

major requirement of a modern industrial society. The appeal of a stable social order with each person efficiently fulfilling his or her appointed tasks was far more compelling. John Dewey, the quintessential American philosopher, may, paradoxically, have been out of step, in at least some significant respects, with dominant American values, and while, personally, he was much revered in his own lifetime, his educational reforms remained confined largely to the world of ideas rather than the world of practice. The question of why certain proposed reforms do not become translated into practice, however, may be, in the long run, of equal importance to the question of why others do.

## 4 SCIENTIFIC CURRICULUM-MAKING AND THE RISE OF SOCIAL EFFICIENCY

i

OF THE VARIED AND SOMETIMES FRENETIC RESPONSES TO INDUSTRIALISM and to the consequent transformation of American social institutions, there was one that emerged clearly dominant both as a social ideal and as an educational doctrine. It was social efficiency that, for most people, held out the promise of social stability in the face of cries for massive social change, and that doctrine claimed the now potent backing of science in order to insure it. This was a vastly different science, however, from either Hall's natural order of development in the child or Dewey's idealization of scientific inquiry as a general model of reflective thinking. It was a science of exact measurement and precise standards in the interest of maintaining a predictable and orderly world. In a period when the influence of certain social institutions such as family and church was believed to be in a state of dangerous decline, the functions of schooling had to be restructured radically in order to take up the slack. The scope of the curriculum needed to be broadened beyond the development of intelligence to nothing less than the full scope of life activities, and the content of the curriculum had to be changed so that a taut connection could be maintained between what was taught in school and the adult activities that one would later be called upon to perform. Efficiency became more than a byword in the educational world; it became an urgent mission. That mission took the form of enjoining curriculum-makers to devise programs of study that prepared individuals specifically and directly

for the role they would play as adult members of the social order. To go beyond what someone had to know in order to perform that role successfully was simply wasteful. Social utility became the supreme criterion against which the value of school studies was measured.

In a general sense, the advocates of social efficiency were educational reformers. The fact that their brand of reform differed dramatically from that of Hall's and was the virtual antithesis of Dewey's should not obscure the fact that the basic intention of its proponents was to overthrow the established order in education as represented by the traditional humanist curriculum. Nor should one assume that the humanitarian impulse usually associated with reform was completely absent. That humanitarian impulse, reflected earlier in the work of Joseph Mayer Rice, expressed itself largely in a concern that the existing curriculum was of no interest and of no value to the new population then entering school, particularly secondary school. Beyond their interest in social stability, many leaders of the social efficiency movement indicated a genuine concern for the dissatisfaction that many children expressed about school and for the high rate of dropouts. The answer lay in a curriculum tied to direct utility and to tangible, albeit remote, rewards.

ii

The social theory that guided the development of social efficiency educators is probably best represented by the work of the renowned American sociologist, Edward A. Ross. Ross was not a sociologist of education, but his social ideas, especially as expressed in the most famous of his many books, *Social Control* (1901), strongly influenced the work of such educational sociologists as David Snedden, Ross Finney, Charles Ellwood and Charles C. Peters and they, in turn, devoted themselves to developing curricula consistent with Ross's ideas. By modern standards, Ross was more of a social philosopher than a sociologist, but, in his own day, Ross's work had the full support of science. Ross himself had, early in his life, experienced disillusionment with speculative philosophy, particularly Hegel, and he thought of his own work as an effective counterpoint to the vagueness and imprecision of philosophical thinking.

*Social Control* had its inception in a series of twenty-seven articles that Ross wrote for the *American Journal of Sociology* in the 1890s. By the turn of the century, he had completed his editing of that work and in 1901, it

was published in book form. The book reveals Ross to be beset by a kind of intellectual schizophrenia. On the one hand, he could scarcely conceal his admiration for "the restless, striving, doing Aryan, with his personal ambition, his lust for power, his longing to wreak himself, his willingness to turn the world upside down to get the fame, or the fortune, or the woman he wants," especially when compared to "the docile Slav or the quiescent Hindoo" (p. 3). In many respects, Ross identified personally and intensely with "the dolichocephalic blonds of the West" (p. 3) and admired the rugged individualism he believed they personified.

On the other hand, he saw civilized society teetering on the edge of a precipice. Modern industrial society, which he generally equated with capitalism, had corrupted those instincts that had once been appropriate in the Teutonic forests, and so American individualism, "the product of the last, most Westerly decanting of the Germanic race" had to be curbed (p. 17). Ross generally rejected the idea of a natural law insuring progress so prevalent in the work of Spencer and urged massive intervention in the interest of preserving society. "*Society*," Ross fervently believed, "*is always in the presence of the enemy*," (p. 190), and *Social Control* is, in a significant sense, a compilation of the weapons of self-protection in the arsenal of society. So powerful were these weapons in his view that he was impelled to issue a warning at the end of his book:

I confess that no light responsibility is laid upon the investigator who explores the mysterious processes that take place in the soul of a people, and dissects in public the ideals and affirmations elaborated in the social mind. The fact of control is, in good sooth, no gospel to be preached abroad with allegory and parable, with bold type and scare headlines. The secret of order is not to be bawled from every housetop. The wise sociologist will show religion a consideration it has rarely met with from the naturalist. He will venerate a moral system too much to uncover its nakedness. He will speak to men, not to youth. He will not tell the 'recruity,' the street Arab, or the Elmira inmate how he is managed. He will address himself to those who administer the moral capital of society—to teachers, clergymen, editors, law-makers, and judges, who wield the instruments of control; to poets artists, thinkers, and educators, who guide the human caravan across the waste. In this way he will make himself an accomplice of all good men for the undoing of all bad men. (p. 441)

The weapons of social control that Ross had amassed in his book were so powerful as to be dangerous in the hands of anyone but the most upright.

Education was one of the most effective of those weapons in society's arsenal, particularly in the light of the decline of other modes of social control. "Underneath the medley of systems," Ross (1901) observed, "we find *an almost world-wide drift from religion toward education* as the method of indirect social restraint" (p. 176). Unfortunately, according to Ross, American schools had been infused with "an intellectual bias" and, while the development of the intellect was not "without a moral value," that bias had led American schools to "become less an instrument of social control than an aid to individual success" (p. 176). The crisis represented by modern capitalism, he felt, required that the schools adopt a much more direct and more pronounced social purpose.

The decline in the influence of the family was another factor to be taken into account in the design of a proper educational system, but Ross's interpretation of that phenomenon was not entirely consistent with that of other reformers of his time. For Dewey, for example, the decline of the influence of the family meant that the school should build a closer tie between home and school and that the teacher should assume something of the role of an ideal parent by introducing into the course of study those household occupations now lost in an industrial society, social occupations that had once had such great educational value. The decline of a beneficent and educative family influence was, for Dewey, a loss that the school had to retrieve somehow. Ross (1901), on the other hand, happily welcomed the same phenomenon. The school in his view was actually in a better position than the family to instill "the habit of obedience to an external law" (p. 164). Anyone can be a parent, while the certification of teachers is a matter of state control. As a result, Ross explained,

Another gain lies in the partial substitution of the teacher for the parent as the model upon which the child forms itself. Copy the child will, and the advantage of giving him his teacher instead of his father to imitate, is that the former is a picked person, while the latter is not. Childhood is, in fact, the heyday of personal influence. The position of the teacher gives him prestige, and the lad will take from him suggestions that the adult will accept only from rare and splendid personalities. The committing of education to superior persons lessens our dependence on magnetic men" (pp. 164-5).

Rather than decrying the loss of family influence, Ross obviously welcomed the opportunity to put the child in the hand of "picked" persons as

one more way of curbing anti-social tendencies. Ross, of course, was not the first to think of schools as an instrument of social control. The general idea of shaping individuals through a system of schooling is at least as ancient as Plato. For Ross, however, the social control function was overwhelming and urgent. Although both Dewey and Ross drew implications for schooling from the same perceived social change, one saw the need to restore in a different setting certain valuable experiences, while the other saw an opportunity to exercise a direct and desirable form of social control. The contrast between these two interpretations is one indication that the relationship between social change and educational doctrine is not so much a direct consequence of the change itself as it is social change as filtered through the perceptions of powerful individuals and groups.

iii

Besides the direct and explicit social control that Ross envisioned, the other key ingredient in social efficiency as a curriculum movement was efficiency itself. Here the principal figure was Frederick Winslow Taylor, the so-called father of scientific management. Like Ross, Taylor did not concern himself directly with education, although, through his disciples in the educational world, his indirect influence was enormous. In fact, the field of curriculum as a distinct area of specialization within the educational world was born in what may be described as a veritable orgy of efficiency, and the aftereffects of that orgy have been felt throughout the twentieth century. The bureaucratization of the American educational enterprise would likely have occurred anyway; it had already been under way for some time (Tyack, 1974), but it was aided immensely by the metaphors, procedures and standards of excellence that were drawn from the scientific management movement.

The immediate aim of Taylor's system of scientific management of factories was increased production at lower costs, but beyond that economic purpose lay a penchant for order and regulation that was at least the equal of Ross's. Nor was a moral dimension lacking. In Taylor's first paper before the American Society of Mechanical Engineers (1895), Taylor, in making the case for a "piece-rate system," expressed concern for loafing on the job (what was then called 'soldiering') and for the techniques that would insure an honest day's work (p. 856). "If a man won't do what is right," he once said, "*make him*" (Copley, 1923, p. 183). Like Ross, Taylor (1903)

believed that certain natural tendencies in human beings, such as laziness, had to be curbed, but there was promise in the fact that the output of a "first-class man" was considerably greater, "two to four times," that of the average worker (p. 1365). The work of the first-class man, then, could be used as a standard for how quickly and how well a particular job was to be done. Once the standardization of the techniques of production were achieved, the task of bringing the average worker up to the required level of work could be accomplished. In wage incentives, Taylor thought he had found the means that would at one and the same time be in the best interests of the worker and raise the production level of the average man to that of a first-class man. There were limits, of course, to the amount to be paid. "If over-paid," he warned, "many will work irregularly and tend to become more or less shiftless, extravagant, and dissipated" (p. 1346), but a carefully developed economic incentive could eliminate "systematic soldiering" (p. 1351) and bring higher production at lower cost.

By the time Taylor published his classic *Principles of Scientific Management* (1911), he was already widely recognized as the prophet of a new order in industrial society. The heart of scientific management lay in the careful specification of the task to be performed and the ordering of the elements of that task in the most efficient sequence. Taylor summarized the series of steps in this way:

*First.* Find, say 10 or 15 different men (preferably in as many separate establishments and different parts of the country) who are especially skilful in doing the particular work to be analyzed.

*Second.* Study the exact series of elementary operations or motions which each of these men uses in doing the work which is being investigated, as well as the implements each man uses.

*Third.* Study with a stop-watch the time required to make each of these elementary movements and then select the quickest way of doing each element of the work.

*Fourth.* Eliminate all false movements, slow movements, and useless movements.

*Fifth.* After doing away with all unnecessary movements, collect into one series the quickest and best movements as well as the best implements. (pp. 117-18)

The technique is probably best illustrated in Taylor's (1911) account of how his colleague, Frank B. Gilbreth, analyzed the "art of bricklaying"

(p. 77). Every movement of expert bricklayers was analyzed, and, through the elimination of waste, a standard and carefully laid out sequence of movements toward the accomplishment of that standard was established. The key, really, to performing any complex task was to break it down into its most elementary components, each part so simple that it would not tax the ability of the worker and, thereby, error would be reduced and production increased.

But apart from the mere increase in production, Taylor foresaw that once his system were adopted, a new era in labor relations would emerge. It was in this way that his humanitarian impulse was expressed. In testimony before a Special House of Representatives Committee charged with investigating the Taylor system, Taylor argued that scientific management would bring about "the substitution of peace for war; the substitution of hearty brotherly cooperation for contention and strife; of both pulling hard in the same direction instead of pulling apart; of replacing suspicious watchfulness with mutual confidence; of becoming friends instead of enemies" ("Taylor's Testimony", 1912, p. 30). Here was the reformist's zeal that prompted Taylor in carrying through his mission to reconstruct American industry. His watchword was efficiency, but through efficiency he was trying to achieve the higher purpose of a more orderly and less contentious society. It was a reform that political conservatives could easily embrace.

With the rage for efficiency in full swing by the second decade of the twentieth century, it was inevitable that criticism of the inefficiency of American schools, criticism initiated by Rice's muckraking journalism, should soon be heard. The application of Taylor's system of managing factories to the management of schools was the most immediate and most natural step. In time, however, the use of scientific management techniques went far beyond the application of Taylor's ideas to the administration of schools; it ultimately provided the language and hence the conceptual apparatus by which a new and powerful approach to curriculum development would be wrought. The route by which scientific management became the basis for an education doctrine is actually no mystery. Those educational leaders who forged the new doctrine made no secret of the source of their ideas, self-consciously and conspicuously following the principles of Taylorism in an effort to make the curriculum a direct and potent force in the lives of future citizens and, ultimately, an instrument for creating a stable and smoothly functioning society.

iv

No one epitomized the new breed of efficiency-minded educators more than John Franklin Bobbitt. In fact, his work represents in microcosm the development of a field of specialization within education, the field of curriculum. It is probably this identification of social efficiency with the emergence of the field itself that is a significant factor in the persistence of many of its most central ideas today in only a slightly modified form. Bobbitt was brought to the University of Chicago in 1909 by Charles H. Judd, a psychologist who had just been recruited from Yale to head the Department of Education. Judd himself was a major exponent of the scientific study of education, and he probably saw in the young Bobbitt a kindred spirit. In the following year, Bobbitt, now promoted from lecturer to Instructor of School Administration, introduced a course entitled, simply, Curriculum. In his third year, that course, apparently a great success, was expanded to include both the autumn and the winter quarters. By 1912, Bobbitt published his first significant article on curriculum, "The Elimination of Waste in Education" and his career as a curriculum leader was launched.

A major portion of Bobbitt's (1912) article was devoted to extolling the virtues of the school system that had been developed by Superintendent Willard Wirt in Gary, Indiana, a "city having been practically created by the United States Steel Corporation" (p. 259). Wirt had devised a system, popularly called the "platoon system," which was designed to increase efficiency in the use of space within a school building by shifting students from classrooms to other indoor space, such as the auditorium, and to the playground in systematic fashion. Bobbitt was impressed by the fact that "the usual plant, if it is fully equipped is operated during school hours at about 50 per cent of efficiency," but that "the educational engineer at Gary was to formulate a plan of operating his plant during school hours at 100 per cent efficiency" (pp. 260-1). While the platoon system was clearly more managerial than curricular as an educational innovation, Bobbitt's use of such terms as "educational engineer" to refer to the superintendent of schools and "plant" to refer to the school was no merely decorative use of language; it had implications far broader than the pedestrian question of space utilization. It provided the emerging curriculum field with the root metaphor on which a new and powerful theory of curriculum could be built.

In enumerating the four principles on which an efficient school would be based, Bobbitt's first three, such as optimal use of the school plant, were basically administrative. But in enunciating his fourth principle of scientific management applied to education, he extended the factory metaphor to the question of how a curriculum should be constructed:

Work up the raw material into that finished product for which it is best adapted. Applied to education this means: Educate the individual according to his capabilities. This requires that the materials of the curriculum be sufficiently various to meet the needs of every class of individuals in the community; and that the course of training and study be sufficiently flexible that the individual can be given just the things that he needs. (Bobbitt, 1912, p. 269).

Individual variation in ability had, of course, been recognized well before Bobbitt's time, but Bobbitt was now asserting that the curriculum be carefully adapted to each "class of individuals" as part of the drive for the elimination of inefficiency in education. People, after all, should not be taught what they will never use. That was a waste. In order to reduce waste, educators had to institute a process of scientific measurement leading to a prediction as to one's future role in life. That prediction would then become the basis of a differentiated curriculum. Within the framework of the new theory, "education according to need" was simply another way of saying, education according to predicted social and vocational role. Boys, for example, whose "needs" were different from girls in terms of such matters as vocation, recreation and citizenship were to be given a different course of study from girls in these respects (p. 270). Future men and women were destined to perform different roles in society, and it was simply inefficient to train them in the same way. Bobbitt's concern for the "raw material" in the context of his theory was not so much a concern for individual well-being as it was part of an effort to eliminate waste in the curriculum and, by extension, in the social order generally. The doctrine of social efficiency held out the then very appealing prospect of scientifically attuning the curriculum to the requirements of the new industrial society.

v

One of the most tangible and far-reaching manifestations of the drive to create a more directly utilitarian curriculum had its inception in a res-

olution passed in 1905 by the Massachusetts Senate and House of Representatives creating what came to be known as the Douglas Commission. That resolution authorized Governor William L. Douglas to appoint a Commission on Industrial and Technical Education in order to investigate the needs of the state in various industries and to determine "how far the needs are met by existing institutions," as well as to "consider what new forms of educational effort may be advisable" (Massachusetts Commission, 1906, pp. 1–2). A social scientist, Dr. Susan M. Kingsbury, was appointed as "expert investigator," and within a year the Commission issued its report based on twenty public hearings held in major cities around the state and on the testimony of 143 witnesses including manufactureres, farmers, representatives of labor unions and school officials. The report indicated general agreement between the "broader-minded students of education" on the one hand and, on the other, those "men and women who have been brought into intimate contact with the harder side of life": the "old-fashioned" curriculum of Massachusetts's schools was too far removed from the demands of life created by an industrial society and that in practical trade training lay the answer (p. 4). The justifications for this solution were drawn, as would be expected, from the doctrines being so insistently espoused by the emergent reform interest groups of the time. From the developmentalists, there came the expressed concern for the "fullest development of the child" and from the social meliorists the idea that such education could be useful "in the reformation of wayward and vicious children at reform and truant schools" in much that same way "that it is being used to elevate the colored race in the south" (p. 4).

Most pervasive was the insistence that the schools undertake the task of preparation for earning a livelihood. The report indicated that at almost every hearing they were told that "the processes of manufacture and construction are made more difficult and more expensive by a lack of skilled workmen" (p. 4). In that regard, the Commission chided the advocates of manual training for taking too narrow a view emphasizing its value as a "cultural subject a sort of mustard relish, an appetizer,—to be conducted without reference to any industrial end" (p. 14). By contrast, the Commission cited with approval the establishment of textile schools in Lowell in 1897, in New Bedford in 1899, and in Fall River in 1904 as affording the kind of education that would serve best both the citizens and

the Commonwealth of Massachusetts. While the Commission recognized that direct trade training was regarded with "suspicion and hostility of many of the labor unions of the State," on the grounds that the labor market was being expanded in order to lower wages, they felt those suspicions to be largely unwarranted (p. 6). Although the Commission did not engage in the open and often vitriolic attacks on the academic curriculum that became common in the educational world in later years, their sympathies clearly lay with a new system of education tied to the "callings in life . . . professional, commercial, productive and domestic" (p. 14). In fact, as they viewed it, the decline of the apprenticeship system made such a change a social necessity. Whereas at one time, the report argued, the system of schooling and the institution of apprenticeship were kept in a kind of balance in terms of their influence on youth, that balance had now been destroyed to the point where a dangerous bias had been created, with children and youth devoting their time almost exclusively to academic studies in school. That balance could be rectified by restructuring the curriculum in schools to include the functions once performed by the apprenticeship system. This was exactly the kind of argument that appealed to those leaders in American life who sought a restructuring of social institutions in line with what they saw as a major social transformation.

An important addendum to the main report was Kingsbury's "Report of the Sub-Committee on the Relation of Children to Industries," a report that focussed on the 25,000 children between 14 and 16 who were not in school. After a detailed and considered attempt to survey a sample of that 25,000, Kingsbury found that five-sixths of them had not completed an eighth-grade education and that virtually none had ever attended high school. As Helen Todd (1913), the factory inspector, was to find seven years later, it was not economic deprivation that was the principal cause of leaving school to work in factories. The chief blame for the unfortunate state of affairs that Kingsbury found lay in the "dissatisfaction" that children felt with their schoolwork and the fact that "the parent does not know where to find an occupation for his child" other than the unskilled labor available at the textile mills and other factories (Massachusetts Commission, 1906, p. 44). Moreover, with proper training, she argued, "our cloths can compete with the foreign market" and the state would prosper (p. 46). The chief obstacle to that prosperity as well as to the well-being of the child was a curriculum removed from any prospect of reward in occupational terms.

Under those circumstances, neither the child nor the parent could see any point to continuing school much after the sixth grade.

Kingsbury's was a powerful and timely case. The issue of school-leavers brought into focus elements from several reform streams and promised to become one of the most debated questions in twentieth-century education. But Kingsbury's temperate and balanced treatment of the issue left open the terms that would define that debate. The most powerful of these reform streams, however, social efficiency, soon moved to reconstruct the issue in its own terms. Three years after the Douglas Commission Report, Leonard Ayres published his enormously influential *Laggards in Our Schools* (1909), one of the first avowedly "scientific" treatises in education. Ayres, who had once been superintendent of schools in Puerto Rico, had gotten a grant from the Russell Sage Foundation in 1907 to study the effects of retardation in schools. (The term "retardation" did not have the psychological connotations it has today but was used simply to refer to the problem of children not making normal progress in schools.) Ayres opened his report by alluding to the 1904 report of Superintendent William H. Maxwell of New York City indicating that 39 percent of the students in the elementary grades were too old for the grade they were in (pp. 1-3). The problem as he saw it was to discover why this situation existed and to suggest remedies that might correct it.

Ayres's study was conducted through the careful examination of school records, not through the observation of schools themselves as Rice's had been. The key to the problem as he saw it was that retardation represented a great loss in efficiency. Students who were supposed to be making their way smoothly through the grades were, in an alarming number of cases, taking twice as long to complete a grade as they should. The problem lay, of course, with the curriculum. "*These conditions,*" Ayres (1909) asserted with finality, "*mean that our courses of study as at present constituted are fitted not to the slow child or to the average child but to the unusually bright one*" (p. 5). In defining the problem in this way, he was sounding a theme that social efficiency reformers were to echo through most of the twentieth century: the "college-preparatory" curriculum that had held sway for so long needed to be replaced by a curriculum attuned to the needs of a new population and a new industrial order. As a result of an inefficient curriculum, Ayres pointed out, "in the country as a whole about one-sixth of all of the children are repeating and we are annually spending

about \$27,000,000 in this wasteful process of repetition in our cities alone" (p. 5). No well-run manufacturing establishment would tolerate such waste.

To correct this scandalous situation, Ayres developed his famous Index of Efficiency which he applied to fifty-eight urban school systems. Given that Index, the production metaphor applied to the curriculum could be used with ruthless precision. Ayres wanted to know, for example, the number of students who begin each school year so that "the relation of the finished product to the raw material" could be computed. He sought to calculate the "conditions of maximum theoretical efficiency" in each grade so that the "relation of the actual plant in size to the theoretic requirements" could be determined. "Suppose," he argued, "we had a factory which instead of utilizing all its raw material (100 per cent) embodied only 50 per cent in its finished product" (Ayres, 1909, p. 176). That factory would be even less than 50 percent efficient if it were also found that the "theoretical product" of the plant were higher. Using the Index of Efficiency, it was evident that the schools of the nation were even more inefficient than the raw data indicated (pp. 176-7). More importantly, the genuine issue of the appropriateness of the curriculum to the school population that the Douglas Commission raised had been reduced to a problem of simple efficiency and cost-effectiveness. The power and appeal of the factory metaphor applied to curriculum issues was all too painfully evident in the way Ayres reconstructed the problem, a power and an appeal that was to put the social efficiency interest group in a commanding political position in the decades ahead.

In the next few years, the notion that the problem of "retardation" was primarily a problem of curriculum inefficiency became a constantly recurring theme. It was so persistent, in fact, that one of the leaders of the social efficiency movement, Charles A. Ellwood, a professor of sociology at the University of Missouri, complained just six years after Ayres's report that nearly everyone now seems "to think that the only way to remedy this evil is to make the curriculum of our public schools more 'attractive', so as to hold the child's interests longer. While "not opposed to the making of curricula attractive," Ellwood (1914) was more concerned with the loss of social control that the problem of "elimination" presented (p. 572). He was worried about the fact that children, under existing compulsory education laws, could simply 'soldier' until they are fourteen and then leave

school before their “efficiency as citizens” had been established. Since it was clear to Ellwood that “a *definite* sentence is the greatest of all impediments” in reforming delinquent children, why not impose on all the children of the nation an indefinite sentence of schooling? “If the indefinite period of detention in an industrial or reform school is good for the delinquent child,” he insisted, “why is not an indefinite period of instruction and training in our public schools good for the normal child?” (pp. 574–5). In this way, schools would perform the “social service” for which they were intended, fitting the child to the demands of modern society. Even further, the schools, given enough time, could identify the feeble-minded that the psychologist, H. H. Goddard’s investigations had dramatically brought to the fore, and appropriate action could be taken before they “are allowed to go out into life, [and] by the laws of heredity . . . inevitably pass on to future generations their defects and even diffuse them in the population as a whole” (p. 576). In this way, consistent with Ross’s ideal of the school as a weapon of social control, the school could serve the social function it so long failed to perform. While Ellwood’s recommendations never were implemented in the form he proposed, they illustrate that along with simple efficiency the other key element in the powerful social efficiency equation was social control. It was principally in terms of efficiency and control that the complex and critical issue of “retardation” and “elimination” and their relationship to curriculum were defined for at least a half century.

vi

Two closely interrelated movements in psychology lent vital support to the way proponents of social efficiency defined the key curriculum issues that were to emerge in the twentieth century. One was the development of a psychological theory to replace the moribund faculty psychology, one which fit in neatly with the basic presuppositions of social efficiency; and the other was the mental measurement movement which provided the technology necessary for the kind of assessment and prediction that a curriculum based on social efficiency doctrine required. These two movements, both flowering in the first quarter of the twentieth century, in effect, created a new psychology, one so widely accepted that it inevitably placed the social efficiency interest group in a dominant, although not supreme, position *vis-à-vis* the others.

One of the most critical points in the development of a new psychology consistent with the emerging ideas of the scientific curriculum-makers centered on the psychological concept that is conventionally called “transfer of training.” It is universally assumed that what one learns in school somehow carries over to situations different from that particular time and that particular setting, but the process by which that transfer takes place was and still remains a subject of great debate. It is, in a sense, part and parcel of what we call learning, and without a plausible account of how we learn, no curriculum theory could really gain widespread acceptance. James had in 1890 fired one of the first salvos at the mental disciplinarian notion of transfer when he reported that his experiments on memory had failed to show any improvement in what mental disciplinarians had imagined to be a discrete faculty of memory. If memory could not be improved by memorizing, then it could hardly be justified as a pervasive school activity, since much of the things being memorized were hardly worth committing to memory in the first place, and they were most likely to be forgotten in any event.

By the early twentieth century, experimentation to discredit the mental disciplinarian concept of transfer became almost a cottage industry (Rugg, 1916), and leading the way was James’s brilliant and illustrious student, Edward Lee Thorndike. Thorndike had been brought to Teachers College, Columbia University by Dean James Earl Russell as part of what turned out to be a successful effort to build the preeminent institution for the study of education. Thorndike’s first major foray into the intricacies of the problem of transfer was a series of experiments he conducted with his student, R. S. Woodworth that were published under the general heading, “The Influence of Improvement in One Mental Function Upon the Efficiency of Other Functions” (Thorndike and Woodworth, 1901). In a variety of mental operations, such as estimating the areas of rectangles, subjects were given intensive training until they achieved a high degree of proficiency. Then they were given a similar task, such as estimating the areas of figures of the same size but of different shapes, and the amount of transfer from one learning task to the other was computed. This was repeated with such other tasks as estimating the lengths of lines or estimating the weights of objects. The effectiveness of the special training in the learned task was not at issue—only the extent to which learning that task carried over to a similar one. Thorndike’s conclusion based on

these experiments was devastating to commonly held beliefs about transfer: "Improvement in any single mental function need not improve the ability in functions commonly called by the same name. It may injure it" (p. 250). In a major book published a dozen years later, Thorndike (1913) extended that conclusion to cast doubt on even the existence of such mental operations as memory, perception, reasoning, and observation. They were, in effect, fictions and should be discarded along with a lot of other conceptual baggage left around by faculty psychologists (pp. 363–5). But without those concepts the whole value of general education was cast into doubt.

In place of a concept of mind comprising a limited number of discrete faculties, Thorndike and other psychologists in the early twentieth century sought to construct something more consistent with their experimental evidence. The mind that Thorndike envisioned was a machine in which there were thousands—millions—of individual connections each one bearing a message having little in common with the next. The mind in his view consisted not of large capacities such as memory and reasoning waiting there to be developed, but of "multitudinous separate individual functions" (Thorndike and Woodworth, 1901, p. 249), a kind of switchboard with innumerable wires (bonds) connecting discrete points.

As if this were not enough, Thorndike conducted an experiment two decades later that was even more unsettling to traditional curriculum beliefs. This time it was the value of particular school subjects that was called into question. Between 1922 and 1923, Thorndike administered two forms of the same intelligence test to 8,564 high school students. He then divided that population according to groupings of subjects they had studied over the course of that year to the extent that that was possible. Once he had corrected for such factors as initial ability and special training, the value of these courses of study in raising intelligence levels could then be computed. We would then know how much better Latin or mathematics was in raising general intelligence than, say, domestic science. Thorndike's conclusion in this study amounted to another bombshell: "We find notable differences in gain in ability to think as measured by these tests, but they do not seem to be due to what one studies. . . . Those who have the most to begin with gain the most during the year. Whatever studies they take will seem to produce large gains in intellect" (Thorndike, 1924, pp. 94–5). There may be some question as to whether Thorndike

was warranted in drawing such sweeping conclusions on the basis of this as well as his 1901 experiments, but the ready inference that curriculum-makers drew was that improving intelligence, in effect, teaching students to think through a course of study designed for that purpose, was a pipe dream. What really mattered was native intelligence.

By 1924, Thorndike's attacks on mental disciplinarian concepts already had a sympathetic audience. Not only was mental discipline dead as a formal theory, but the new scientific curriculum-makers such as Bobbitt and Charters were developing a theory of curriculum entirely consistent with the concept of mind inherent in the new psychology. If transfer from one task to another was much less than had been commonly believed, then the curriculum had to be so designed as to teach people specifically and directly those exact skills required for the tasks that lay before them in life. Gilbreth's atomization of the "art of bricklaying," Thorndike's image of mind as consisting of innumerable tiny functions, and Bobbitt's scientific curriculum drawn from a laborious analysis of the multitudinous tasks that comprise human life were all of one conceptual piece.

So was the companion movement in psychology that was to affect the curriculum of American schools profoundly, the calibration of intelligence into minute units—I.Q. points. The sources of mental testing lie in the efforts of Francis Galton in England to trace the components of genius as well as the experimental laboratories established in Germany by Wilhelm Wundt, but most directly in the work of Alfred Binet, who was charged by the French Ministry of Education to find a way of identifying those French schoolchildren who needed special education. The simple scale of tasks he developed in that regard underwent a kind of sea change once it was transported to American shores. In the hands of psychologists such as H. H. Goodard, Lewis H. Terman, R. M. Yerkes, and Edward L. Thorndike, that scale became not just a diagnostic device, but a powerful tool by which society could be regulated (Gould, 1981).

As Ross had foreseen, a vital force in the creation of such a stable and orderly society was a system of schools dedicated to that purpose, including, most specifically, a curriculum tied to the destined roles that future citizens were to perform. Since future citizens were to perform different and complementary tasks, a differentiated curriculum was needed in line with the determination of native capacities that a scientific system of mental measurement would provide. In particular, secondary education

would be that period when the differentiation should be the sharpest. In fact, the creation of a new educational institution, the junior high school, was given special impetus by the perceived need to “explore” children’s needs and capacities before entering upon the high school period.

Thorndike himself was unequivocal on the need for differentiation in the high school curriculum. “The problem before the high school,” he declared, “is to give the boys and girls from fourteen on who most deserve education beyond a common school course such a training as will make them contribute most to the true happiness of the world” (Thorndike, 1906, p. 180). That task required exactly the kind of “prognostication” that Hall had earlier proposed and that Eliot, in his defense of the Committee of Ten Report, had so vehemently opposed. Thorndike was in absolute agreement with his fellow psychologist Hall that “no high school is successful which does not have in mind definitely the work in life its students will have to perform, and try to fit them for it” (p. 180). The majority of students entering high school, he felt, were not “efficient at dealing with *ideas*, but whose talent is for the manipulation of *things*” (p. 181) making them more suited for cooking than for writing compositions or performing experiments. Moreover, in a modern industrial society, schools had to supply the knowledge that once was the province of other institutions. “The time has passed,” Thorndike affirmed, “when the rule of thumb was enough for the building trades; when science was a luxury to the farmer, when old wives’ lore passed on from mother to daughter was the best available education for housewifery and motherhood” (p. 181). He went on to estimate that not more than a third of the secondary student population should study algebra and geometry since, in the first place, they were not suited for those subjects and, in the second, they could occupy their time much more efficiently by studying those subjects that would fit them more directly for what their lives had in store. The curriculum for the new education needed to be expanded far beyond the traditional subjects that the Committee of Ten had recommended just a few years before, and curriculum differentiation became a necessary concomitant to that expansion. In the drive to implement such a reform, the mental measurement movement performed a vital legitimating function.

At the same time that psychologists were shaping a new psychology consistent with the emerging field of curriculum, those sociologists of education who had embraced the social efficiency ideal were not only endorsing

the scientific work of their colleagues in psychology, but elaborating the social theory that was to guide the curriculum changes they sought. Ross Finney, for example, an influential professor of sociology at the University of Minnesota, saw clear implications for how the curriculum should be organized from the experience gained from the Army Alpha mass testing. What angered Finney was the persistence of the “rise-out-of-your-class” philosophy of society that continued to dominate educational policy in the face of conclusive evidence that “the great majority are *predestined* never to rise at all” (Finney, 1928, p. 180). From Plato to Charles Horton Cooley, Finney felt, social theorists were continuing to make the mistake of assuming that people actually can be taught to recongize or somehow to “discern the one man in the right” when establishing a good society (p. 385). Fortunately that question had been unequivocally settled. “And now come forward the psychologists,” Finney announced, “with scientific data for headlining what we all knew before, namely, that half the people have brains of just average quality or less, of whom a very considerable percentage have very poor brains indeed” (p. 386). In spite of that evidence, the mistaken notion persisted that the school’s function was to teach people to think, a position he attributed (correctly) to James Harvey Robinson and “Doctor” John Dewey. “But this solution,” Finney pointed out, “will hardly bear inspection. In the first place, the barber’s I.Q. is only . 78, according to the army tests. I.Q. ‘s below . 99+ are not likely to secrete cogitations of any great social fruitfulness” (p. 388). His solution was to teach that half of the population without the power to “secrete cogitations” to follow dutifully what those who have that power tell them to do. In fact, in curriculum terms, he envisioned one curriculum for leadership and another for “followership” designed for that purpose. Finney’s is one case in point among many of how the concept of I.Q. and mental measurement generally fit perfectly into the idea of a curriculum tied to the particular qualities of the “raw material,” rather than assuming anything like the ability to think across the entire student population.

Probably the most eminent of the new breed of educational sociologists was David Snedden. Snedden first came under Ross’s influence while an undergraduate at Stanford University beginning in 1895. After completing a doctorate at Teachers College, Columbia University, he became an adjunct professor of education there. Later, as Commissioner of Education in Massachusetts, he was in a position to help guide the course of

American education, especially in his efforts to enlarge the scope of vocational education and to create a socially efficient curriculum generally. It was in his period as Commissioner that he appointed two men who were to put their own marks on the future course of the curriculum in the United States. Snedden chose his former student, Charles Prosser, as deputy commissioner for vocational education who over his long career became the pivotal figure in the development of vocational education in the United States and who emerged after World War Two as instrumental in the ill-fated life adjustment movement. His second appointment, in 1912, was Clarence Kingsley, a high school teacher from Brooklyn, New York, as his assistant in secondary education. Six years later, Kingsley was to engineer, almost single-handedly, the Cardinal Principles Report, a major landmark in secondary education in the United States. In 1916, Snedden returned to Teachers College to accept a professorship in educational sociology and thus was able to point that fledgling discipline in the direction of his master, Ross. For the next two decades, Snedden was a central figure in a group of educational sociologists that included Ross Finney, C. C. Peters, and Charles Ellwood.

In terms of his ideas on the curriculum, Snedden was in agreement in almost every detail with the preeminent scientific curriculum-makers such as Bobbitt and W. W. Charters, but he had a much grander and more explicit social vision. Writing in 1921, Snedden predicted that "by 1925, it can confidently be hoped, the minds which direct education will have detached from the entanglements of our contemporary civilization a thousand definite educational objectives, the realization of which will have demonstrable worth to our society" (Snedden, 1921, p. 79). Snedden recognized, however, that it was not necessary nor was it even desirable for all persons to achieve all the objectives that had been so determined. Objectives had to be set in relation to what he called "case groups" defined as "any considerable groups of persons who in large degree resemble each other in common possession of qualities significant to their school education" (Snedden, 1923, p. 290). Like his contemporaries, Snedden felt that the junior high school period was where "differences of abilities, of extra-school conditions and of prospects will acutely manifest themselves, forcing us to differentiate curricula in more ways, probably, than are as yet suspected" (Snedden, 1924, p. 740) and thus the creation of case groups was particularly germane to that institution.

The curriculum itself would be built of "peths," tiny units of which a single spelling word would be an example (Snedden, 1925, p. 262). Persisting in his penchant for neologisms, Snedden then proposed that peths be organized into "strands," built around "adult life performance practices" such as "health conservation through habitual safeguarding practices," for which something like 50 to 100 peths would serve. A strand for anything as simple as becoming a streetcar motorman would require only 10 to 20 peths but to produce a good farmer or a good homemaker, anywhere from 200 to 500 peths would have to be assembled (p. 288-9). Snedden (1924) also created the "'lotment' . . . the amount of work that can be accomplished, or the ground considered, by learners of modal characteristics (as related to the activity covered) in 60 clock hours" (p. 741). Snedden's vision of a school and its curriculum was almost a caricature of Taylor's vision of a factory and the manufacturing process virtually replete with the stopwatch which had become practically a symbol of industrial efficiency.

But Snedden's penchant for quaint terminology should not obscure the fact that he was representing what amounted to the dominant curriculum ideology of his day. When in 1923-24, for example, George S. Counts conducted his study of high school curricula, the wide acceptance of different curricula for different segments of the high school population was clearly evident. He reported 18 different curricula in Los Angeles secondary schools and 15 in Newton, Massachusetts (Counts, 1926, p. 13). In the very same school year, Robert and Helen Lynd (1929) discovered in the schools of Middletown a "manifest concern . . . to dictate the social attitudes of its young citizens" that was reflected in a variety of required courses in civic education, a curricular emphasis second only to vocational training.

Snedden's protégé, Clarence Kingsley, the mathematics teacher from Brooklyn, was the man who in 1918 produced the document that proved to be the capstone of the quarter-century of furious efforts at curriculum reform that began with the Committee of Ten report. The report of the Commission on the Reorganization of Secondary Education or, as it has been popularly called, The Cardinal Principles report (National Education Association, 1918) met with almost universal approbation when it was issued, and, unlike Eliot's Committee of Ten report (which had by this time fallen into almost universal disfavor) continues to be cited as

embodying the highest wisdom in curriculum matters. It was perhaps inevitable, given the intense and largely successful efforts at curriculum reform since 1893, that some form of repudiation of Eliot's report should be forthcoming and that it should reflect the growing belligerence toward academic subjects through the ascendance of social efficiency in the educational world. Given the pervasiveness of that doctrine and the calls for a radical transformation of the curriculum, Kingsley's report was rather moderate. By far the most prominent portion of the 32-page report was the statement of the seven aims that would guide the curriculum: "1. Health. 2. Command of fundamental processes. 3. Worthy home-membership. 4. Vocation. 5. Citizenship. 6. Worthy use of leisure. 7. Ethical character." (pp. 10–11). With the possible exception of the second one, these aims each represented an area of life activity, and the curriculum would be directed toward efficient performance within that area. Thus would a much closer connection be maintained between education and the actual activities that people are called upon to perform in their daily lives. Unlike the Committee of Ten report, where the four programs of study represented the heart of the recommendations, the Cardinal Principles Report centered on something beyond the curriculum itself. The curriculum became the instrument through which the aims were to be achieved.

Although a significant shift in emphasis, this represented a rather temperate stance given the pedagogical climate of the times. Social efficiency proponents such as Bobbitt, Charters and Snedden were calling for the elimination of the conventional subjects in favor of subjects that were themselves areas of living such as citizenship and leisure. Kingsley, however, did not call for the elimination of history and English—only that they reorient themselves toward the achievement of at least one, and preferably several, of the seven aims. Snedden, Kingsley's erstwhile mentor, decrying the fact that vocation appeared lost amid the full list of seven aims, declared the report to be "almost hopelessly academic" (Snedden, 1919, p. 522) and accused the Commission of being "chiefly preoccupied with the liberal education of youth" (p. 526).

Neither did the report go as far as Snedden would have liked in the direction of differentiated curricula. Although the report refers to "curricula," there was more than a passing reference to the need in a democracy for the school to perform a unifying function through com-

mon experiences in school, including the high school period (National Education Association, 1918, pp. 22–3). In that regard, the Commission was unequivocal in its support of the comprehensive high school, a position that in 1918 was being widely debated, with social efficiency educators leading the way in calling for different forms of secondary education for different kinds of youth. As a whole, however, the report reflected with reasonable accuracy the winds of change that had swept the educational world in the previous quarter-century. So widely accepted were Kingsley's recommendations that 1918 may be regarded as the year when the humanist position reflected in Eliot's Committee of Ten report was forced to go on the defensive, no longer playing the dominant role it once did in the battle for the American curriculum.

## vii

By 1918, social efficiency as a curriculum theory was almost at its zenith, and attention to curriculum reform had reached the point where curriculum was being recognized as a vital subspecialty within the broader spectrum of education. One sign of the new status accorded the curriculum was the publication of the first modern book devoted exclusively to that topic, a book entitled simply, *The Curriculum* (Bobbitt, 1918). In it, Bobbitt summarized the state of the art up to that point. He also provided what is probably the most concise and at the same time most explicit definition of the theory that he and his fellow social efficiency educators were advocating:

The central theory is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes, habits, appreciations, and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite, and particularized. The curriculum will then be that series of experiences which children and youth must have by way of attaining those objectives. (p. 42)

Almost every sentence in Bobbitt's summary of the theory marks off a vital facet of what was the ascendant mode of thinking about the curricu-

lum in the twentieth century. There was first its simplicity. Compared to Dewey's conceptually complex version of recapitulation or the mystical romanticism of Hall's culture-epochs, simplicity itself must have had a tremendous appeal. That simplicity was expressed largely in a conception of curriculum planning that could be reduced to a series of steps, an idea perfectly consistent with Taylorism and one that has maintained its appeal even to the present. There was also the appeal to specificity, an ideal drawn from scientific management as well as Thorndike's connectionism, and, in the minds of many, from science itself. Imbedded in Bobbitt's description of the essentials of the theory was the mechanism by which the curriculum would actually be constructed, a mechanism that Bobbitt (1918) was convinced was "a scientific technique" (p. 42). Activity analysis or, as it was sometimes called, job analysis, consisted of a procedure whereby one first created an inventory of the "particulars" that comprised human life. These were the things that people in fact did, and those things would be converted into curricular objectives. The next step was simply to create that "series of experiences" that would most efficiently achieve each objective. What Bobbitt was proposing was essentially that Gilbreth's technique for analyzing bricklaying be applied, not simply to "vocational labors" as in the case of scientific management, but to all the activities in which human beings engage, to "their civic activities; their health activities; their recreations; their language; their parental, religious, and general social activities" (p. 43). The scope of the curriculum would be nothing less than "the mosaic of full-formed human life" (p. 43).

Bobbitt (1918) recognized that the total range of human activity was so vast that no curriculum could encompass it all, but he found a solution to that problem in the idea of "directed and undirected experiences" (p. 43). Some objectives, Bobbitt asserted, may be "attained without conscious effort" and although the "curriculum-discoverer" must be aware of these as well, "he will be content to let as much as possible be taken care of through undirected experiences." Fortunately, the schools did not have to teach everything. Some things are simply learned through a natural process of socialization. "*The curriculum of schools*," Bobbitt emphasized, "will aim at those objectives that are not sufficiently attained as a result of the general undirected experience" (p. 44). Those abilities not so attained Bobbitt called *shortcomings*, that is, the deficits that people exhibited once the full range of activities had been discovered. (Shortcomings is the

counterpart of the contemporary concept of "needs" in curriculum construction.) He cited approvingly, for example, the research that his like-minded contemporary, W. W. Charters had conducted in discovering the errors made by Kansas City children in both oral and written language. Each of the noted errors in grammar, once classified by type, constituted a shortcoming that had to be addressed. "Only as we list the errors and shortcomings of human performance in each of the fields," Bobbitt concluded, "can we know what to include and to emphasize in the directed curriculum of the schools" (p. 52).

Neither Bobbitt nor Charters gave extensive attention to the implications of their conception of curriculum to larger social questions or to the role of the school in relation to social progress. In the main, they saw themselves simply as bringing the light of science to a field that had been governed by drift, tradition and fruitless speculation. In *The Curriculum*, for example, Bobbitt seems to have seen the relationship between social progress and what is taught in schools almost exclusively in terms of instrumental efficiency. "As agencies of social progress," he maintained, "schools should give efficient service. And efficient service, we are nowadays coming to know, is service directed, not by guess or whim or special self-interest, but by science" (p. 69). Schools, in other words, were charged with providing society with what it needed as determined by scientific analysis.

Their own perceptions notwithstanding, there was a highly significant social dimension to the work of the scientific curriculum-makers. This is perhaps best illustrated in some of the work of Charters. Charters, even more than Bobbitt, devoted himself to the actual task of activity analysis in a variety of fields. Most of his influential research was related to various occupational roles such as librarian and veterinarian, applying Gilbreth's bricklayer analysis to many other fields as a basis for vocational training in those fields. His *Analysis of Secretarial Duties and Traits* (with I. B. Whitley, 1924), for example, became a classic in the area of business education. But it was when he turned to the more general activities that human beings engage in that some of the techniques that seemed so plausible in a vocational context began to exhibit strong social overtones and where some weaknesses were exposed.

Around 1920, Charters was asked by Stephens College of Columbia, Missouri, a private women's college, to devise a new curriculum. It seemed clear to Charters that the job of being a woman was of the same

order as any other job requiring the same techniques of curriculum development that he had employed in relation to other occupational roles. Charters took the occasion of his first report on that curriculum to reaffirm the urgency with which he viewed the matter of curriculum reform. "The curriculum situation has become acute," he began. "The masses who send their children to school are growing restive under what they consider to be the useless material taught in the grades" (Charters, 1921, p. 224). One of the main missions that social efficiency reformers set for themselves was that of replacing what was useless and merely symbolic in the curriculum with what was directly useful. According to Charters, this involved a combination of an analysis of the activities that human beings engage in along with a determination of the ideals that will control those activities. In accordance with one of the most central principles of social efficiency, he believed that "we should define curriculum on the basis of what people are going to do" (Charters, 1926a, p. 327). Just as we would not provide the same education to a prospective doctor as to a prospective engineer, we should not prescribe the same education for women as for men. As Bobbitt had discovered, men and women were destined to do different things.

In order to secure a scientific inventory of women's activities, Charters solicited from the women themselves a statement of what they did during the course of one week. In all, an incredible 95,000 replies were received, and the activities were initially broken down into about 7,300 categories. These were then further divided into categories such as food, clothing and health, and these categories, in effect, became the subjects in the curriculum. Attention was given to those activities that were characteristic of "homemakers" as opposed to "unmarried women" with only those categories shared by both groups destined to become the required subjects. The study of clothing would be required of all women, but an "appreciation of art . . . would be purely elective" even though the study seemed to point to the conclusion that "the aesthetic is sufficiently prominent among women to presume that they may get greater appreciation from these than from other subjects" (p. 329). Unlike someone like Hall, who would consider interest to be a crucial criterion in determining a curriculum, the social efficiency educators were primarily concerned with efficient performance in a future social role, and using that criterion, aesthetics hardly mattered. In considering a curriculum for homemakers in particular,

Charters (1926b) decided to present a list of 48 traits to a group of 3,440 judges who were asked to rate them as 1) most important, 2) neither unusually important nor unimportant, and 3) least important (p. 680). When these rankings were subjected to statistical treatment, it was discovered that Care of Health [e. g. "She plans her family's diet to meet their physical needs" (p. 676)] ranked first, and Honesty [e. g. "She shows no deceit in handling of the family finances" (p. 678)] and Love [e. g. "She has an ideal of love and expresses this love for her husband, children, and home" (p. 678)] were tied for second. Ranking last was Philanthropy [e. g. "She is engaged in some organized club work that has a philanthropic purpose" (p. 679)]. Such a trait study would be used, according to Charters, to build a curriculum first by infusing some attention to these traits in "every subject taught" and secondly by directly training women to secure these traits when an individual profile chart" showed them to be weak in some of them (p. 684).

As Charter's efforts to create a curriculum for women indicate, scientific curriculum-making almost inevitably was tied, first of all, to the social status quo, with the activities that people already were engaging in serving as the norm for what people ought to do, even when, as Charters never tired of saying, those activities would have to be "idealized" before they could serve as legitimate objectives in a course of study. The curriculum lacked any utopian component, social progress being seen in terms of simply performing more efficiently what one would do anyway. Little or no attention was given to the potential for social change having the effect of transforming the nature and scope of those activities. Secondly, despite the persistent invocation of science in the interest of a curriculum tied to direct utility, the technique of activity analysis almost inevitably resorted in the end to consensus. Whatever may have been the scientific procedure used to create the list of activities or traits originally, they were incapable of standing on their own as elements in the curriculum without the intervention of human judgment.

This was the case, for example, in Bobbitt's celebrated Los Angeles school survey, a study which culminated in his most influential book, *How to Make a Curriculum* (1924). Although Bobbitt insisted that the method of activity analysis required that "at all stages of the analyses, attention should be fixed up on the *actual activities of mankind*" (p. 9), the list of curricular objectives he presented in the book represented not direct

observation of actual activities but “the practically unanimous judgment of some twenty-seven hundred well-trained and experienced adults” and even, in a few cases, “only majority approval” (p. 10). In point of fact, Bobbitt arrived in Los Angeles with a long list of objectives that his graduate students at the University of Chicago had prepared and then presented them for approval by the Los Angeles teachers (Bobbitt, 1922, pp. 4–5).

Whatever may have been the practical difficulties of activity analysis, one persistent legacy of the scientific curriculum-makers is the continued insistence upon stating precise and definite curricular objectives in advance of any educational activity. This is, of course, an argument by analogy from the world of manufacture where, at least according to Taylor, precise specifications and standards had to be established in advance in order to achieve the desired product with maximum efficiency. “The first step in curriculum-making,” Bobbitt (1924) asserted, “is to decide what specific educational results are to be produced” (p. 32), and the fact that his injunction has become a vital ingredient in the predominant approach to curriculum planning in the twentieth century is testimony to the success of the overall position he represented. The idea of stating numerous, precise and definite objectives, by contrast, never seems to have arisen in the work of Harris, Hall or Dewey.

Moreover, the scientific curriculum-makers’ conception of education as preparation for what lies ahead has become thoroughly infused into contemporary educational thought. As Bobbitt (1924) made this point, “Education is primarily for adult life, not for child life. Its fundamental responsibility is to prepare for the fifty years of adulthood, not for the twenty years of childhood and youth” (p. 8). Dewey regarded his own position as one that “contrasts sharply” with any doctrine based on education as preparation. He objected to placing children on a “waiting list,” a kind of “probation for another life” (Dewey, 1916, p. 63). That kind of education, he insisted, has no motive power and puts “a premium . . . on shillyshallying and procrastination” instead of capitalizing on the natural powers of attention and energy that children bring with them to school (pp. 63–4). In the end, he claimed, “the principle of preparation makes necessary recourse on a large scale to the use of adventitious motives of pleasure and pain” just because a remote future has no power to direct children’s energies. It has cut itself off, he claimed, from the “possibilities of the present” (p. 64). Resorting to a system of education based on prepa-

ration also, in Dewey’s view, subverted the ethical force of education. “Who can reckon up the loss of moral power,” Dewey (1909) once said, “that arises from the constant impression that nothing is worth doing in itself, but only as a preparation for something else, which in turn is only a getting ready for some genuinely serious end beyond?” (pp. 25–6).

Profound differences of the sort that existed between the social efficiency educators and Dewey on such a fundamental matter as whether education should be seen as a form of preparation or not signifies, not a single reform thrust aimed at dislodging the old order in education, but several. And, insofar as effect on actual school practice is concerned, the prominence and persistence of the basic ideas of the scientific curriculum-makers indicates that someone like the relatively obscure Bobbitt may have been far more in touch with the true temper of his times than the world-renowned Dewey.