imagination or intuition—the qualities that distinguished the genius—but upon the mastery of past knowledge, upon painstaking experimentation, and upon obedience to accepted forms of thought and behavior. To the Romantics, the genius was the archetype of the free individual. His appearance was a mystery, his contributions immeasurable and always, in some sense, creative.

As Lewis Terman defined it, on the other hand, genius was purely a *quantitative* phenomenon: a potential genius was anyone who tested above 140 I.Q. As the years passed, it became clear that the children whom Terman had selected in this way were not particularly creative, nor were they even very different from their supposedly less-gifted peers. Far from being nonconformists, the potential geniuses adapted with agility to the values that American society respected. As college students, they tended to slight intellectual pursuits in favor of extra-curricular activities. As adults, they entered the professions with notable success, and in matters social and political, as in all things, they tended to be moderate.

For the most part, Terman was delighted with the way his potential geniuses had turned out. Their lives, he said, disproved once and for all the old myths about the defects of genius. Geniuses were not bizarre or erratic eccentrics but steady, well-adjusted members of society. Unfortunately, it never occurred to Terman to wonder whether, in fact, they were geniuses at all.

The influence of Terman researchers and his conclusions was enormous. To some extent this was so because they were so entirely consistent with cherished American attitudes. Although his early critics found him anti-democratic, it was easy enough to counter this accusation by pointing out that what he wanted for the gifted child was the essence of democracy: the chance for each individual to realize his potentialities. Although Terman made many recommendations for educational reform, they did not demand a very profound re-orientation of pedagogical values. He called for scientific measurement of intellectual ability in a country

that had long been devoted to science. He urged that gifted people should be given enlarged opportunities for usefulness and expressed his approval when they turned out to be, in the most conventional senses, useful. Again he echoed a venerable American tradition.

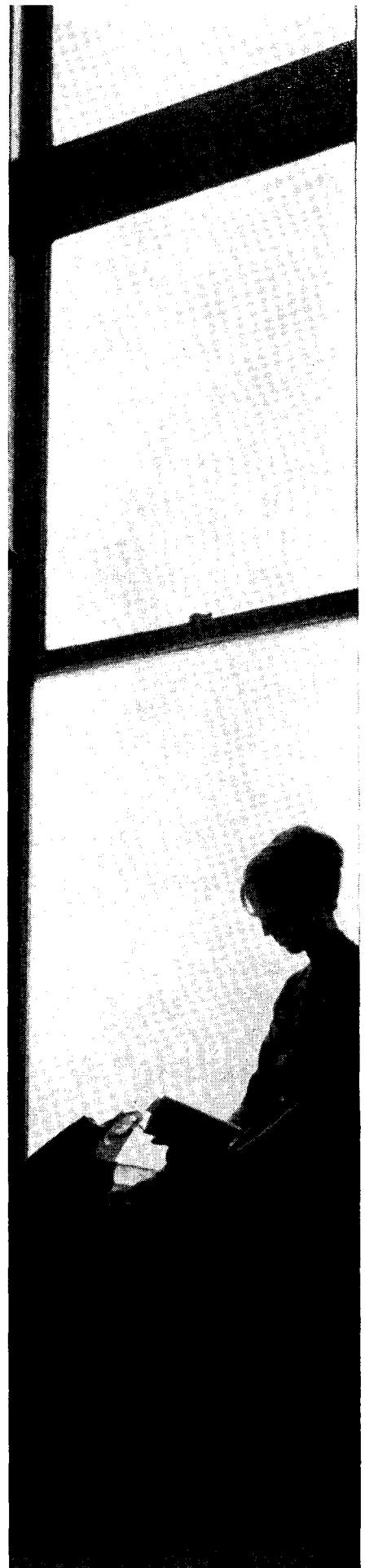
For the most part then, the I.Q. became the accepted frame of reference within which to discuss individual excellence. This was so despite the fact that psychologists had, since the turn of the century, been developing tests that would measure qualities usually associated with creativity. Such efforts were universally ignored. It's hard to escape the conclusion that until quite recently American educators, psychologists, and the general public were not particularly interested in measuring or developing creativity or in furthering an understanding of the creative process. Why then has there been the very recent change in this state of affairs, and how significant is the change?

One of the most decisive factors in heightening American interest in creativity has been the change, not in our regard for artistic and humanistic pursuits, but in the nature of *scientific* activity. Until the twentieth century, it had been possible for the average layman to keep pace with scientific discovery. One reason, in fact, that the theory of evolution had been so controversial in this country was that it was comprehensible enough to be argued about. The conclusions of Charles Darwin may have violated cherished spiritual beliefs, but they did not run contrary to common sense.

Such has not been the case with innovation in the physical sciences in the twentieth century. Discoveries in quantum mechanics and nuclear physics have been quite beyond the grasp of all but a small minority. There has been no contemporary counterpart of the old *Popular Science Monthly*, designed to familiarize a broad public with atomic theory or the idea of relativity. At the same time, those discoveries in many cases run counter to common sense. There is nothing in the average man's experience to prepare him to accept ideas of an expanding universe, or a space-time continuum. No longer does the scientist depend solely upon sensory evidence to arrive at new knowledge about the world. What might seem at first to be merely the wild imaginings of undisciplined minds have often furnished keys that unlock whole new areas of man's larger environment. The new knowledge that has emerged from such speculation has given man power that

—George S. Zimbel.

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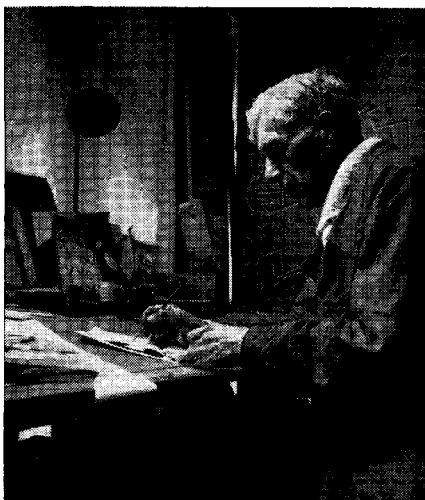
he had never before dreamed of possessing: it has given him the power of self-destruction and has placed him upon the threshold of some of the fundamental mysteries of human existence.

Because of these developments, it has become possible in the twentieth century to describe the man of science in ways once reserved for quite different kinds of men. The great scientist can now be seen as one able to break the bonds of conventional thought, a man not afraid to trust his intuitions and his imagination. In this way, he has gained insight into ultimate truths that traditional methods of inquiry had been unable to reveal. These were the mental processes and kinds of knowledge that had been thought, a century and more before, to be the special province of the man of genius.

This doesn't mean that the man of science has come to fulfill all the attributes previously associated with creative genius, or that all the sciences are now necessarily dominated by these new approaches to knowledge of the natural world. It is true nevertheless that physics has ruled the world of science in the twentieth century as biology ruled it in the nineteenth. In part, this has been because physics seems to hold the key to the life or death of mankind, and in part it has been because the struggle between the United States and the Soviet Union has given a sense of immediacy to the possibility of a nuclear Armageddon. It was this latter possibility that impelled a re-evaluation of the concepts of intelligence, creativity, and genius, and that brought about the new interest in creativity at this time.

In 1957, as every schoolboy knows, the Soviet Union successfully launched a space satellite and conclusively dispelled certain comfortable myths about the intellectual and scientific backwardness of our antagonist. The ripples from that event began to spread at once. American educators began to demand more science courses in the schools, cited the methods of Soviet scientific education as examples well worthy of emulation, and generally urged a return to academic discipline. Science talent hunts were begun, gifted young people were given special inducements and training to prepare them for scientific careers. And all of these new ventures had about them the conviction that upon their success or failure depended the security of the nation.

In this atmosphere, research into human creativity began to expand and flourish. There was nothing to suggest that psychologists, educators, or the public had departed in any way from conventional American valuations of the several categories of human activity. What had happened was that the meaning of creativity had broadened.



—Henle (Monkmeyer).

Georges Braque—"Imagination, intuition—qualities that distinguish the genius."

For example, at the Institute of Personality Assessment and Research in Berkeley, California, psychologists began, after the mid-1950s, to study a group of 600 highly creative adults, in order to discover what traits and characteristics they might have in common. The members of the group included writers, architects, research workers in the physical sciences and engineering, and mathematicians. One of the assumptions underlying selection was that creativity was as characteristic of the scientist as of the artist.

At the University of Minnesota's Bureau of Educational Research, related efforts, supported in part by the Federal government, have been carried on in the same areas and have been guided by similar assumptions. The work of director E. Paul Torrance and associates, however, has been focused upon the development of tests to measure creativity in the young.

Although Torrance himself has denied that he is more interested in any one kind of creativity more than others, the orientation of his work has clearly been toward the recognition and development of scientific ability. In Torrance's recent book summarizing current findings about human creativity, *Guiding Creative Talent*, the examples he gives of eminent "creatives" of the past who began using their abilities while quite young, are all men of science or technology—Newton, Hillier, Colt, and Westinghouse. Torrance's very definition of creativity shows this orientation. Creative thinking, he has written, is "the process of sensing gaps or disturbing, missing elements; forming ideas or hypotheses concerning them; testing these hypotheses; and communicating the results, possibly modifying and retesting the hypotheses."

In terms of impact, too, the creativity testers have most significantly impressed those concerned with American scien-

tific and technological development. The National Science Foundation has supported several research conferences at the University of Utah, another center for the study of human creativity. The Air Force has used some of the creativity tests to discover its especially gifted personnel, and in the spring of 1962 NASA began to use the tests on its job applicants. One may be reminded of the Army intelligence tests of 1917 and hope that the errors of that ill-conceived experiment in mental testing are well in the minds of today's testers.

In some senses, it is true, there is much to be commended in the preferences revealed by this new generation—particularly in contrast with the values of the pioneers of the early twentieth-century mental testing movement. The new approach to creativity is far more environmentally oriented than the original intelligence tests were. No one talks any longer about "breeding" an elite to command the "mediocre majority." The current researchers into creativity have been governed by the belief that every individual is born with the capacity for creative expression and that it is the responsibility of parents and teachers to prevent that capacity from being lost.

On the other hand, the historical record may suggest some reasons to be cautious about the current expectations about the fruits of creativity research. The very fact that the related concepts of creativity and genius have been so long associated with artistic endeavor may lead one to question the wisdom of the current emphasis upon fostering scientific creativity. The zeal with which contemporary psychologists have approached creativity testing has been markedly in the direction of identifying those most highly qualified for scientific innovation. It is on this basis that they have obtained public and financial support for their investigations. It is possible that their tests and their suggestions for educational innovation may be ignoring those forms of creativity that do not conform to their own predispositions about the kinds of creative activity that are "worthwhile" in American society.

The eagerness with which the Air Force and NASA have welcomed the new testing devices should give one pause to consider the potential effects of such talent hunts. Surely there are areas in which the need for creative innovation is as marked as in the scientific and technological. It is, in fact, rather ironic that the man of science should come to be viewed as creative at the time when his labors have multiplied man's capacity for destruction.

Another potential danger is related to the first and concerns that much-belabored issue of conformity in contemporary America. In past centuries the idea of creative genius has always

carried connotations of nonconformity. The man of genius was thought to be distinguished by his freedom from convention, by his disregard of the opinions of others. It was this element of nonconformity that most often brought public criticism of his behavior. It is time to ask whether the circumstances that have helped the creativity testers to gain a wide public hearing are also circumstances that will encourage what may be a necessary degree of nonconformity.

John Hersey recently made some pessimistic predictions about how Americans were likely to respond to creative excellence. In his Orwellian novel, *The Child Buyer*, Hersey describes the fate of a highly gifted child, Barry Rudd, purchased by a large corporation engaged in important government defense work. Barry's parents, teachers, and friends are at first appalled at the idea that he should be bought, taken from his home and family, and placed in the service of this corporation for the rest of his life. The process by which the boy is to be prepared for his work is a horrifying one: through various methods of mental conditioning and surgical alterations he is to become capable of devotion only to United Lymphomiloid.

One by one, the objectors are corrupted until finally Barry himself capitulates and is taken off to begin his life of intellectual service. The means of corruption are diverse, but in every case the child buyer capitalizes upon the fact that Barry Rudd makes those around him feel uncomfortable. He too often says the unexpected, too often demands implicitly that people think about things in new ways. The child buyer offers a comfortable escape from the tensions that the boy's presence causes. Barry will be made useful: he will be doing work which, while highly ambiguous, will supposedly contribute to national security—and he will be removed from society. Even Barry recognizes that his only chance for the realization of his potentialities lies in abandoning the hope of a normal life in society.

No one would suggest today that there is a likelihood of John Hersey's dire prophecies being brought to fulfillment in the extreme manner he has described. Hersey has, nevertheless, put his finger upon some of the problems that can emerge from the climate of opinion that has stimulated new interest in creativity. The discovery that creativity is a general human characteristic and that it can be found and measured even in the very young represents a tremendous advance in human knowledge. The American public has the obligation to demand that the new tests be used not to discipline but to liberate the highly creative. If this should not be the case, it would be tragic indeed.

New Books



How Children Fail. By John Holt. *Fitman Publishing Corporation*. 181 pp. \$4.50. An analysis of why most children fail to develop more than a small part of their capacity for learning and creating. The author finds from his experience and research that most children are afraid—of not doing what other people want, of not pleasing, of being wrong, of failing. Part of the blame, the author believes, rests with parents and the schools, who encourage the child to work for petty rewards like gold stars or even Phi Beta Kappa keys, who fill lessons with repetitive and fragmented subject matter, who tell the child what he “should” think and feel and keep him from following his own curiosity which could lead to real intellectual endeavor. The author's conclusions suggest ways parents and teachers could help prevent this sense of fear and continuing failure.

Accent on Talent. By Benjamin Steigman. *Wayne State University Press*. 370 pp. \$7.95. Description of New York's High School of Music and Art, its program and its achievement, by its former principal of twenty-two years. The school provides four years of intensive study of music and art for talented boys and girls, together with a full college preparatory program. The author offers views on the general high school course of study, its servitude to the colleges, and its neglect of the artistically talented.

How to Teach Your Baby to Read: The Gentle Revolution. By Glenn Doman. *Random House*. 166 pp. \$3.95. Written for parents, a presentation of how children can be taught to read at an earlier age than previously thought possible, and some extraordinary benefits that accrue.

Introduction to the Philosophy of Education. By George F. Kneller. *John Wiley and Sons, Inc.* 137 pp. *Paperback*, \$1.95. An outline of those elements of philosophy that are relevant to understanding education and teaching.

Higher Education in the American Economy. By André Danière. *Random House*. 206 pp. *Paperback*, \$1.95. Analyzes education as a consumer good, discusses the non-monetary cultural benefits, and suggests solutions to the problem of providing public higher education to those who cannot afford it.

Progressives and Urban School Reform. By Sol Cohen. *Bureau of Publications, Teachers College, Columbia University*. 273 pp. \$6.50. A history of the Public Education Association of New York City from 1895 to 1954.

Freedom with Responsibility in Teacher Education. *The American Association of Colleges for Teacher Education* (1201 Sixteenth St. N.W., Washington, D.C.). The 1964 Yearbook, proceedings of the Annual Meeting. Includes the important address by James B. Conant outlining his plan for changing the teacher certification process, and the responses of Harold Taylor and Francis Chase.

A University in the Making. By Albert E. Sloman. *Oxford University Press*. 90 pp. \$3.25. The BBC Reith Lectures on the planning and establishing the new University of Essex in England, by its Vice-Chancellor.

Creative Writing in the Elementary School: Psychology and Technique. By Don Pease. *Exposition Press*. (386 Park Avenue South, New York, N.Y. 10016). 182 pp. \$4. Offers the classroom teacher suggestions and techniques to motivate, reinforce, and evaluate the young student's written efforts.

Foreign Language Teaching. By J. Wesley Childers. *The Center for Applied Research in Education* (70 Fifth Avenue, New York, N.Y. 10011). 120 pp. \$3.95. An account of the status and growth of foreign-language teaching in the United States.

The Psychology of Learning and Techniques of Teaching. By James M. Thyne. *Philosophical Library* (15 East 40th St., New York, N.Y. 10016). 240 pp. \$7.50. Aims to show student-teachers how a knowledge of learning can give guidance to the act of teaching.

The Colleges and the Courts Since 1950. By M. M. Chambers. *The Interstate Printers and Publishers* (19-27 North Jackson Street, Danville, Ill.). 415 pp. \$7.50. A discussion in lay language of higher state and federal court decisions since 1950 regarding such subjects as racial desegregation, the loyalty oath furor, taxes and finances of public and private institutions.