Terman and His Works

Lewis M. Terman. Pioneer in Psychological Testing. HENRY L. MINTON. New York University Press, New York, 1988 (distributor, Columbia University Press, New York). xiv, 342 pp. + plates. $40. The American Social Experience Series, vol. 11.

Schools as Sorters. Lewis M. Terman, Applied Psychology, and the Intelligence Testing Movement. 1890–1930. PAUL DAVIS CHAPMAN. New York University Press, New York, 1988 (distributor, Columbia University Press, New York). xvi, 228 pp., illus. $40. The American Social Experience Series, vol. 12.

These books both deal with the American intelligence testing pioneer, Lewis Madison Terman (1877–1956), but in different ways. Whether fortuitously or by design as part of the same publisher's series, they complement each other nicely; for Minton's biographical study details the personal circumstances surrounding the emergence of Terman's work, and Chapman's study documents both the general and the immediate social contexts into which that work was absorbed.

Terman first came to prominence in 1916, with the appearance of his "Stanford-Binet" scale of intelligence and his adoption of the "intelligence quotient" or "IQ" as the numerical measure of success on the scale. He subsequently played a major role in testing for the Army during World War I, initiated and promoted the widespread use of group intelligence and achievement tests in the schools, and assembled a sample of more than 1500 "gifted" (that is, high-IQ) children whose lives and careers continue to be studied today in one of psychology's most famous longitudinal studies. As chairman of Stanford's psychology department, he helped to establish the psychometric approach to personality and to launch many students upon prominent careers.

The subject of one earlier full biography by an admiring former student, Terman has also in recent years been frequently excoriated for his espousal of various hereditarian, meritocratic, and racist opinions. Minton, after carefully studying the extensive Terman papers in the Stanford University Archives, has brought a more detached and historically sensitive eye to his biographical task. Though obviously personally repelled by many of Terman's views, Minton still presents his subject as an understandable child of his time and particular circumstances. Without ignoring Terman's more disagreeable qualities, he also highlights several attractive strengths including an unusual capacity for teamwork, friendship, and devoted attachment to colleagues and students.

If Terman does not leap from Minton's pages as a biographical subject to rival a Samuel Johnson or a Sigmund Freud in general interest, this is hardly the author's fault. Terman seems truly to have been a rather gray individual, whose major contributions derived from the work of others. Late in life, he accurately wrote of himself: "I am in no sense a philosopher, and lord knows that as a psychologist I am not outstanding either for scholarship or for originality" (Minton, p. 243). He made his career mainly by developing and capitalizing on the original ideas of others—including Francis Galton's concept of a test of "hereditary genius," Alfred Binet's adoption of age-standards as the measuring rods for children's intelligence, and William Stern's suggestion that the *ratio* of a child's "mental age" to "chronological age" be taken as the basic numerical result of an intelligence test.

Minton deftly shows what qualities other than scientific originality produced Terman's success. From early in his career, he understood the value of team research and had the ability to motivate and work smoothly with colleagues and subordinates. A shrewd money manager from his student days onward, he chose for his tests publishers with wide distribution facilities and maximum marketing expertise and invested his substantial royalties wisely. One of psychology's first genuine virtuosi at grantsmanship, he won and efficiently administered innumerable awards for the furtherance of his team projects. An archetypal psychological technocrat, Terman throve in an age of developing psychological technocracy.

Chapman's *Schools as Sorters* helps us to understand that age, by focusing on the social and educational context into which Terman's intelligence tests so neatly fit. The first two chapters, respectively entitled "Solutions in search of problems" and "Problems in search of solutions," show how the new testing techniques of the early 1900s met unusually receptive conditions in American schools. Confronted by exploding populations due both to massive immigration and to newly enacted universal education laws, American schools desperately needed new and efficient ways of processing their pupils. Systems of "tracking" into more or less homogeneous student groups were already under development, so the new testing techniques fit neatly into a process that had already begun. Chapman shows that although the earliest developments in mental testing occurred in Europe, by 1932 substantially more than half of the world's published tests had arisen in the United States. Thus Terman introduced his tests to a public that was more than ready to adopt them.

Moving from the general to the particular contexts into which Terman introduced his intelligence tests, Chapman presents interesting studies of the specific communities and school systems near Stanford where Terman and his students conducted their first large-scale experiments. Terman's student Virgil E. Dickson had begun introducing Stanford-Binet and group intelligence tests into Oakland schools even before World War I. By 1919 Dickson had tested more than half of that city's school population and laid the groundwork for a three-track system of homogeneous classes for superior, average, and slow learners. Terman hailed these developments as a model for other communities in 1922, while advocating even further elaboration into a five-track system with separate classes for the "gifted," the "bright," the "average," the "slow," and the "special" in descending order of IQ scores.

A second large-scale experiment occurred in San Jose, a medium-sized city with a large immigrant population. There Terman's student Kimball Young introduced testing that led to the classification of disproportionate numbers of "Latin" children (that is, children of South European ancestry) as retarded—not because of their obvious language handicaps but because the tests were claimed by Terman to measure innate mental incapacity. The superintendent of schools with whom Young worked—one Walter L. Bachrodt—seemed to have a language handicap of his own, writing in his official annual report of the difficulties encountered in achieving the "assimulation" of "predominably foreign" children in the schools (Chapman, pp. 121–122). One wonders if Young's experience with Bachrodt may not have predisposed him toward his later abandonment of hereditarian and nativist theories of intelligence in favor of a relativistic social psychology.

Chapman devotes another useful chapter to the dissenting voices that cautioned against widespread testing from the very beginnings of the testing movement. Terman and his colleagues reacted acerbically

and often intemperately to such criticisms, a fact that is also well documented in Minton's biography. But though at first in a minority, these cautionary voices unquestionably contributed to the gradual change of heart of many like Young who had started out as enthusiasts. Today, they represent much of the conventional wisdom about intelligence testing.

Schools as Sorters is loaded with illustrations, charts, and tables of statistics. Sometimes such documentation is unnecessary to make the author's points, and one wonders if it has not been included primarily to expand a slim manuscript to a more standard book length. Even without these trappings, Chapman's book would join Minton's in contributing usefully to our understanding of one of the most controversial chapters in the history of American psychology.

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The Fate of Gondwana

Gondwana and Tethys. M. G. AUDLEY-CHARLES and A. HALLAM, Eds. Published for the Geological Society by Oxford University Press, New York, 1988. viii, 317 pp., illus. $120. Geological Society Special Publications, vol. 37. From a meeting, May 1986.

Geologists visualize the earth 250 million years ago with its continental crust assembled into a single landmass, Pangea. The northern part, Laurasia, was sutured with the southern part, Gondwana, by the late Paleozoic plate collisions. The Tethys Ocean, nestled in the arms of Pangea, bathed the northern shore of Gondwana in warm, tropical to subtropical waters. Stretching eastward from Tethys and occupying most of the globe lay the vast ocean of Panthalassa.

What subsequently occurred was the most extraordinary geologic event to affect the Phanerozoic globe. Tectonic stresses at work in the continental lithosphere of Pangea initiated its breakup, leading to profound changes in Tethys. From the Mesozoic onward, drifting of Gondwana fragments resulted in closure of the original Paleo-Tethys Ocean and the creation of a new body of water, the Neo-Tethys Ocean. Vestiges of this former ocean are found in mountain belts from Gibraltar to Southeast Asia.

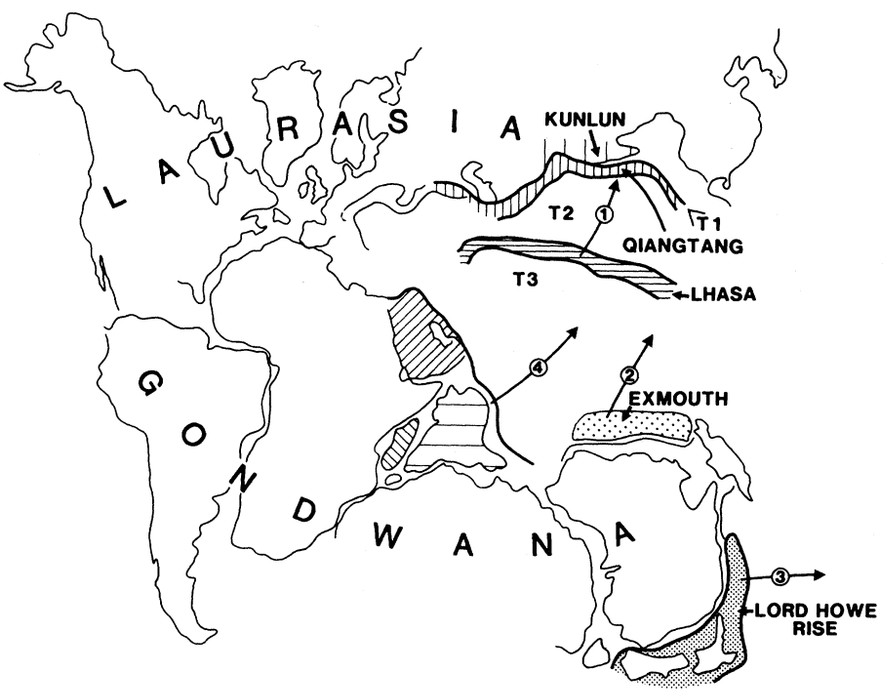
Southeast Asia plays a key role in understanding the complex tectonic history of Tethys. It is thought that large blocks of the northeastern edge of Gondwana were rifted off, then transferred by ocean spreading processes across a substantial part of Tethys, eventually colliding with and becoming attached to Laurasia. The tectonic collage of southeast Asia is thus traced to northern Australia. Such events imply not only the subduction of a great deal of ocean floor but also the addition of much continental material to Laurasia at the expense of Gondwana. The editors of this book point out that concomitantly with such tectonic processes, "a series of substantial continental fragments was being swept across Panthalassa, to dock on the western margins of North America." Clearly, a dominant process in global tectonic renovations involved transoceanic dispersal of terranes.

Gondwana and Tethys integrates diverse geologic disciplines as it explores the progressive dispersal of Gondwana's subcontinental fragments. This noteworthy book marshals an impressive array of specialists who present structural, metamorphic, paleomagnetic, paleontologic, and stratigraphic evidence on the progressive breakup of the critical northern edge of Gondwana. The authors also discuss the ultimate fate of rifted fragments propelled across Tethys by seafloor spreading.

The first 15 of the 19 papers in the volume address geotectonic (structural and metamorphic processes) and stratigraphic problems (including paleomagnetic data). The remainder deal with paleontological matters from the Paleozoic to the Cenozoic, particularly as related to paleogeographic issues.

Although somewhat sporadic in its coverage, the collection includes noteworthy contributions. Two papers—by Price *et al.* and Dewey—discuss the plate tectonic mechanisms responsible for the breakup of Pangea and its reassembly into our modern continents. Utilizing stratigraphic evidence and paleogeographic maps, Audley-Charles reviews the evolution of the southern margin of Tethys to show two phases of rifting—one in the mid-Permian, another in the Jurassic. A regional overview paper by Şegnör *et al.* traces the closing of the Paleo-Tethys Ocean and formation of the superorogenic "Tethysides"—a tectonic complex bridging the whole of Eurasia. Detailed maps and regional integration of magmatic, structural, paleontological, and paleomagnetic data on the Paleo- and Neo-Tethys oceans makes this contribution valuable. Metcalfe discusses the assembly of Southeast Asia, and Tarling covers the evolution of the Indian Ocean. Not all authors agree on how best to interpret the data, and the discrepancies between reconstructions make interesting reading.

Paleontological papers offer exciting data for assessing some of the tectonic postulates presented in the first part of the book. Many are disappointing because of either their lack of detail or the ambiguity of their results. Some are unexpected and frankly controversial, such as Ager's renewed suggestion,



World reconstruction during the early Jurassic, presenting one idea for the origins and subsequent movement (arrows) of lithospheric fragments (patterns) responsible for various closures of Tethys (between Laurasia and Gondwana). T1, T2, and T3 refer to former Tethys oceans. [From J. F. Dewey, "Lithospheric stress, deformation, and tectonic cycles," in *Gondwana and Tethys*]