nopoly on creativity, and there are many members of the Soviet academy who are extremely productive, so that it is possible to observe the formalities which I judge are expected of us and, at the same time, to invite someone who can offer us considerable scientific stimulation. A possibility which might satisfy both points of view is that we invite one or more academicians together with an equal number of their gifted young mathematicians.

Since the congress last summer, the upheavals in eastern Europe have changed drastically not only many of our conceptions of Soviet-American relations but also the Soviet conceptions of these relations. It does not speak well of either of the two governments that almost the first expression of displeasure at the turn of events in the satellite countries was the summary curtailment of all cultural relations between the two countries. For if it is our long-range intention not to live in perpetual hostility to the Soviet Union—and the logical consequences of the hypothesis of perpetual hostility are obvious—then it appears to me that each side has struck at the best means of implementing its long-range intention. It was my impression that the longing of Soviet scientists and other scholars for more contact with their Western colleagues is the most important fissure which has appeared in the Iron Curtain, in the sense that the proper exploitation of this fissure can lead to pressures for change inside the Soviet Union by a group of people of considerable prestige and influence: the sort of pressures which we have asserted would bring about those changes for which we have been hoping. In my view there exists an urgent necessity to replace and to enlarge the basis for the scientific and scholarly contacts at all levels, but at the very least, there exists the urgent necessity of examining and discussing our objectives in the general field of the cultural and scientific relations between the United States and the Soviet Union.

L. M. Terman, Pioneer in Mental Measurement

When Lewis M. Terman died, near the end of his 80th year, he was working on the manuscript of volume 5 of *Genetic Studies of Genius* and was simultaneously planning the next 3 years' research on his group of 1500 "gifted children." No other facts could mark the man so well. From 1903, when he arrived at Clark University to begin graduate work, until his death, his career was a continuous sequence of research and writing, broken now and then by illness and accident but never interrupted in its main course.

At the turn of the century, the idea of measuring human abilities was little more than a dream. To be sure, E. H. Weber had measured sensory thresholds long before, and the "new psychology" of the 1880's and 1890's had isolated such simple behaviors as discrimination and reaction time. But a man's performances in these molecular processes, it was quickly apparent, were quite unrelated to his performances as a thinking, reasoning, judging, creating human being.

A new approach was in the making, however. In Paris, Binet had discovered how to distinguish bright and dull pupils with a test composed of difficult "school-type" questions. At Teachers College, Columbia University, Edward L. Thorndike had developed tests for measuring school achievement. These efforts caught Terman's imagination at the very beginning of his graduate work. He had had sufficient experience as a school teacher himself to know of the great differences among children in their capacities for learning. He knew, too, from his own early experiences in an intellectually arid farm county in Indiana, that high talent is likely to be wasted for want of recognition and encouragement. He thought that such wastage was shameful, a tragic loss to society of its most valuable resource. He conceived of social progress as dependent on how rapidly, and with what economy, intellectual giants—"geniuses" as he later called them—could reach their maximum development and produce their great ideas. He devoted his career to developing methods of measuring intellectual ability and to discovering the qualities of those who are most gifted. In a century that has concerned itself strongly with the remedying of evils—illness, poverty, inequity—and in a science that seems, perforce, to have had to orient itself too often toward the care and understanding of the weak and inept, Terman turned resolutely toward the positive side of man's existence. As a student of the intellect, his interest in feeblemindedness was perfunctory, his zeal for the study of genius, burning.

The half-century since Terman finished his doctoral training is almost coincident with the history of mental testing. So is Lewis Terman. From the first, there was something provocative and exciting to him in the very idea of measuring complex psychological qualities. His doctoral dissertation was a comparison of seven bright and seven dull schoolboys. He gave each child a battery of more than 40 hours of individual tests, probably the most overwhelming test-assault inflicted on any child up to that time. Nothing much came of the study, but it did give Terman a chance to try his hand at making up tests. He loved it, and he went right on loving it to the end of his life. He built test after test for 40 years, all of them good (technically) and nearly all of them useful.

His first major venture was the revision of Binet's intelligence test. He began this task when he went to Stanford University as an assistant professor of education, in 1910. The Stanford-Binet test, as he called it, became at once the standard intelligence test for use in schools and clinics throughout the United States. His selection of a score for the test—the IQ—proved immediately popular. As a simple measure of the influence of Terman on modern society, try to imagine eliminating the IQ from our language!

Although Terman received his doctor's degree in both psychology and pedagogy, he was perhaps more closely associated with the latter than with the former in his early years at Stanford University. He was in the School of Education. The department of psychology was tiny, experimental in the Wundtian sense, and, with respect to research, essentially moribund. When he published *The Measurement of Intelligence,* in

1916, Terman was not even a member of the American Psychological Association.

Then came World War I. With a great mass of men drawn into the military services, the need for selection devices was serious and immediate. Under Robert M. Yerkes' direction, a group of psychologists went to Washington to prepare appropriate tests. Among them was Terman, and there he rediscovered his kinship with psychologists. A list of the group that constructed the Army Alpha and Beta tests reads like a Who's Who of American psychology in the first quarter of the century. Many of them were originally of the hard-bitten, experimentalist school, and their acceptance of Terman's contribution to the measurement problems imposed by the national emergency reinforced his conviction that mental tests are not only of practical significance but are an integral part of scientific psychology. He never lost his belief in the importance of the educational applications of testing, but after the end of World War I, Terman was primarily a psychologist. He joined the American Psychological Association, was a member of its council in 1919, and was elected president in 1923. He was elected to the National Academy of Sciences as a psychologist.

In a sense, all this was preparation, both for Terman and for the society of which he was very intimately a part. The Stanford-Binet was a thoroughly sound and useful individual test. The Army Alpha was a successful group test. Together they had paved the way for the expansion of tests into whatever realm of usage might be reasonably suggested. The need for tests was widely recognized; Terman and his colleagues had learned how to make them. For some few years after he returned to Stanford University from Washington, Terman practiced his skill, in collaboration with T. L. Kelley, G. M. Ruch, and others. The Stanford Achievement Tests and the Terman Group Test were perhaps the most widely known products of this period.

Not everyone was enthusiastic about mental testing. Some philosophers, some humanists, some "wise" laymen of indecipherable antecedents but of wide journalistic following were distressed no end by the notion that the mind could be measured. Not more than two decades before, the very idea of mind as a measurable process had scarcely been suggested. The philosophy of nonscientists, even in 1920, was essentially dualistic and, to many, the mind was still ineffable.

As the most visible proponent of mental testing, Terman was the focal point of attack from these sources. He bore up well, though with occasional acerbity. His answers to the more "sophisticated" attacks were not brilliant in the philosophic sense. He was no philosopher. He answered in the language a scientist knows best—the empirical. He rested his case on the simple fact that when a sample of behavior is measured under standard conditions with a standardized measuring instrument, future behaviors of a specifiably similar kind can be predicted with a knowable degree of error. There was no metaphysical principle discernibly involved in the argument. Not surprisingly, the argument ultimately carried conviction, even to those who had begun by opposing it. In the long history of man's attempt to make the universe seem lawful and orderly, mental testing, as Terman and others practiced it in the first quarter of this century, has probably played the largest part in contributing an empirically legitimate sense of order and lawfulness to those events in the universe that are composed of the behavior of man himself.

Test construction was not Terman's main interest for long, however. In 1921 the Commonwealth Fund provided him with a grant large enough to enable him to begin the study of a large group of gifted children. By diligent search through the California schools, he was able to locate 1500 youngsters, of average age 11, who had IQ's above 140. Terman's object was to discover what the intellectual and other characteristics of such a group were. He was distrustful of the common myth that the brilliant youngster was peculiar, unhealthy, and doomed to early deterioration. His observations during the course of test construction had led him to the hypothesis that children with high IQ's become adults with equally high intelligence.

The results of Terman's study are so widely known that they need no summary. In brief, he was right. But, not content with following the group just long enough to discover that "good things go together," he decided to make sure once and for all that the gifted child of today is the leader of tomorrow. To this end, he followed the group continuously until his death, by which time their average age was 46. His warmth and kindness, his perpetual eagerness to help and counsel, brought him the enduring friendship of his "children." He could easily have answered the questions he sought to answer by retaining contact —over 35 years—with half of the group. Actually, as of 1957, 93 percent of the living members are still active participants.

The social importance of this study, chronicled as it is in the successive volumes of *Genetic Studies of Genius* and in dozens of articles in technical journals, cannot be overestimated. In the field of education, it has given great impetus to the discovery and maximizing of talent. It has made abundantly clear where society's strongest resources lie, and, more generally, it represents the final squashing of the age-old theory of compensation among man's good qualities. There are no negative correlations between intelligence and strength, size, physical vigor, and emotional stability. On the contrary, where correlation occurs at all, it tends to be slightly positive. Never again can literate men look on a bright child as being, somehow, a kind of bad seed.

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