

much richer texture they might have suggested more differentiated approaches to teacher professionalism than those now being proposed.

Curiously, the voices of teachers themselves are also missing from this history. We hear from reformers, teacher educators, administrators at various levels, legislators, and other political leaders on their goals, plans, and analyses of problems related to teacher preparation, but little from those who completed it. The practical result of this omission is that *And Sadly Teach* speaks essentially in a masculine voice. The views of women have once again been muted. Including them would have helped us understand why women entered teaching, despite the disincentives for doing so. Given their limited options for meaningful employment, perhaps they taught gladly. And while men bemoaned an absence of professionalism and pursued policies that hampered its achievement, women may have thought about teaching in entirely different terms.

Everyone seems to agree that teacher education is in need of repair, but in prescribing improvements we probably ought to be as clear as possible about what is broken and how it got that way.

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Ingrained Hierarchies

Doing Comparable Worth. Gender, Class, and Pay Equity. JOAN ACKER. Temple University Press, Philadelphia, 1989. x, 254 pp. \$34.95. Women in the Political Economy.

Joan Acker provides a rich historical account of attempts in Oregon to formulate and implement a pay equity plan for state employees. Her analysis of the critical roles of unions, feminists, and management reveals how gender and class, at times operating in concert and at other times in conflict, influenced the political process and eventual outcome.

In 1981, an amendment to Oregon's Civil Rights Act was proposed that would have mandated pay equity for all employees in the state and required comparable pay for comparable work in most cases. This bill failed to pass either house of the legislature. In 1983 a bill was passed mandating comparable worth for state employees only and requiring a bias-free, sex-neutral job evaluation and compensation system, that is, one with equitable wages—what Acker calls “true” comparable worth. A Task Force was appointed to construct the new system.

Prices of Books

Average per-volume prices of books reviewed in *Science* 1984–1989. The average prices per page for the technical books in the natural sciences for the years covered were 12.0¢, 12.7¢, 12.5¢, 16.1¢, and 16.9¢. (Data are for hard-cover books except where books were available only in paperback.) For earlier data from *Science* and other relevant information see *Science* **211**, 933 (1981); **235**, 95 (1986); **239**, 81 (1987); and **243**, 99 (1989).

Category	Price (dollars)					
	1984	1985	1986	1987	1988	1989
All books	45.38	47.02	47.02	47.37	54.05	54.58
Technical books in natural sciences	55.29	49.66	53.57	59.06	71.70	73.73

Much of the book is devoted to the struggles of the Task Force between 1983 and 1985 because that was the context in which conflicts among the several groups—labor, management, and feminists—were played out. Owing to the failure to construct a plan that could garner wide support, Task Force recommendations were never enacted. Finally, in 1987 a new bill was passed that implemented a much more limited form of comparable worth, that is, providing poverty relief for the lowest paid workers in the state system. The bill also contained the provision that state agencies review and report on their progress toward comparable worth every two years, thus creating a climate within which further progress toward pay equity might be made.

Acker provides fascinating and convincing evidence of how deeply ingrained in existing pay systems are gender-specific images of work. For example, although women on the Task Force typically accepted the men's evaluations of the skills needed for male-dominated jobs, the converse was not true. The blue-collar men consistently resisted women's attempts to define as skill the ability to perform human relations tasks needed to deal with people effectively or the organizational knowledge and capacity for task complexity essential to operating within bureaucracies. The men referred frequently to “journeyman-level” jobs that were male-dominated, but resisted the notion that jobs with titles such as “administrative assistant” could be comparably skilled. Acker argues that the skills necessary for many female-dominated jobs were “invisible” to the men, who appeared to believe that the abilities women use on jobs were natural or inborn to women or were abilities that anyone with a basic education would have; in contrast, true skill was what men acquire via training. Feminists on the Task Force displayed other biases. Despite their interest in a “bias-free, sex-neutral” job evaluation system, they initially opposed pay increases for underpaid male-dominated job classes. They finally

agreed that such groups should receive increases, in the interest of constructing an equitable system.

Acker also argues that, in practice, comparable worth is not as radical as many business groups have assumed. This is because the process of enacting comparable worth inevitably reproduces the hierarchy of jobs, albeit slightly altered, with which it began. She documents how use of the Hay Associates consultants served to reduce the potential for major challenges to the existing job hierarchy. For example, the consultants believed that there was no discrimination in the points assigned to jobs in their systems, only discrimination in that employers chose to reward blue-collar jobs at higher rates than clerical jobs. They also insisted on conservative decisions regarding the ranges for job characteristics; if more liberal decisions had been made, female-dominated jobs would have gained more points. For example, human relations skills were scored on a limited scale that feminists did not feel allowed sufficient credit for the skills needed to perform many women's jobs. Stress was counted as a compensable factor only if extreme, and thus the stress feminists saw as inherent in clerical jobs was not counted as a compensable factor. The Hay Associates consultants maintained that the final product had to reflect a “reasonable” organizational hierarchy, and they resisted changes in the point system that would reduce differences between managerial and non-managerial jobs. Since feminists needed the legitimacy that Hay Associates conferred, they could not oppose such outcomes and thus were forced to yield ground to management.

Acker also clearly shows how the differing interests of management, feminists, and labor influenced the process of enacting comparable worth in Oregon. Management was interested in using the new classification system to gain further control of the personnel system and was much less committed to the version of comparable worth favored by the feminists. Unions (particularly the

American Federation of State, County, and Municipal Employees) were concerned about any infringement on their bargaining rights that adoption of a new job classification and compensation system would entail. Initially proposed arrangements for enactment of the 1985 Task Force recommendations would have temporarily suspended unions' right to bargain within the workplace, a compromise AFSCME could not support. Conflicts such as these contributed to the failure of enactment of the 1983 bill.

Acker recognizes the complex relationships between gender and class as illuminated through the Oregon case and concludes that the two are linked in a number of ways. For example, AFSCME's refusal to suspend its usual collective bargaining arrangements in order to implement the Task Force recommendations showed commitment to its own members, possibly at the expense of less advantaged women belonging to other unions or not unionized at all. She describes the conflict feminists felt in the shifting alliances they formed with labor and management, depending on the issue, and the discomfort they felt when women's interests were threatened by both sides.

Despite what at times appears to be an overwhelming amount of description of chronological events, Acker never loses the theme of gender and class influence in the comparable worth efforts in Oregon. Although she omits the names of principal figures in the story, the knowledgeable reader will be readily able to identify a number of key actors. Those with an interest in feminist scholarship and contemporary history should appreciate the care with which this important story has been reconstructed. Analytic insights regarding the nature of skill, the near immutability of job hierarchies in the workplace, and the nature of contemporary union-management conflict make the book well worth the voluminous description.

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Modern Particle Physics

Particle Physics and Cosmology. P. D. B. COLLINS, A. D. MARTIN, and E. J. SQUIRES. Wiley-Interscience, New York, 1989. xvi, 496 pp., illus. \$59.95.

Don't be misled by the title of this book. One might infer that the book focuses on the particle physics-cosmology connection. This is not the case. Rather, it is a book about modern particle physics in all its guises, one of which just happens to be

"particle astrophysics." Thus, the section of 100 or so pages devoted to cosmology is shorter than the treatment of supersymmetry and string theory, for example. A more apt title might have been "Particle Physics beyond the Standard Model, Including Applications to Cosmology."

In the table of contents, everything from high energy scattering experiments and B^0 - \bar{B}^0 mixing to supergravity and orbifold compactification is listed. In spite of the breadth of material covered, the discussions have sufficient depth to give at least some idea of what each subject is about. I happen to be teaching at the moment about topological effects in gauge field theories, so I read the relevant sections in this book carefully, checking equations and so on. I found a few typos and what I think is a sign error, but in general the discussion is pretty incisive, even if brief. Other sections I examined in similar detail also seem to concentrate on the heart of the physics and present at least an overview of the relevant calculations in a way that actually gives some idea of what is being done. Modern subjects covered in this way include tests of the standard model, technicolor, grand unification, supersymmetry, and string theory.

As for the cosmology in this book, the brief tutorial is up to date, even to the extent of including a discussion of the neutrinos from Supernova 1987A. Although I think this part of the book is weaker than that devoted to particle theory, the authors have done an admirable job in assimilating and condensing much material while still providing informative discussions of such diverse issues as big-bang nucleosynthesis and cosmic string evolution. The treatment of various issues is not as deep as in the rest of the book, however. (The authors cannot seem to discern whether WIMPs [weakly interacting massive particles] are candidates for "hot" or "cold" dark matter, for example.) Nevertheless, this part of the book does at least give a fair idea of what many of the most current hot issues are.

A book like this is most useful if it can steer you on to further reading. Although the authors state in the preface that they made no attempt to reference the original literature systematically but concentrated on reviews, I found their referencing (totaling about 200 items) too scant and pretty uneven. For some subjects not only the important reviews but also original research papers were listed, whereas for others there were no references.

The book probably lacks sufficient depth for use as the sole text in an advanced graduate course, but it could serve as a useful supplemental text or as a text for an introductory or survey course, especially if

combined with other reading. More than this, the book could serve a useful purpose outside of the classroom. The effort to understand and go beyond the "standard model" has involved an unusually broad range of intellectually demanding ideas. One of the hardest problems for students beginning their research careers seems to involve gaining familiarity with the very broad collection of issues and jargon floating around in the field right now. This book can give a clear and not too painful introduction to different parts of the field. It could also be useful for physicists outside the field who might want more than a cocktail party idea of the methods and direction of particle physics today.

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Books Received

Animal Biotechnology. Lorne A. Babiuk and John P. Phillips, Eds. Pergamon, Elmsford, NY, 1989. xii, 260 pp., illus. \$95. Comprehensive Biotechnology, supplement 1.

Applications of Human Performance Models to System Design. Grant R. McMillan *et al.*, Eds. Plenum, New York, 1989. x, 557 pp., illus. \$115. Defense Research Series, vol. 2. From a workshop, Orlando, FL, May 1988.

Applied Logistic Regression. David W. Hosmer, Jr., and Stanley Lemeshow. Wiley-Interscience, New York, 1989. xvi, 307 pp. \$44.95. Wiley Series in Probability and Mathematical Statistics.

Cell Culture and Somatic Cell Genetics of Plants. Vol. 6, Molecular Biology of Plant Nuclear Genes. Jeff Schell and Indra K. Vasil, Eds. Academic Press, San Diego, CA, 1989. xxvi, 494 pp., illus. \$79.50.

Chemical Sensors and Microinstrumentation. Royce W. Murray *et al.*, Eds. American Chemical Society, Washington, DC, 1989. xii, 410 pp., illus. \$89.95. ACS Symposium Series, vol. 403. From a symposium, Los Angeles, CA, Sept. 1988.

Chemically Modified Surfaces in Science and Industry. Donald E. Leyden and Ward T. Collins, Eds. Gordon and Breach, New York, 1988. xiv, 686 pp., illus. \$89. Chemically Modified Surfaces, vol. 2. From a symposium, Fort Collins, CO, June 1987.

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Child Maltreatment. Theory and Research on the Causes and Consequences of Child Abuse and Neglect. Dante Cicchetti and Vicki Carlson, Eds. Cambridge University Press, New York, 1989. xx, 794 pp. \$59.50; paper, \$40.

Chiral Separations. D. Stevenson and I. D. Wilson, Eds. Plenum, New York, 1988. xiv, 206 pp., illus. \$59.50. From a meeting, Guildford, U.K., Sept. 1987.

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Computers in the Human Context. Information Technology, Productivity, and People. Tom Forester, Ed. MIT Press, Cambridge, MA, 1989. xii, 548 pp., illus. \$37.50; paper, \$16.95.

Conservation and Management of Lakes. J. Salánki and S. Herodek, Eds. Akadémiai Kiadó, Budapest, 1989. xii, 645 pp., illus. \$64. Symposia Biologica Hungarica, vol. 38. From a conference, Keszthely, Hungary, Sept. 1988.