Review of the book

California Dreaming: Reforming Mathematics Education
by Suzanne M. Wilson (Yale University Press, 2003, xvi+303 pages)

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It has been the fashion among the upper bourgeoisie, ever since psychoanalysis took its hold on them, to denigrate a certain sort of personality as "judgmental". Readers of magazines about bringing up children have long been urged to be nurturing rather than judgmental, to approve rather than disapprove, to praise rather than correct. The Victorian model of stern discipline, extreme cases of which have been well described by Dickens and Samuel Butler, was in the 20th Century deemed to be destructive not only of the joys of childhood, but of the very educational results that discipline was intended to achieve.

In the 20th Century United States non-judgmentalism became reinforced by the egalitarian ideal implicit in our founding documents, which have largely been interpreted not only as demanding equality of access to education (and everything else), but as signaling a failure of our public school system (and not "the victim") when a child fails to succeed in school. On this thesis both the press and the courts agree, and the legislatures follow, all in a recurrent attempt to make the schools achieve what the latest educational research claims to be both desirable and attainable -- and for all children, bar none.

The history of progressivism in American education is the history of the playing out of this ideal, and has been reviewed in the landmark book of Lawrence A. Cremin, The Transformation of the School: Progressivism in American Education 1876-1957 (Knopf, 1961) and the more recent studies of Diane Ravitch (e.g., Left Back: A Century of Failed School Reforms, Simon & Schuster, 2000), and -- with or without attached judgments -- should be familiar to the potential audience for the Suzanne Wilson book under review. But while Cremin and Ravitch take a defined point of view, Suzanne Wilson does her best not to. And this attempt at even-handedness is the principal fault of the resulting book

Progressivism has more than mere psychological warrant, for it is a convenient doctrine for charlatans to affect, convenient for educators who know very little of either the real world or the world of ideas. How much easier, in a class of children, it is to be "a guide on the side" rather than "a sage on the stage", to permit children to talk over what they want to learn, what they would like to do next in their pods of four, and then to insist they arrive at consensus rather than some preordained truth, than to be an old-fashioned taskmaster. Albert Lynd's
neglected Quackery in the Public Schools (Little, Brown, 1953) puts the case for the ignorance of the educational leaders of his time quite persuasively, right out of the words of James Heard Kilpatrick, Columbia Teachers College's most popular professor ever. This famous cheerleader for the ecstatic education never found it necessary actually to know anything about history or mathematics. The progressive philosophy has been summed up in the doctrine, "We don't teach history; we teach children." And indeed, the training of teachers in 20th Century America has largely avoided history, mathematic and the rest, while concentrating on the children, as if their education needed only process and not content too.

Suzanne Wilson's California Dreaming is written against this background, though it seldom invokes the larger currents of American educational sociology. It is a modest book. It is not about "education", but about "mathematics education", not about the 20th Century (except for a brief review), but about the period 1980-2000, not about the United States but about California. It does, however, say a great deal more about the politics, the hard electoral politics of school boards and commissions, state legislatures and state governors, than most books on educational trends do, and that is an important and too much neglected feature of the continuing crisis in education.

Unfortunately the book does not fully engage the political infighting threaded through the various commission reports and resulting legal documents. Nor does it come to grips with the real intellectual divide between mathematicians and the political-educational establishment, for it barely mentions even so simply described a bone of contention as "long division", let alone explain why its presence in the curriculum is so attacked by some mathematics educators, yet defended by most mathematicians as worth teaching despite the existence of electronic calculators. This and other omissions are more the result of the author's purpose than of any neglect in uncovering relevant information, though there is that, too; for her purpose, as we see in the last few chapters, is to call a truce rather than to solve either an intellectual or political problem in the history of the time. In particular, one will not find in this book anything about mathematics.

Some of the most furious battles in the California curriculum struggle are introduced by phrases such as "School district personnel complained that ..." (p136), "Given this tangle of forces, it is unlikely that ..." (p139), "Others, too, felt that Honig had become..." (p141), and the like, where the reader would wish to know if these complaints, likelihoods and feelings are right or wrong, well-taken or specious, not just whether they existed.

Sometimes her own view does shine through. Consider the full statement whose first few words seem to show the ambivalence of the phrases quoted above, but which does go on to say something: "Researchers differ as to the connection between per pupil spending and student achievement, and I am not offering one facile explanation to replace another [and here a footnote refers to several relevant research papers of varying views]. But it seems reasonable to think that overcrowded classrooms, outdated textbooks, buckling floors, leaky roofs, and too many portable classrooms do not enhance learning, especially
when combined with a steadily increasing student enrollment, and especially in urban, high-poverty environments.”

The following paragraphs quote writers and documented facts to buttress the thesis that spending in fact does make a difference, though the author's convictions are never more vigorously defended than at the "it seems reasonable to think..." level. We are not actually told whether it might be reasonable to think otherwise, for the discussion does not buttress the thesis that more spending would even attack, let alone solve, the problems listed there. The United States spends more per pupil on education than almost any country in the world, and yet recruits half its graduate students in the mathematical sciences, those who achieve PhD degrees and stay to teach in our own university mathematics, statistics and computer science departments, and work in our research laboratories both commercial and government-sponsered, from India, China, Japan, Korea, Taiwan and Eastern Europe, places certainly not all known for high per-pupil spending, or high standards of plumbing and roofing. Americans having the necessary mathematical qualities are hard to find, especially those coming from schools physically most resembling those of poor foreign countries.

Too, Wilson uncritically mentions "outdated books", as if the newest were the best. Most mathematicians would explain that terrible textbooks have been a continuing feature of the American public school landscape for a hundred years, and are, if anything, worse today than forty years ago, despite their ever-growing cost and weight (avoirdupois); and those who have studied the matter know that the reason we are afflicted with these books and programs is that they have pleased their users, the teachers and textbook-choosing committees, who for some reason that cannot be connected with per-pupil spending do not know better. On the contrary, some of the books that are certainly not outdated are the ones written under NSF grants during the 1990s in avowed allegiance to the 1989 Standards of the NCTM (National Council of Teachers of Mathematics), their principal professional organization, and these are more the subject of contention in the current math wars than anything having to do with spending on education. Indeed it has been extra public spending on mathematics education that produced them, the ten "exemplary" or "promising" math series announced by the U.S. Department of Education in 1999, generating the public letter of protest to Secretary of Education Riley that was so hotly countered by the National Council of Teachers of Mathematics in an unprecedented display of praise for particular commercial textbooks.

The main deficiency in Wilson's discussion at this particular point is one that is found throughout her book: its unspoken assumption that the subject-matter of K-12 mathematics education is a known quantity, something everyone more or less agrees upon and understands, and that it is essentially only the manner of teaching that divides the parties. True, there are disputes in pedagogical notions, too, and "discovery learning" and other features of the progressive education school are scorned by many parents and mathematicians; but the ire of mathematicians in this connection is the license these practices allow for the removal from the curriculum of what they think
children should end up knowing.

The newspaper editorials, and very often the legislators who prescribe for the schools, usually imagine the "content" demands heard from the mathematics community and the parents are more or less uniform, and can be summarized as a demand for "traditional" learning of standard arithmetic as we knew it in 1950. Thus the objection to the progressive program is painted as a nostalgia for multiplication tables, while in fact the mathematicians who have studied the matter (and others when asked) look upon the elementary facts of arithmetic as simply necessary, not an end in themselves. They are something one must begin with -- and something children do not have time to rediscover on their own -- but not by any means more than the beginning. The real goal in mathematics teaching, far from the mere development of skill in computation, is mathematics well beyond the "conceptual understanding" as construed by the NCTM. But such mathematics is largely unknown to the public, and to most elementary school teachers as well, and not much of it is demanded by NCTM doctrine -- for all that they belabor the language of concept and higher order thinking skills.

This attitude of mathematicians includes attention to basic facts and structures, much of which must be firmly internalized if further progress is to be possible, much as in the learning to read English one must of course develop a ready vocabulary, too. But far too much of the public and the press has been persuaded by progressivist doctrine that to ask for something definite, such as the rule for the division of fractions, is to foreclose true understanding. Those opposing the post-1980 stance of the mathematics education world are conveniently portrayed as fossils, who by opposing children's discovery of mathematics in discussion groups are pressing for meaningless rote-memory exercises in centuries-old techniques that have been superseded by the electronic calculator.

Yet the most contentious document in the entire history of California mathematics education during the 1980-2000 period, the 1998 California Standards, volubly backed by those mathematicians who paid attention to such things, and instantly reviled by the education world, made a point of not prescribing the manner in which the listed objectives were to be taught. The fight was and is not about pedagogy, but about mathematics. Education leaders such as Luther Williams, chief officer of the Education and Human Resources division of the National Science Foundation, was himself deceived into believing that the final 1997 California mathematics standards document intended the scanting of real understanding, and he went embarrassingly public with his delusion.

Some of this tension is conveyed by Wilson, but much is not. In particular, the book misses elucidating the ill-will and hardball politics that were inseparable from the actual events she details. The high point of the California struggle was undoubtedly the Standards Commission vote of "15 to 2 (with two abstentions and two members absent) in favor of adopting their last draft" in October 1997, a vote that was overturned by the State Board of Education, which then had that draft hurriedly revised by a group of four Stanford mathematicians, to become what are still the official Standards for California K-
Wilson’s bland description of that vote (p.78) conceals the essence of the political story, which is that the leaders of the Commission majority, knowing the Board was opposed to their sort of draft, delayed presenting it in its full horror for the required Board approval until the very last minute allowed by law, foreclosing effective debate within the Commission at its final meeting and expecting that the deadline of January 1, 1998 for the Board’s final decision would also prevent the Board's changing much of what they were springing in October.

The Standards Commission was a citizen's group, with some education representatives, some not, but with no particular expertise in mathematics. (It was writing Standards for other subjects besides mathematics.) Though the Commissioners were knowledgeable to varying degrees, they all were dependent on advice of experts called to testify, and indeed to write the drafts they were successively discussing and amending. Bill Evers of the Hoover Institute at Stanford was the vocal member of the anti-“reform” minority of the Commission, and had enlisted a good number of mathematicians to help him formulate his own suggestions for revisions, which, draft by draft, were more than ignored. The last-minute October document, take it or leave it, was by far the most distant from what he, or his mathematician advisors, would have wanted.

The two abstentions chronicled by Wilson were thus the angry result of the Commission's having received the final draft from the educational establishment that had composed it on the very morning of the vote, a draft a great deal more "progressive" than any of its predecessors. Almost nobody on the Commission had time to read, let alone study, that draft before the vote was required. But the success of this hardball politics was foiled by the rapid response of the (forewarned) Board, which appointed four mathematicians at Stanford University as a rewriting team. In November and December that team rewrote some of the more ignorant parts of the original, made definite some of what previously had been vague, omitted fatuities, and rearranged the document as a whole. This part of the story — except for my characterization of the nature of the changes accomplished by the rewriting — is described by Wilson, but the ploy that generated the inevitable hurry in revision is not explained.

The resulting California Standards were immediately recognizable as making it impossible for the NCTM and NSF favored "reform" textbooks of the 1990s, the "exemplary" and "promising" books of a slightly later controversy, to continue to be paid for with California state funds, since they no longer could be construed as being in conformity with these Standards (as required by California law). The new standards were greeted with such fury within California’s educational establishment that Luther Williams wrote a letter to the California Board obliquely threatening to withdraw certain funds if the state persisted in its "traditional" path (as he imagined the newly adopted standards compelled). Williams certainly had not read those Standards, but took his information (that the new standards were "dumbed down" to “traditional memorization”) from the "reform" educators in California, and from Delaine Eastin, the California Superintendent of Instruction, who had been at odds with the Board of Education from
the start. Williams doubtless also heard from some of the authors of the books whose production his office had subsidized. (NCTM-approved programs and methods have commonly been called by them "reform" programs, though sometimes only "Standards-based" -- with "Standards" meaning the NCTM Standards of 1989, a document unfavorably regarded by most mathematicians who know about them.)

Now, Wilson writes (p.179), "The revised standards drew even more public attention... with two pieces in The New York Times, one of which quoted an assistant director of the National Science Foundation who claimed, 'The wistful or nostalgic back-to-basics approach that characterizes the board standards overlooks the fact that the approach has chronically and dismally failed.' The assistant director [i.e. Luther Williams] was later reprimanded and asked to apologize to the board."

This comment does not follow any description of Williams's financially threatening letter to the Board, which receives no mention in Wilson's account, but instead gives the impression that Williams had been forced to apologize for an expression of opinion, something he was, after all, entitled to, even if quite wrong about the import of the offending document. Stories like this one more accurately describe the flavor of the period of California Dreaming than Suzanne Wilson's even-handed chronology of legislative events, which is by comparison a calendar. Had (for example) Wilson interviewed Janet Nicholas, the Board of Education member designated as liaison for mathematics with the Standards Commission, she could have got a story worth any three summaries of California legislative minutiae.

This is not to say that Wilson's account misses every point, for it is in fact more than a reference chronology of legislation, commission reports, standards, statewide math test controversies and decrees of the Superintendent of Education, though it is all that, too. Wilson tries to portray the parties' positions as they themselves saw it, and offers sympathetic portrayal of many of the actors, even -- though it sounds like an afterthought -- such critics of the regnant philosophies as the mathematicians Hung-Hsi Wu and Richard Askey. But portrayals of motive, character and political strategy are insufficient to the task if the mathematics behind their differences is not elucidated, and this book does not deal with mathematics.

Though neither side in the math wars escapes her sympathy, her affecting chapter on the lessons she believes she learned while conducting this research indicates that she ended her work with a better appreciation of the mathematicians' viewpoint than she began with. As she herself remarks at the book's end, even this much sympathy represents a stance hard to maintain in most schools of education.