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**Production Relations and Politics in  
the American Mining Industries**

**Sharon Reitman**

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Much of the literature on working-class political formation assumes a positive relationship between repression and radicalism; the more repressive shopfloor production regimes,<sup>1</sup> the greater the likelihood that workers will embrace radical politics. This assumption guides discussions of the evolution of the American labor movement. The transition from militant and radical unions early in this century to labor conservatism in the post-World War II era is said to be a consequence of a labor capital accord, bureaucratic control, or hegemonic control;<sup>2</sup> organized workers have abandoned radical political goals in favor of cooperative arrangements with employers. The benefits of such arrangements include high wages,

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1 I am using the term "production regime" to refer to the relatively stable methods employers and workers use to regulate class conflict. My use of the term is derived from Michael Burawoy's discussions of factory regimes. Although other theorists refer to similar processes as forms of control, I find that terminology unsatisfactory because it implies that employers impose forms of control on workers. "Production regime" more aptly conveys the notion that class relations are jointly constructed by workers and employers as they struggle over competing interests. The patterns of class relations I am discussing may also be thought of as conflict management strategies insofar as both workers and employers attempt in their interactions with one another to regulate the production process. However, I have chosen not to use the term "conflict management" because it implies a more self-conscious sense of purpose on the parts of miners and employers than was the case. Moreover, conflict management implies at least an attempt among conflicting parties to solve disputes in a cooperative manner. Such a cooperative intent may or may not be a factor in determining the form that production relations take. Michael Burawoy, "Between the Labor Process and the State: The Changing Face of Factory Regimes Under Advanced Capitalism," *American Sociological Review* 48 (October 1983): 587-605, and *The Politics of Production: Factory Regimes Under Capitalism and Socialism* (London: Verso, 1985).

2 These views are discussed in Beth Rubin, "Class Struggle American Style: Unions, Strikes and Wages," *American Sociological Review* 51 (October 1986): 618-633; Richard Edwards, *Contested Terrain: The Transformation of the Workplace in the Twentieth Century* (New York: Basic Books, 1979); Michael Burawoy, "Between the Labor Process and the State," and *The Politics of Production*.

opportunities for mobility within the firm, and job stability. Put differently, workers have become more conservative during the latter half of the twentieth century because production regimes have become less repressive.

Assuming there is a relationship between production regimes and working-class politics, the sources of different kinds of production regimes is the first question that must be addressed. This paper addresses that question through a comparison of the bituminous coal mining and the precious metal mining industries in the United States. At the turn of the century, production regimes in the coal mining industry were hegemonic; they were guided by a cooperative agreement between miners and employers that set limits on strikes as well as on the United Mine Workers of America's (UMWA) political activities.<sup>3</sup> In exchange, miners received wage increases and union recognition. Production regimes in the metal mining industry, by contrast, were despotic. Indeed, the mine owners' attempts to disband the metal miners' union, the Western Federation of Miners (WFM), were among the most repressive in the history of the American labor movement.

Interestingly, these outcomes are opposite the predictions of the literature; competition among employers and paternalism -- which characterized the coal mining industry but not the metal mining industry -- are said to be associated with despotic production

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3 Hegemonic regimes are those "in which consent prevails, although not to the exclusion of coercion. Not only is the application of coercion circumscribed and regularized, but the infliction of discipline and punishment itself becomes the object of consent." Michael Burawoy, "Between the Labor Process and the State," p. 590.



regimes.<sup>4</sup> This paper attributes the failure to correctly predict where despotic and hegemonic production regimes will emerge on an overemphasis in the literature on employers' ability to control the production process as well as on inattention to workers' union and work traditions.

This paper also examines some consequences of the two types of production regimes. It demonstrates that despotism in the western metal mining industry resulted in radical political traditions that were passed from generation to generation. At the same time, despotic production regimes significantly weakened organized labor in the metal mining industry. In the eastern coal mining industry, by contrast, hegemonic production regimes increased the power of the UMWA dramatically, increased coal miners' standard of living precipitously, but also produced discord between the union leadership and the rank-and-file miners and set limits on the UMWA's political options.

### **Despotic Production Regimes**

Michael Burawoy delineates three conditions that are associated with despotic regimes: deskilling, competition among employers, and the fusion of production with reproduction. Deskilling deprives workers of the power that is derived from intimate knowledge of a

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<sup>4</sup> Richard Edwards, *Contested Terrain*; Michael Burawoy, "Between the Labor Process and the State," and *The Politics of Production*.

craft; the more simplified the job, the less dependent employers are on the skills of any particular worker. Deskilling subordinates workers by making them interchangeable.<sup>5</sup>

Competition among employers makes the subordination of workers vital to the survival of the firm. Competition places a downward pressure on prices and profits. Employers compensate by reducing wages, increasing hours, and introducing labor-saving machinery. As Burawoy summarizes, "Anarchy in the market leads to despotism in the factory."<sup>6</sup>

Burawoy argues that the third condition, the fusion of production with reproduction is the most critical in terms of demarcating the transition from despotic to hegemonic regimes. The fusion of production with reproduction refers to a situation in which workers are entirely dependent on their wages and have no alternative means of economic support. Such complete dependency leaves employers little reason to grant concessions. It is only when the state intervenes in the production process, Burawoy maintains, by guaranteeing workers a livelihood when they are unemployed or by setting restrictions on employer behavior within the workplace, that employers will find despotism untenable.<sup>7</sup>

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5 See also Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Monthly Review Press, 1974).

6 Michael Burawoy, *Manufacturing Consent: Changes in the Labor Process Under Monopoly Capitalism* (Chicago: University of Chicago Press, 1979), p. 194. See also Richard Edwards, *Contested Terrain*.

7 Burawoy argues that state intervention in production in the 1930s transformed production politics in the United States and marked the transition from despotic production regimes to hegemonic ones. However, because, as Richard Edwards points out, industries

Given these three conditions, the production regimes that miners and their employers created in the two mining industries pose a theoretical anomaly. Because metal mining was more despotic, we would expect that deskilling, employer competition, and miners' dependency on employers would be greater than in the coal mining industry. But that was not the case. There was little difference in the skills that were required of metal miners and coal miners: the labor processes were similar; the technological innovations that are often associated with deskilling were introduced at roughly the same time; and the two groups of miners enjoyed comparable degrees of autonomy from management.<sup>8</sup> Moreover, the second and third conditions of despotism -- competition among employers and workers' dependency on employers -- were more salient in the coal mining industry, where

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and industrial sectors develop unevenly, earlier regimes may survive in sectors that are difficult for the state to regulate. Michael Burawoy, "Between the Labor Process and the State," and Richard Edwards, *Contested Terrain*.

<sup>8</sup> Discussions of the labor processes include Harold Barger and Sam H. Schurr, *The Mining Industries, 1899-1930: A Study of Output, Employment and Productivity* (New York: National Bureau of Economic Research, Inc., 1944); Hugh Archbald, *The Four Day in Coal: A Study of the Relations Between the Engineering and Organization of Work and the Discontent Among Workers in the Coal Miners* (New York: The H. W. Wilson Company, 1922); Keith Dix, "Work Relations in the Coal Industry: The Handloading Era, 1880-1930," in *Case Studies of the Labor Process*, ed. Andrew Zimbalist (New York: Monthly Review Press, 1979), pp. 156-169; Carter Goodrich, *The Miners' Freedom: A Study of the Working Life in a Changing Industry* (Boston: Marshall Jones Company, 1925); Isador Lubin, *Miners' Wages and the Cost of Coal: An Inquiry into the Wages System in the Bituminous Coal Industry and its Effects on Coal Costs and Coal Conservation* (New York: McGraw-Hill, 1924); Ronald C. Brown, *Hard-Rock Miners: The Intermountain West, 1860-1920* (College Station: Texas A&M University Press, 1979); Stephen Voynick, *Leadville: A Miners' Epic* (Missoula: Mountain Press Publishing Company, 1984). Otis E. Young, Jr., *Western Mining: An Informal Account of Precious-Metals Prospecting, Placering, Lode Mining, and Milling on the American Frontier From Spanish Times to 1893* (Norman: Oklahoma University Press, 1970).

hegemonic production regimes prevailed. Although anarchy in the market led to despotism in the coal mines during the nineteenth century, anarchy in the market, I will argue, was also one of the main causes of hegemony in the mines during the twentieth century.

How was it possible to have hegemony in the coal mining industry and despotism in the metal mining industry? Two factors shaped production regimes: regional political contexts and miners' preexisting union traditions. This paper addresses the latter factor.

#### **From Despotism to Hegemony: Production Regimes in the Coal Mining Industry**

Following a national strike among bituminous coal miners in 1897, the United Mine Workers of America entered into a joint agreement with coal operators.<sup>9</sup> The joint agreement was conceived of by union leaders, and it was an attempt to eradicate despotism in the mines by eliminating competition among employers; miners believed that if they could bring operators and miners together in an annual meeting where the two parties could jointly establish prices and wages, competition among operators would be reduced and operators would be able to raise wages above poverty levels.

Prior to the implementation of the joint agreement, the coal mining industry was characterized by despotic production regimes,

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<sup>9</sup> Coal employers were referred to as coal operators. I will follow that convention throughout this paper.

largely because of excessive competition among operators. Devastating price wars among operators were the most immediate effect of virulent competition. In Illinois, for instance, coal that had sold for \$1.52 per ton in 1882 sold for only \$1.08 five years later.<sup>10</sup> Operators complained bitterly of low prices and negligible profits. Indeed, the average coal operator made only a three or four percent profit from his coal.<sup>11</sup>

Apart from the joint agreement, which operators resisted for a number of years because it required recognizing the UMWA, there were only three ways operators could respond to competition.<sup>12</sup> The simplest solution for the individual operator, or so it might seem to an outsider, would be to sell his mine and invest the profits elsewhere. This would enable some operators to walk away from their disappointing investment, and it would also minimize the collective problem of too many competitors. This potential solution, however, was seriously flawed: operators commonly invested large sums in their mines and as a result were reluctant to let go of their investments when the selling price was deflated by price wars. As one operator explained,

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10 John R. Bowman, "When Workers Organize Capitalists: The Case of the Bituminous Coal Industry," *Politics and Society* 14 (1985) p. 293.

11 Michael Nash, *Conflict and Accommodation: Coal Miners, Steel Workers, and Socialism, 1890-1920* (Westport, Conn.: Greenwood Press, 1982), p. 25.

12 This discussion of the limited options available to coal operators given the market constraints they faced is informed by the strategies discussed in Albert O. Hirschman's *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States* (Cambridge, Mass.: Harvard University Press, 1970).

persons who are in the coal business, or propose to go in, without a very healthy bank account, will soon come to grief. Of course, some will say, Why don't they sell out and quit? Easier said than done. If said persons know parties that are desirous of taking a hand in the business, send them this way; they can be accommodated on very good terms.<sup>13</sup>

Operators also had the option of organizing into associations in order to collectively stabilize coal prices. This was a popular option.<sup>14</sup> Indeed, the *Black Diamond*, the operators' trade journal, proclaimed that the "watchword and motto of the *Black Diamond* for the coal trade, first and last, now and forever is organize, organize, organize."<sup>15</sup>

Yet the enthusiasm that some operators had for collective action was not an effective antidote against the competitive spirit that others were unwilling to abandon. Assuming, as most economists do, that stable price-fixing agreements require the participation of firms responsible for about seventy-five percent of the industrial output, in 1895 and 1905 a stable price-fixing agreement would have required the participation of over three hundred firms (see Table I). Those operators who favored collective action were unable to convince such a large number of their competitors to participate; uncooperative operators took advantage of their cooperative

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13 *Black Diamond*, August, 1885, pp. 18-19.

14 For more elaborate discussions of operators' attempts to change market conditions see James P. Johnson, *The Politics of Soft Coal*, pp. 24-31. William Graebner in "Great Expectations: The Search for Order in Bituminous Coal, 1890-1917," *Business History Review* XLVIII (Spring 1973): 49-72 and *Black Diamond*, August 15, 1889, p. 49.

15 *Black Diamond*, February 1, 1890, p. 495.

counterparts by lowering their prices below the levels agreed upon by members of operators' associations. These tactics enabled the less cooperative operators to gain a larger share of the market at the expense of others; they also compelled many operators who favored organization in principle to abandon it in practice.<sup>16</sup> Despite many enthusiastic advocates of collective organization, during the late nineteenth century the bituminous coal mining industry remained, as C. E. Leshar, editor of the trade publication *Coal Age*, put it, as disorganized as the retail grocery business.<sup>17</sup>

The prohibitive costs of leaving the industry and the failure of collective organization left operators with few options: they needed to compensate for low prices by reducing their production costs, or they needed to find an additional source of revenue. Many operators did both. Because the bituminous coal mining industry was labor-intensive -- the cost of labor was about eighty-three percent of the total cost of production in 1889 -- wage reductions were the easiest way of lowering costs.<sup>18</sup> As a result of frequent wage reductions, most coal miners lived in chronic debt.<sup>19</sup> In addition,

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16 *Black Diamond*, February 13, 1897, p. 185.

17 Quoted in United Mine Workers of America, District 2, "The Government of Coal," n.d. (probably 1921), Vertical Files, Tamiment Library, New York University, p. 10.

18 I obtained indicators of labor intensivity for Illinois (eighty-four percent), Indiana (eighty-five percent), Ohio (eighty-four percent), and Pennsylvania (eighty percent) by dividing the total wages reported in the 1890 census by the total expenditures. The figure reported in the text is the mean of the four states. Original figures are from the United States Bureau of the Census, *Mineral Industries 1890. Eleventh Census of the United States*, Vol. 7 (Washington: Government Printing Office, 1892), p. 351.

19 For miners' comments about debt see the Annual Report of the Secretary of Internal Affairs of the Commonwealth of

operators found additional revenue in vertical integration. During the late nineteenth century, approximately two thirds of all bituminous coal miners lived in company homes.<sup>20</sup> Operators found company homes and stores profitable because they built homes with cheap materials and charged high prices at the stores.<sup>21</sup> They also paid miners in script, money that was only honored at company stores, or issued miners credit at the company store. For the large proportion of miners who lived in debt, credit with their employers was a means of survival, but it also facilitated servitude to employers.

Essentially, coal operators resorted to despotism to compensate for excessive competition. Remarking on the consequences of despotism, one observer concluded that

The weakness of our economic system seems to be more glaringly conspicuous in the soft-coal industry than in any other. The conditions of living, of employment, and of business in large parts of the industry have for a long time ... been a blot upon a society which calls itself civilized.<sup>22</sup>

Yet from the operators' perspective, despotism was, at best, a stopgap measure. It enabled many who might otherwise have been forced from the market to secure small profits from their mines or

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Pennsylvania, Part III, *Industrial Statistics, 1885*, Vol. XIII (Harrisburg: E. K. Meyers, State Printer, 1886), pp. 170, 164.

20 Michael Nash, *Conflict and Accommodation*, p. 43, fn 40.

21 Stella Kaplan, *Recent Developments in Housing for Bituminous Coal Miners* (Masters thesis, University of Pittsburgh, 1945), pp. 13-27.

22 Joseph H. Willits quoted in Homer Lawrence Morris, *The Plight of the Bituminous Coal Miner* (Philadelphia: the University of Pennsylvania Press, 1934), p. v.



from company homes and stores. At worst, despotism brought conflict with miners to a head.

Miners were extraordinarily disillusioned. One miner said that operators profited from coal miners "On the same principle that the highwayman profits from his victim."<sup>23</sup> Another concluded

We are not paying our way, but going into debt every month. What few clothes we have are wearing out, our names for honesty and uprightness are getting tarnished, and yet it is not our fault, for we try to live within our income and cannot.... In conclusion, let me say that I will do anything that I can to give you information, and will be glad to do so, for by that means my craft may be recognized, and our country may make laws whereby a working man may make a decent living in this land of the so-called free.<sup>24</sup>

Miners were also extraordinarily militant. Between 1881 and 1886, miners in the four major coal producing states participated in 1,671 strikes (see Table II). The vast majority, ninety-six percent, of the strikes dealt with wages; only three percent concerned working conditions, and only one percent were sympathy strikes. Between 1887 and 1893, miners initiated 350 strikes which affected 2,692 mines.<sup>25</sup>

But coal miners did not find strikes a satisfactory response to their discontent; they won only one third of the strikes they engaged in between 1881 and 1886 (see Table III). As one operator explained,

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23 Annual Report of the Secretary of Internal Affairs of the Commonwealth of Pennsylvania, Part III, *Industrial Statistics, 1882-1883*, p. 122.

24 Annual Report of the Secretary of Internal Affairs of the Commonwealth of Pennsylvania, Part III, *Industrial Statistics, 1885*, p. 179.

25 Michael Nash, *Conflict and Accommodation*, pp. 31-33.

To attempt to improve his condition by a strike is like attempting to empty the ocean with a bucket, nay, it is worse, it is like plunging in and drowning himself. The waters close over [the striker], and that is all. So, if he strikes, another man takes his place, and that ends the story.<sup>26</sup>

In fact, that did not end the story. Although coal miners usually lost the strikes they initiated, the strikes were a burden to operators, who often found themselves short of coal during the peak of the season. Moreover, operators' despotic survival tactics did not alter the competitive market conditions that motivated the tactics in the first place.

As it turned out, the joint agreement was the most viable solution to operators' price wars and to miners' poverty and dependence. Significantly, it was UMWA members who coaxed, cajoled, and coerced operators into this mutually beneficial arrangement that transformed production regimes in the coal mining industry from despotic to hegemonic.

British immigrants to the American coal mining industry conceived of the joint agreement. These immigrants carried with them the idea of using unions to assist employers in minimizing competition. Miners realized that competition among employers determined their own living and working conditions, and leaders of early American coal miners' unions were willing to sacrifice the right to strike for agreements that stipulated minimum prices and wages. Upon the formation of the UMWA in 1890, the idea of a

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26 *Black Diamond*, April 15, 1890, p. 694.

cooperative venture remained the leading goal among miners, especially since many of the UMWA's first leaders were immigrants from Great Britain. But operators did not participate in the joint agreement willingly; it was only after an unprecedented strike in 1897, during which state government officials supported miners, that operators reluctantly agreed to the plan.<sup>27</sup>

Under the joint agreement miners received higher wages, the eight-hour day, the dues checkoff, and union recognition in exchange for their acceptance of the principle of competitive equality, the principle of conciliation and compromise, and the principle of the inviolability of agreements. The principle of competitive equality meant that miners' wages would vary according to local mining conditions; it was an attempt to regulate competition among employers by standardizing operating costs. The principle of conciliation and compromise meant that coal miners would utilize formal grievance procedures prior to striking or engaging in other syndicalist activities at the point of production. And the principle of the inviolability of agreements meant that miners could not strike while working under a contract agreement. The goal of the joint agreement was to give miners an institutionally recognized voice in determining their wages and working conditions within parameters that ensured a minimum level of profit for employers.

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<sup>27</sup> For a discussion of this critical strike see Sharon Reitman, *Class Formation and Union Politics: The Western Federation of Miners and the United Mine Workers of America, 1880-1910* (Ph.D. dissertation, The University of Michigan, 1991), pp. 233-248.

The UMWA's role in designing and implementing the joint agreement is important because most discussions of production relations de-emphasize workers' capacity to self-consciously orchestrate transformations in class relations at the point of production. In Richard Edwards' model, for instance, the transition from simple (despotic) control to technical control was primarily an employer-initiated response to an increase in working-class resistance. In Michael Burawoy's model, the transition from despotic to hegemonic production regimes depended mostly on the separation of production from reproduction or, put differently, on state intervention in the production process. For both Edwards and Burawoy, workers are important insofar as their militancy inspires a response from either employers or state actors. I am suggesting that workers' role in shaping and even changing production regimes can be much more direct. Coal miners imposed the joint agreement, which transformed production relations from despotic to hegemonic, on coal operators.

#### **Despotism in the Metal Mining Industry**

In contrast to the coal mining industry, the market in the metal mining industry was dominated by a few firms. For instance, in Colorado, which produced one third of the nation's gold and silver, just seven percent of the firms were responsible for eighty percent

of the state's production in 1902.<sup>28</sup> The literature on product market competition suggests that firms in concentrated markets can choose between accommodation and resistance to unions. On the one hand, these firms can afford to buy labor peace by granting union recognition and providing concessions to workers. On the other hand, these firms can afford to hire private detectives, withstand lengthy strikes, and employ other expensive tactics to resist unionization.<sup>29</sup> Given this choice, the question becomes under what circumstances will firms in concentrated markets choose to resist unionization?

Metal mine employers chose despotism and resistance to the Western Federation of Miners because they had little control over the labor force. Metal miners were so powerful that in 1891 the manager of one of the wealthiest mining companies in Idaho proclaimed that the "greatest thing we have to contend with now is the miners' union!"<sup>30</sup> Another mine owner claimed that miners' strength was so impressive that the owners would have to either import nonunion workers or turn management entirely over to the miners.<sup>31</sup>

One reason for metal miners' remarkable power over the conditions of their labor was their geographical mobility. Twenty-

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28 Michael Neuschatz, *The golden Sword: The Coming of Capitalism to the Colorado Mining Frontier* (Westport, Conn.: Greenwood Press, 1986), pp. 42, 50.

29 The literature on product market competition is discussed in Howard Kimeldorf, *Reds or Rackets? The Making of Radical and Conservative Unions on the Waterfront* (Berkeley: University of California Press, 1988), pp. 52-55.

30 Quoted in Robert Wayne Smith, *The Coeur d'Alene Mining War of 1892: A Case Study of an Industrial Dispute* (Corvallis: Oregon State Publications, 1961), p. 12.

31 Mark Wyman, *Hard Rock Epic: Western Mines and the Industrial Revolution, 1860-1910* (Berkeley: University of California Press, 1979), p. 53.

one to thirty-seven percent of Western Federation members were transient between 1903 and 1912.<sup>32</sup> In Butte, Montana, a cooper mining community, about twenty-five percent of the miners "floated" from one camp to another in 1914, and another twenty-five percent changed camps annually.<sup>33</sup> As one former miner explained, "We were young, footloose, and fancy free. We could get work in any camp and the pay was pretty good...."<sup>34</sup> Geographical mobility coupled with labor scarcity during part of the nineteenth century forced mine owners to compete for employees with high wages and accommodating labor policies. In addition, geographical mobility exposed miners to radical ideologies and militant traditions. According to government investigators, the lack of responsibility coupled with the sense of "injustice" that transient workers acquired during their travels served "as inflammable material for beguiling agitators to work upon."<sup>35</sup>

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32 Jim Foster, "The Ten Day Tramps," *Labor History* 23 (Fall 1982), p. 621.

33 Claude T. Rice, "Suggestions Regarding Mining Conditions and Points That in My Opinion Might Well Be Brought Out by Federal Investigation," p. 7, Box 10, Commission on Industrial Relations, General Records of the Department of Labor, Record Group 174, National Archives, Washington, D.C.

34 Arturo Jorquez is quoted in Jim Foster, "The Ten Day Tramps," p. 609.

35 *Report of the President's Mediation Commission to the President of the United States, 1918*, p. 5, III Rockefeller Family Archives, Record Group 2 (Office of the Messrs. Rockefeller), Economic Interests Series, Box 14, Folder 106, Rockefeller Archive Center. Related discussions applied to the longshoremen's and seamen's unions are in Howard Kimeldorf, *Reds or Rackets?* pp. 20-27 and Bruce Nelson, *Workers on the Waterfront: Seamen, Longshoremen, and Unionism in the 1930's* (Urbana and Chicago: University of Illinois Press, 1988), pp. 25-30.

This high rate of geographical mobility contrasts sharply with conditions in the coal mining industry, where miners were rendered immobile by debt to their employers. Comparing coal mining and metal mining communities, an article in the *United Mine Workers' Journal* pointed out that

A coal-mining town is different from any other community on earth. The prospector seeking gold wherever a strike may be found is a peripatetic individual whose home moves with him. The silver-miner, copper-miner, nickel-miner, lead-miner, all know that their continuance in one place depends on the vagaries of uncertain veins and ore-pockets. So they make their homes places of but transient abode, prepared at any time to break housekeeping and move to another part of the continent. But a coal mine never gives out. From year to year the great drifts and shafts and slopes run a little farther and deeper into the earth, requiring longer haulage and more machinery, but the coal is always there. And the coal miner becomes a fixture, working year after year in the same mine, rearing a family, the boy members of which will follow in the footsteps of the father, waxing old in the same town where years before he, a boy, had begun, perhaps, as his own sons will begin.<sup>36</sup>

The average owner of a metal mine also had less control over metal miners' community life than coal operators had over coal miners' community life. For example, whereas a majority of coal miners lived in company homes, many metal miners were able to choose their housing. Except in remote communities where company boarding houses were necessary, metal mining communities supported a thriving merchant class and a variety of housing options. In fact, some

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36 May 11, 1905, p. 1.

miners ran their own cooperative rooming houses.<sup>37</sup> In addition, whereas few coal operators permitted saloons in company towns, saloons were rampant in metal mining communities. The place of the saloon in the lives of hardrock miners paralleled that of the saloon in the lives of workers living in eastern and midwestern industrial centers. Saloons facilitated working-class comradery and autonomy from management. The solidarity and autonomy associated with these institutions in many working-class neighborhoods facilitated political mobilization.<sup>38</sup>

Wage rates and strike patterns reflect metal miners' strength relative to coal miners. Metal miners' incomes were about twice as high as coal miners (See Table IV). Metal miners also struck less frequently, a reflection most likely of their ability to secure favorable working conditions with minimal opposition from employers, and were more successful than coal miners when they did strike. In contrast to the 1,671 strikes among coal miners between 1881 and 1886, metal miners living in the five major metal mining states participated in only three strikes during that entire period. The strikes affected a total of seven establishments, fewer than two percent of the establishments operating in each of the affected states. All three strikes were in opposition to a proposed wage

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37 Eugene Floyd Irely, *A Social History of Leadville, Colorado, During the Boom Days, 1877-1881* (Ph.D. dissertation, University of Minnesota, 1951), pp. 66-70.

38 Jon M. Kingsdale, "The 'Poor Man's Club,': Social Functions of the Urban Working-Class Saloon." *American Quarterly* XXV (October 1973), pp. 473, 483; James R. Green, *The World of the Workers: Labor in Twentieth Century America* (New York: Hill and Wang, 1980), p. 8; Bruce Nelson, *Workers on the Waterfront*, pp. 24-25.



reduction, and miners were successful in all three instances after just one week or less off the job (see Table V).

Near the end of the nineteenth century, metal mine owners sought to acquire greater control of their employees. They organized amongst themselves and resorted to despotic labor practices to stop metal miners from "dictating" the affairs of the industry.<sup>39</sup> Once organized, employers hired detectives to work alongside miners underground. Detective reports suggest that the mine owners were concerned with increasing their control over the production process and with identifying and purging from the mines the most militant workers. The underground environment, whether in coal mining or metal mining, was difficult to monitor because miners worked autonomously in rooms located in different parts of the mines. Employing detectives to work alongside miners afforded mine owners greater control over production. Moreover, miners who spoke ill of the companies or who advocated militant or radical labor policies were monitored, dismissed, or blacklisted.<sup>40</sup> Most dramatically, employers resorted to strike-breaking tactics that were unprecedented in American labor history. In addition to imprisoning, blacklisting, and denying first amendment rights to miners, the mine owners even deported striking miners to neighboring states.

In short, metal mine employers, who could afford to choose between accommodating and despotic strategies, chose despotic

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39 *Idaho Springs News*, September 11, 1903, p. 3.

40 Detective reports may be found in John F. Campion Papers, Western Historical Collections, University of Colorado Libraries, Boulder; and the Collection 334 - Leadville Strike Reports, Colorado Historical Society.

practices in response to an unusually autonomous, well organized, and powerful labor force.

### Some Consequences of Production Regimes

The consequences of despotism in the metal mining industry were two-fold. Metal mine owners' strike-breaking tactics destroyed the WFM, turning the once powerful union into a small, ineffective organization. The dramatic strikes that took place at the turn of the century also contributed to the formation of a radical generation of miners. After a bitter strike in Colorado in 1903-04, one WFM member who had been deported stated that the WFM "is like the Irishman said of the Shamrock: 'The more you step on it the faster it grows.'"<sup>41</sup> Another deportee urged those he left behind to vote the Socialist ticket. "We miners of Colorado are to-day largely of the opinion that the old idea of freedom for the citizen seems to have become an impossibility," he said.<sup>42</sup> This radicalism survived in the WFM's successor union, the International Union of Mine Mill and Smelter Workers (IUMMSW), which metal miners organized in 1916. "Unfortunately," R. H. Ramsey stated in an article published in 1947 in the metal mine owners' trade journal, "metal mining seems to be one of the basic industries of the United States most deeply affected by Communist infiltration."<sup>43</sup> In 1950 the IUMMSW was one of eleven

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41 *Miners' Magazine*, June 30, 1904, p. 8.

42 *Ibid.*, May 19, 1904, p. 13.

43 R. H. Ramsey, "Communism Menaces the Mining Industry," *Engineering and Mining Journal* 148 (July 1947), p. 74.

unions expelled from the Congress of Industrial Organizations on charges of Communist domination.

The consequences of the joint agreement in the coal mining industry were more complex. Although few theorists are likely to disagree with the observation that despotic production practices are extremely costly for workers, many contend that cooperative agreements carry their own costs. Some theorists argue, for instance, that rank-and-file workers have been rendered powerless by the joint actions of employers and co-opted union officials. Others propose more insidious costs; workers who participate in cooperative arrangements with their employers inadvertently consent to their own exploitation.<sup>44</sup>

The joint agreement was enormously beneficial because it empowered the UMWA, making it a formidable organization for operators to contend with and one of the leading unions in the country. The agreement also made it possible for operators to stabilize prices somewhat and increase miners' wages. Rather than being subject to wage reductions imposed by operators, coal miners became partners in negotiating the conditions of their labor. But the agreement was costly in that it introduced a new schism between the UMWA leadership and the rank-and-file and limited the UMWA's political options.

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44 Stanley Aronowitz, *False Promises: The Shaping of American Working Class Consciousness* (New York: McGraw-Hill, 1973); David Brody, *Workers in Industrial America: Essays on the Twentieth Century Struggle* (New York: Oxford University Press, 1980); Michael Burawoy, *Manufacturing Consent*; William Finlay, *Work on the Waterfront: Worker Power and Technological Change in a West Coast Port* (Philadelphia: Temple University Press, 1988).

The joint agreement empowered the UMWA because it was premised on equality between operators and miners. Union representatives and employers negotiated a new agreement annually. At joint conferences, both sides had the same number of representatives and the same number of votes.<sup>45</sup>

In fact, the UMWA became so powerful that operators complained that they were at an organizational disadvantage. By 1926, forty-one operators' associations represented coal employers, fifteen of these associations -- responsible for sixty percent of the tonnage -- negotiated with one union that represented all organized coal miners.<sup>46</sup> As a result of the disparity between miners and operators, according to one historian,

The miners have the advantage of a monopoly, in that their officers speak with a single and articulate voice for all the miners in the union districts. The operators are not so united and not so articulate. They are often less shrewd, less experienced, less intelligent -- it is no disparagement to say -- than their adversary.<sup>47</sup>

But the agreement also created discord between rank-and-file miners and the UMWA leadership. To convince operators to participate, UMWA leaders had agreed to discipline coal miners.

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45 The principles and procedures of the joint agreement are discussed at length in Arthur E. Suffern, *The Coal Miners' Struggle for Industrial Status* (New York: The Macmillan Company, 1926), p. 185-208.

46 Ibid., p. 171.

47 Edward T. Devine, *Coal: Economic Problems of the Mining, Marketing and Consumption of Anthracite and Soft Coal in the United States* (Bloomington, Ill.: American Review Service Press, 1925), p. 218. See also John S. Keir, "The Pittsburgh District," p. 19, Final District Reports--Causes of Strikes, Box 70, Records of the U.S. Coal Commission, Record Group 68, National Archives, Washington, D.C.

According to one dissatisfied union member, "the miners' officials, if they live up to the contract, whether they like it or not are little better than police men for the operators to keep the men at work regardless of what their grievances may be."<sup>48</sup> In August 1901, for example, the UMWA executive board intervened on behalf of the operator of an Indiana mine. The dispute began when a miner, fearing that his work room was unsafe, left work early. The miner's fears were justified; shortly after his departure, the roof caved in and buried his tools. The men working at the mine refused to work until the company reimbursed the miner for the full cost of the buried tools, fifteen dollars. The company, although not obliged by the contract to reimburse the miner, offered him eleven dollars. The men still refused to work until the company paid the full cost. The executive board sent the following telegram to the striking miners:

We are instructed by the National Executive Board to notify you and the miners who are on strike at Cayuga that unless they resume work Saturday morning, the coal company will be given authority to employ other men to start the mines, and the national organization will assist them in doing so.<sup>49</sup>

UMWA officials were complying with the joint agreement's strike rules. In addition to requiring the UMWA to supply less contentious miners in cases of illegal strikes, the joint agreement specified that all district and local strikes required the prior approval of

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<sup>48</sup> Edward Wieck, "The Mine Workers," p. 4, Box 9, Wieck Collection, Archives of Labor and Urban Affairs, Wayne State University.

<sup>49</sup> UMWA Executive Board to Local Union #141, August 9, 1901, Reel 1, John Mitchell Papers.

the international convention or international executive board.<sup>50</sup>  
 Miners who struck in defiance of the UMWA received no strike assistance and were subject to fines and dismissal. Further, the joint agreement specified that coal miners had to keep working while their grievances were processed by a "court" of union representatives and operators.<sup>51</sup> If a miner refused to work pending a solution, other union miners were required to take his place. Union miners who refused to replace their dissatisfied workmates were themselves subject to punishment as serious as dismissal.

These strike rules were the object of much discontent among miners. Pressure to retain legitimacy with employers motivated union officials to discourage sympathetic action even during the most crucial strikes. When the UMWA called a strike among anthracite miners in 1902 in order to secure for them the gains that bituminous miners had won in 1897, UMWA President John Mitchell warned bituminous miners who were eager to assist their counterparts in the anthracite industry against illegal strike action:

It has been the proud boast of the United Mine Workers of America that during the past years, since our organization became a power in the labor world, contracts based solely upon the honor and good faith of our union have under the most trying circumstances been kept inviolate; and in this supreme crisis a failure to live up to the high standard that has made our union pre-eminent among organizations of labor, would prove a substantiation of all the charges and allegations made against us by our enemies, and would confirm, beyond the possibility of refutation the specious argument of the

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<sup>50</sup> Arthur E. Suffern, *The Coal Miners' Struggle for Industrial Status*, p. 162-163.

anthracite operators that the United Mine Workers of America is an irresponsible and unsafe body with which to deal.<sup>52</sup>

Miners found the rule against sympathy strikes particularly disagreeable. "I have been a member of this organization since it was founded," William Kincade told delegates to the 1907 convention.

I nursed it in my hands and I trotted it on my knee to make it an order that would be good for every man in the United States that mines coal to belong to. I have been a miner for forty-five years and I have worked in five different states.... When we founded the United Mine Workers we intended that we should, if one State had to be called out, call out all the others with it. We want all the states to come out together, and we want every man to stand by his brother, shoulder to shoulder, to show the operators what we can do. If we don't continue that policy, if we go on settling by sections, we might as well give up the organization. If we don't go together and ask for a settlement we had better abandon the organization and let every one settle for himself.<sup>53</sup>

Coal miners also complained that the joint agreement offered less than it had initially promised. Some claimed that operators found ways around the rules; the history of the joint agreement, according to one coal miner, was a history of "Broken Promises."<sup>54</sup> Others maintained that miners were losing "customs" that they had held sacred for years. "In a field where a few years ago it was an

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51 John Mitchell testimony, Commission on Industrial Relations, *Final Report and Testimony*, (Washington, D.C.: Government Printing Office, 1916), pp. 405-406.

52 Quoted in Andrew Roy, *A History of the Coal Miners of the United States* (Westport, Conn.: Greenwood Press, 1905, 1970 reprint), p. 419.

53 *Ibid.*, p. 337.

54 Tom L. Lewis to UMWA President Michael Ratchford, September 29, 1898, Reel 1, John Mitchell Papers.

almost utter impossibility to discharge a man," miner T. J. Llewellyn said, "today so many are being discharged that we hardly take notice of it."<sup>55</sup>

Miners expressed their dissatisfaction in militant actions.<sup>56</sup> Between April 1, 1914 and March 31, 1915, Illinois miners initiated forty-two suspensions, usually over disagreeable working conditions or unclear payment provisions under the joint agreement. Most of the time, union-operator "courts" sanctioned miners rather than operators for the suspensions, even though miners claimed that the suspensions resulted from operators' violations of the joint agreement.<sup>57</sup>

Employers warned UMWA officials that they would discontinue their participation in the joint agreement if the union leaders did not learn how to better control rank-and-file miners. In 1905, the Indiana Bituminous Coal Operator's Association passed a resolution to suspend the checkoff and their mining operations if miners continued to engage in illegal strikes.<sup>58</sup> Union officials responded to employer threats by sending out circulars admonishing miners for their delinquent behavior. They typically relied on guilt to bring the coal miners into line. In response to an illegal strike in 1906,

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<sup>55</sup> United Mine Workers of America, *Proceedings of the Eighteenth Annual Convention, 1907*, p. 317.

<sup>56</sup> John Mitchell testimony, Commission on Industrial Relations, *Final Report and Testimony*, p. 406.

<sup>57</sup> Forty-five percent of the suspensions resulted in sanctions against miners and/or the UMWA; only two percent resulted in sanctions against operators. The rest of the cases were either compromised, sent to a higher board, or dropped. The figures cited in this paragraph are adapted from data located in Box 17, Commission on Industrial Relations, General Records of the Department of Labor, Record Group 174, National Archives.

<sup>58</sup> *United Mine Workers Journal* (hereafter cited as *UMWJ*), March 23, 1905, p. 1.



John H. Walker, president of District 12 in Illinois, admonished miners,

You have violated your contract. This contract is not perfect.... But it is uniformly much better than what we had before. To obtain this contract many miners have courageously fought, millions of dollars have been spent by the union, many men and women have not hesitated to undergo the bitterest hardships to conquer this contract, and you now believe that your fellow miners will allow you to break this contract simply because it pleases you to do so.<sup>59</sup>

UMWA officials even attempted to resocialize miners by publishing articles on proper etiquette in the union journal. One article, "The True Gentleman", stated the following:

The gentleman is distinguished from he who is not a gentleman by moral qualities which have justly won the highest place in the respect and admiration of the world. The gentleman restrains his passions and subdues his selfishness; he considers the comforts of others before his own; he respects the personality of those with whom he is brought in contact; he never takes an unfair advantage; he is scrupulously regardful of his own honor, doubly scrupulous if the honor of others be committed to his keeping; he may lack mental culture, but he is never without moral refinement; he may have an unpolished exterior, but never a base nature; courage he has, but shows it less in facing danger than in meeting responsibility; if not always sincere, he is always reliable; and to him may be safely committed all that others hold most dear, in whose manly traits are penetrated and modified by the gentleness of woman's nature; and who still preserves and endeavors to constantly act upon the manliest of instincts --  
magnanimity.<sup>60</sup>

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59 Quoted in Michael Nash, *Conflict and Accommodation*, p. 94.

60 *UMWJ*, September 28, 1905, p. 7.

Moreover, the UMWA leadership discouraged political involvement except legislative reforms to improve safety in the mines and the election, within the two-party system, of workers to political office. They did this in order to appease operators, who maintained that because coal miners were better organized, the UMWA was capable of addressing coal miners' interests without resorting to legislative action.<sup>61</sup> Operators threatened to withdraw from the agreement if the UMWA participated in political action the operators found disagreeable. In response, the UMWA leadership worked closely with operators to purge members of the revolutionary syndicalist Industrial Workers of the World (which members of the WFM had played a key role in organizing) from the coal mines.<sup>62</sup>

In spite of their frustrations, miners generally conceded that the joint agreement was an improvement over the despotism of the nineteenth century. Within the UMWA, even socialists, who most strongly felt that the joint agreement was in need of modifications, generally supported it in theory. Socialists advocated greater democracy within the union -- they felt that the international officers had acquired too much power through the joint agreement -- but they maintained that collective bargaining was necessary to regulate coal prices and wages.<sup>63</sup> One miner defended the joint

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61 A. M. Daly, "Bituminous Coal Mining in the State of Ohio With Special Reference to Industrial Relations," p. 8-9.

62 R. J. Bobba Case, File: District 6 - 1923, United Mine Workers of America Archives and Library.

63 Arthur C. Everling, *Tactics Over Strategy in the United Mine Workers of America: Internal Politics and the Question of the Nationalization of the Mines, 1908-1923* (Ph.D. dissertation, Pennsylvania State University, 1976), pp. 4, 44-57, 111-112. Frank

agreement and the UMWA's retreat from politics on the grounds that even Marx said that workers should try to improve working conditions while waiting for social and political conditions that were ripe for revolution.<sup>64</sup> In short, miners consented to the joint agreement's restrictions but reserved the right to protest against both operators and union officials when they felt that the agreement was unfair or poorly enforced.

### Conclusions

This paper has had two aims. The first was to draw attention to the prominent role that workers may play in shaping production relations. Most theoretical discussions of production relations assume that they are determined by employers, by state policies, or by impersonal market forces. Researchers accord workers only an indirect role; generally speaking, they suggest that working-class militancy may inspire employers or state actors to institute changes in production relations. Although I found this to be the case in the metal mining industry, where miners' independent work habits inspired their employers to adopt despotic labor policies, it was not the case in the coal mining industry. There, miners did more than inspire others; they initiated the shift from despotic to hegemonic production regimes.

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J. Hayes testimony, Commission on Industrial Relations, *Final Report and Testimony*, p. 453.

<sup>64</sup> UMWJ, February, 23, 1905, p. 4.

The second aim of this paper was to assess the consequences of the two types of production regimes in the mining industries. Despotism in the metal mining industry simultaneously weakened and radicalized organized miners. Hegemony in the metal mining industry, by contrast, simultaneously strengthened the UMWA and pushed it toward conservative union politics.

The obvious question that arises from these consequences is whether cooperative agreements between workers and employers inevitably result in working-class conservatism. This is in fact the assumption behind the literature on the post-World War II labor capital accord, of which the joint agreement in the coal mining industry was a forerunner. The literature suggests that class conflict in the United States has become institutionalized along narrow economic lines and that these economic struggles preclude attention to political issues.<sup>65</sup>

I propose that the answer to the question of whether cooperative agreements inevitably result in working-class conservatism depends on whether the discussion is about workers or about labor movements. With respect to workers, I would argue that cooperative agreements set limits on working-class political behavior but do not necessarily preclude self-conscious, even radical, political mobilization. One reason why they do not is that cooperative agreements are mutually beneficial; employers may threaten to discontinue participation in cooperative plans, but in

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<sup>65</sup> See, for example, Beth Rubin, "Class Struggle American Style.

some cases to carry out the threat would be quite costly. Coal operators, for instance, reaped many rewards from the joint agreement. Most importantly, the agreement enabled them to organize -- a task they failed to accomplish without coal miners' assistance - in the interests of higher profits. In such cases, where the costs of discontinuing cooperative agreements are high for employers, they are likely to overlook some working-class behaviors they find distasteful. For example, although the national UMWA leaders discouraged radical politics, some districts and several locals embraced radical politics. Operators may have complained about this, and the national UMWA leaders may have felt compelled to formally distance the organization from political commitments, but the joint agreement did not preclude political action among coal miners at the local level.

With respect to the labor movement, cooperative agreements may set more rigid political boundaries. Such agreements may result in discord between workers and union representatives, as the joint agreement did. Or, if employers are threatened by political action, cooperative agreements may make it difficult for unions to use the full force of their collective strength for political action.

In short, it may be less the case that workers have become satisfied with limiting their claims to bread-and-butter issues or that they inadvertently consent to their own exploitation by cooperating with employers at the point of production, than that hegemonic production regimes limit political activity to a less visible and less organized arena.

TABLE I

PERCENTAGE AND NUMBER OF BITUMINOUS COAL COMPANIES BY SIZE OF OUTPUT,  
UNITED STATES, 1895-1925

Output (Tons)	Percentage of Total Number of Producers			Percentage of Total Production		
	1895	1905	1920	1895	1905	1920
Less than 10,000	47.3% 1,055 <sup>a</sup>	42.8% 1,492	37.4% 2,349	2.1%	1.6%	1.6%
10,000- 49,999	26.6% 590	27.6% 961	33.8% 2,121	11.6%	7.8%	9.4%
50,000- 99,999	12.8% 285	11.6% 403	11.6% 727	15.4%	8.9%	9.1%
100,000- 499,999	11.9% 268	15.2% 530	14.2% 891	41.7%	33.4%	32.1%
500,000 or more	1.4% 32	2.8% 98	3.0% 189	29.2%	48.3%	47.8%

<sup>a</sup>The number of producers is listed below the percentage of producers. Source: United States Coal Commission, *Report of the United States Coal Commission* (Washington: Government Printing Office, 1925), p. 1891; and John R. Bowman, *Economic Competition and Collective Action: The Politics of Market Organization in the Bituminous Coal Industry, 1880-1940*. (Ph.D. dissertation, University of Chicago, 1984), p.137.

TABLE II

NUMBER OF COAL MINING ESTABLISHMENTS EXPERIENCING STRIKES IN  
ILLINOIS, INDIANA, OHIO, AND PENNSYLVANIA, 1881-1886

	Illinois	Indiana	Ohio	Pennsylvania <sup>a</sup>
1881	49	5	50	66
1882	26	1	32	93
1883	72	12	64	133
1884	45	17	65	199
1885	58	6	203	206
1886	41	2	69	157
Total	291	43	483	854
				1,671 <sup>b</sup>

<sup>a</sup>The original source does not differentiate between anthracite and bituminous coal firms. This is most likely to affect the figures for Pennsylvania.

<sup>b</sup>These data may be compared with data in Table V if the total number of mining establishments in each state is taken into account. The 1880 census provides the best approximation of the total number of establishments. In 1880 there were 590 establishments in Illinois, 216 in Indiana, 618 in Ohio, and 666 in Pennsylvania. United States Bureau of the Census, *Report on the Mining Industries of the United States, 1880. Tenth Census of the United States. Vol. XV* (Washington: Government Printing Office, 1885), pp. 642, 644, 662, 666. Source: United States Bureau of Labor, *Third Annual Report of the Commissioner of Labor, 1887, Strikes and Lockouts* (Washington: Government Printing Office, 1888), pp. 106-81, 440-79, 488-559.

TABLE III

## SUCCESS OF COAL MINING STRIKES IN ILLINOIS, INDIANA, OHIO, AND PENNSYLVANIA, BY YEAR

	Successful <sup>a</sup>	Unsuccessful	Total
1881	61% (103)	39% (67)	100% (170)
1882	33% (50)	67% (102)	100% (152)
1883	27% (77)	73% (204)	100% (281)
1884	6% (19)	94% (307)	100% (326)
1885	52% (248)	48% (225)	100% (473)
1886	27% (72)	73% (197)	100% (269)
Total	34% (569)	66% (1102)	100% (1671)

<sup>a</sup>Includes 89 strikes classified as partially successful.  
Source: United States Bureau of Labor, *Third Annual Report of the Commissioner of Labor, 1887, Strikes and Lockouts* (Washington: Government Printing Office, 1888), pp. 106-81, 440-79, 488-559.



TABLE IV

AVERAGE DAILY WAGES, DAYS WORKED, AND ANNUAL EARNINGS BY STATE FOR  
 COAL MINERS AND GOLD AND SILVER MINERS, 1889

State	Daily Wages	Days Worked	Annual Earnings
Coal Miners			
Illinois	\$1.95	177	\$345.15
Indiana	\$1.89	175	\$330.75
Ohio	\$1.95	181	\$352.95
Pennsylvania	\$1.93	210	\$405.30
Gold and Silver Miners			
Arizona	\$3.17	215	\$681.55
Colorado	\$3.08	244	\$751.52
Idaho	\$3.59	206	\$739.54
Montana	\$3.48	292	\$1016.16
Nevada	\$3.60	248	\$892.80

Source: United States Bureau of the Census, *Mineral Industries in the United States 1890. Eleven Census of the United States. Vol. 7* (Washington: Government Printing Office, 1892), pp. 350, 59-60.

TABLE V

NUMBER OF METAL MINING ESTABLISHMENTS EXPERIENCING STRIKES, 1881-1886

	Arizona	Colorado
1883	0	4
1884	2	1
Total	2	5 <sup>a</sup>

<sup>a</sup>All of the strikes listed were successful. The Commissioner of Labor reported no strikes for Idaho, Montana, and Nevada during the entire 1881-1886 time period. In order to compare these data with data in Table II it is necessary to control for the number of mines in each state. The census reported 232 deep mines in Arizona and 246 in Colorado in 1880. Assuming that those figures closely approximate the number of establishments in 1883 and 1884, fewer than two percent of the establishments in Colorado experienced strikes in 1883. Fewer than one percent of the establishments in Colorado and fewer than one percent in Arizona experienced strikes in 1884. Using data provided in Table 2.9, Chapter 2, an estimated thirteen percent of the coal mining establishments in Illinois, Indiana, Ohio, and Pennsylvania experienced strikes in 1883, and an estimated sixteen percent experienced strikes in 1884. United States Bureau of the Census, *Statistics and Technology of the Precious Metals 1880. Tenth Census of the United States*. Vol. XIII (Washington: Government Printing Office, 1885), pp. 511-515.

Source: United States Bureau of Labor, *Third Annual Report of the Commissioner of Labor 1887. Strikes and Lockouts* (Washington: Government Printing Office, 1888), pp. 36-39, 52-55.