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Project Salt Vault, as the Lyons study was called, commenced in the fall of 1965 and lasted until January 1968. Here researchers conduct tests on fuel assemblies buried in a salt mine.

The AEC was satisfied that it was making steady progress toward a solution to the waste problem, but its search for a suitable disposal site became increasingly urgent because of two developments in the late 1960s. The first was a controversy surrounding the handling of waste at the National Reactor Testing Station, an AEC-funded facility in Idaho. State officials, responding to protests from citizens, raised questions about the AEC's management of high-level waste and long-lived, low-intensity "transuranic elements" (such as plutonium) at the Idaho site. They expressed concern that radioactivity from the waste could reach the Snake River Plain Aquifer and contaminate the state's water supplies. In June 1970, after the issue generated headlines both locally and nationally, the AEC promised Idaho Senator Frank Church that it would move waste materials out of the state to a permanent site. At the same time that it made its commitment to Church, the AEC was seeking a location for high-level waste from the commercial nuclear power industry, which had experienced an unexpected boom during the late 1960s. The expansion of commercial nuclear power soon triggered a sharply contested national debate over the safety of the technology. One prominent issue cited by critics was nuclear waste, and their arguments placed additional pressure on the AEC to find a solution promptly.[4]

4. *Journal of Glenn T. Seaborg*, 25 vols. (Berkeley: Lawrence Berkeley National Laboratory, PUB-625, 1989), vol. 22, 55, 239–240 (available in the Glenn T. Seaborg Papers, Manuscript Division, Library of Congress, Washington, D.C.); *Congressional Record*, 91st Cong., 2nd sess., 1970, 6295–6298; J. Samuel Walker, *Containing the Atom: Nuclear Regulation in a Changing Environment, 1963–1971* (Berkeley: University of California Press, 1992), 18–36, 387–414.

A "transporter" used to move fuel assemblies during Project Salt Vault. It received canisters from the surface through a shaft and carried them to the holes in the floor of the salt mine. The trailer was heavily shielded to protect the driver from exposure to radiation.

The AEC had been investigating permanent disposal of high-level waste since the 1950s. In 1957 the National Academy of Sciences' Committee on Waste Disposal, which had been established at the request of the AEC, published a report in which it concluded that salt formations offered the most promising geological setting for high-level liquid radioactive waste. It based its view on the dry, impermeable, and "self-sealing" properties of salt deposits. The plasticity of salt made it likely to seal fractures that might occur and to block the penetration of liquids. The committee also pointed out that salt formations were abundant, generally located in areas of low seismic activity, and inexpensive to mine. It called for research to address technical uncertainties. Accordingly, the AEC made arrangements to conduct preliminary experiments in an unused section of a salt mine owned by the Carey Salt Company in Hutchinson, Kansas. Although there were large salt deposits in other parts of the United States, including sections of New York and Michigan, the agency found central Kansas especially inviting because the size, thickness, and depth of the formations within the state best met its siting criteria.[5]

5. Joseph A. Lieberman to Frank Foley, December 22, 1958, box 26 (AEC Oak Ridge, Salt Vault Hutchinson), series 1, Subject Files (Salt Vault: Atomic Energy Commission), RG 37 (Records of the Kansas State Geological Survey), University Archives, Spencer Research Library, University of Kansas, Lawrence (hereafter Kansas Geological Survey Records); Morse Salisbury to James T. Ramey, October 19, 1959, box 705 (Waste Disposal), General Correspondence, Papers of the Joint Committee on Atomic En-

As early as 1959, Kansans such as Senator Andrew F. Schoeppel, a former Republican governor from Ness City—flanked here by Vice President Richard M. Nixon (left) and President Dwight D. Eisenhower—sounded the alarm with regard to the issue of radioactive waste disposal. During his 1960 reelection campaign the senator "stressed his opposition to the use of the mine caverns for atomic waste deposits because it isn't absolutely certain the wastes will not endanger the region" (Lyons Daily News, *October 14, 1960*).

Between 1959 and 1961 scientists from Oak Ridge National Laboratory, which was operated by the Union Carbide Corporation under an AEC contract, ran a series of experiments in the Hutchinson mine. They injected nonradioactive liquids that simulated the heat produced by nuclear waste into cavities drilled in the floor of the mine. The results of their work were encouraging but not conclusive. In July 1963 the AEC announced that Oak Ridge would conduct a new battery of tests in an abandoned salt mine in Lyons that was also owned by the Carey Salt Company. Unlike the Hutchinson tests, the Lyons study, named Project Salt Vault, would use solid radioactive waste in the form of fuel elements from the National Reactor Testing Station.[6]

ergy, RG 128 (Records of the Joint Committees of Congress), National Archives, Washington, D.C. (hereafter Joint Committee on Atomic Energy Papers); *The Disposal of Radioactive Waste on Land* (Washington: National Academy of Sciences–National Research Council, 1957), 4–5, 134–138; F. M. Empson, ed., *Status Report on Waste Disposal in Natural Salt Formations: III (ORNL-3053)* (Oak Ridge National Laboratory, September 11, 1961); W. C. McClain and R. L. Bradshaw, "Status of Investigations of Salt Formations for Disposal of Highly Radioactive Power-Reactor Wastes," *Nuclear Safety* 11 (March–April 1970): 130–140; Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 92nd Cong., 1st sess., 1971, 1503, 1525.

6. Committee on Waste Disposal, Minutes of Meeting of May 14, 1960, Accession 79-032-2 (Minutes–Geologic Aspects of Radioactive Waste Disposal, Advisory to AEC), National Academy of Sciences–National Research Council Archives, Washington, D.C.; AEC Press Release, July 9,

The Salt Vault tests were performed between November 1965 and January 1968. Their purpose was to provide information on several crucial issues, including the design of equipment and methods to move high-level waste from a nuclear plant site to a permanent repository, the effects of radiation on salt, and the extent to which elevated temperatures would cause "creep and plastic flow" in salt formations. The concern was that "thermal stress" would increase the flow of salt in a way that undermined the mine's structural stability. During the Project Salt Vault experiments, the intensely radioactive fuel assemblies, packed in canisters, were lowered into steel-lined shafts that extended about twelve feet below the floor of the mine, which was about one thousand feet underground. Over a period of nineteen months, the salt closest to the shafts received a massive (by human health standards) average radiation dose.[7]

The researchers who carried out Project Salt Vault found the results to be "most encouraging." They believed that the tests went a long way toward confirming the feasibility of placing radioactive waste in salt formations. In early 1970 they reported that "most of the major technical problems pertinent to the disposal of highly radioactive waste in salt have been resolved." The Oak Ridge experts concluded that high-level waste could be safely handled in an "underground environment," that "the stability of salt under the effects of heat and radiation has been shown," and that the problem of salt creep could be managed by a "suitable design" for the repository.[8]

The Project Salt Vault findings came at an opportune time for the AEC, which was then under fire from Senator Church over waste at the National Reactor Testing Station. On March 6, 1970, AEC Chairman Glenn T. Seaborg noted in his diary, after receiving a briefing from Oak Ridge officials, that the results of the Lyons tests were "very encouraging." This assessment enabled the AEC to offer assurances to Church that it would transfer the Idaho waste to a permanent repository that it hoped to open within a decade. Meanwhile, the AEC staff began working on a plan for the acquisition of land and construction of a salt mine facility in central Kansas for high-level and transuranic waste. Although it described the prospective installation as a "demonstration project," it predicted that "the facility would ultimately be designated as the initial Federal radioactive waste repository." The probable site was the Carey mine in Lyons, both because it had "extensive exist-

Great Bend Daily Tribune,
November 18, 1963

Editorial Page

Underground Dump

Atomic Energy Commissioners' remarks about storing waste materials in salt caverns located 1,000 feet below Lyons, have caused murmurs of discontent. People are just plain scared of anything that has to do with nuclear fission.

It won't do AEC much good to try and salve Rice Countians' feelings with comments about how utterly safe the stuff is, because even the federal government is taking nary a chance of having its workers glowing in the dark like watch dials.

From what we've been able to comprehend, handling of fissionable materials is even more hazardous than defusing land mines and allied lethal gimmicks. Whereas, one slip with a screwdriver will send a "sapper" to the hereafter in a glorious blast, the radioactive AEC worker can expect to slowly disintegrate while isolated from his fellows. His death may be less spectacular than the defuser's, but the end result is identical.

1963, box 706 (Waste Disposal), General Correspondence, Joint Committee on Atomic Energy Papers.

7. W. G. Belter, W. McVey, C. B. Bartlett, K. L. Mattern, and W. H. Reagan, "The AEC's Position on Radioactive Waste Management," *Nuclear News* 12 (November 1969): 60–65; R. L. Bradshaw, F. M. Empson, W. C. McClain, and B. L. Houser, "Results of a Demonstration and Other Studies of the Disposal of High Level Solidified, Radioactive Wastes in a Salt Mine," *Health Physics* 18 (January 1970): 63–67; McClain and Bradshaw, "Status of Investigations," 130–141.

8. Bradshaw et. al., "Results of a Demonstration," 67; McClain and Bradshaw, "Status of Investigations," 140.

ing workings" from Project Salt Vault and because it would allow the "earliest possible start" for permanent disposal. The staff had held discussions with "principal officials" in Kansas that seemed to "indicate support for locating the proposed waste facility in the Kansas salt beds."[9]

Despite the AEC staff's optimistic appraisal of local opinion, the investigations of salt mines for disposal of radioactive waste elicited mixed reactions in Kansas. Some Kansans had expressed concern as soon as Oak Ridge had begun its first field tests in Hutchinson. On June 11, 1959, Senator Andrew F. Schoeppel cited an "alarming situation" that could produce "disastrous results" in Kansas. He was under the erroneous impression that the Hutchinson tests involved pouring high-level liquid radioactive waste directly into salt mines, and he warned his constituents that they could not be "absolutely certain" about the safety of such procedures. In November 1963 an editorial in the *Great Bend Daily Tribune* took a similar position. It commented that announcements about Project Salt Vault "caused murmurs of discontent" because "nobody is too wild about having atomic energy bubbling under his back yard."[10]

Other Kansans, by contrast, strongly supported the AEC's projects. In 1962 Frank C. Foley, director of the Kansas Geological Survey, commented that there was "great interest" among state officials in the potential advantages of a waste disposal facility in Kansas. He cautioned, however, that the "psychology of informing the public" was "of great significance." He suggested that the term "atomic waste disposal" was "not good psychology," and argued that it should be replaced by "atomic by-products storage."[11]

The citizens of Lyons offered a warm reception to Project Salt Vault and, from all indications, generally favored the construction of a permanent repository if the site turned out to be suitable. In early 1970, as rumors circulated that the AEC would settle on Lyons for its demonstration project, an informal poll indicated that most residents approved development of the installation or "were little concerned one way or the other." John Sayler, editor of the *Lyons Daily News*, believed that his neighbors were "overwhelmingly for it." Lyons was a town of about 4,500 people, located in central Kansas about sixty-five miles northwest of Wichita. One reporter described it as a "placid, pleasant town ... with tree-lined, cobblestone streets in a region where trees are not generally plentiful." Lyons was primarily an agricultural community, but a large mine operated by the American Salt Corporation was an important source of employment. The smaller Carey Salt Company mine, the site of Project Salt Vault, ran directly under the town. It had opened in 1891 and closed in 1948. A majority of residents hoped that the waste repository would provide new jobs and income in their area.[12]

The prevailing attitude in Kansas as the AEC took preliminary action toward the construction of a waste repository in the spring of 1970 was ambivalence. The *Topeka State Journal* captured this mood by citing, on the one hand, the economic benefits of the "somewhat debatable honor of becoming an atomic garbage dump" and, on the other hand, the need to resolve outstanding safety issues. It affirmed that "Kansas wants to consider this with more than the proverbial grain of salt." The fate of the project depended heavily on the position of Governor Robert B. Docking, and, like many Kansans, he was undecided about how the possible economic advantages should be weighed against the potential safety risks. Docking had spent most of his professional career as a banker before he had been elected governor in 1966 and won reelection two years later. As a Democrat in a heavily Republican state, his success depended largely on his commitment to low taxes and other traditionally Republican doctrines. Docking announced that he would seek a third term in May 1970, and placing a radioactive waste repository in Kansas was a potentially sensitive political issue. On both technical and political grounds, therefore, the governor adopted a wait-and-see posture on the benefits and risks of developing a disposal site.[13]

For technical advice on the still pending Lyons proposal, Docking looked to William W. Hambleton, who held

9. *Journal of Glenn T. Seaborg*, vol. 21, p. 432; AEC 180/81 (April 23, 1970), AEC Records, History Division, U.S. Department of Energy, Germantown, Md.

10. *Congressional Record*, 86th Cong., 1st sess., 1959, 10510; Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 1314; *Lyons Daily News*, October 14, 1960; *Great Bend Daily Tribune*, November 18, 1963.

11. Frank C. Foley to E. G. Struxness, February 16, 1962, box 26 (AEC Oak Ridge, Salt Vault Hutchinson), series 1, Subject Files (Salt Vault: Atomic Energy Commission), Kansas Geological Survey Records.

12. *Lyons Daily News*, June 5, 1970; *Kansas City Times*, June 25, 1970; *New York Times*, March 11, 1971; *Denver Post*, September 27, 1971; John Sayler, telephone interview by author, January 17, 2006.

13. *Topeka State Journal*, June 9, 1970; Joel Paddock, "Democratic Politics in a Republican State: The Gubernatorial Campaigns of Robert Docking, 1966–1972," *Kansas History: A Journal of the Central Plains* 17 (Summer 1994): 108–123; Homer E. Socolofsky, *Kansas Governors* (Lawrence: University Press of Kansas, 1990), 215–218.

The State Journal

page of opinion

Tuesday Evening, June 9, 1970

The mould of a man's fortune is in his own hands.—Sir Francis Bacon, English philosopher.

We'll want to think this over

Kansas is being given prime consideration in the Atomic Energy Commission's plans to salt away its nuclear wastes in underground chambers.

The disposal vault system is not a very glamorous sounding project. But it may be a $50 million job, providing employment for as long as five years in construction. Economic value of the installation after it begins operation would be $1 million a year.

Kansas — somewhere in the Lyons or Hutchinson areas — is reported to be in the front running for the somewhat debatable honor of becoming an atomic garbage dump, for two reasons.

FIRST, A SALT MINE is recommended as the most satisfactory underground storage chest for the waste materials. Such formations are deep and dry, with resealing properties in case of earth fractures.

Second, for maximum safety the AEC wants a location in an area of the United States relatively free of earthquakes, as Kansas historically is.

Meeting those requirements, plus its midway U.S.A. geographical placement, would seem to give the state an excellent chance — if Kansas wants it.

It is a matter that should be weighed very carefully—which, indeed, the State Board of Health and the governor have indicated they will. The reactor fuel wastes are the most potentially dangerous types, remaining radioactive for thousands of years. Properly handled and stored, they are harmless to their immediate area.

ONE FACTOR to consider is the remote possibility of accident in shipment to the burial site, although the AEC has many years experience in handling such transportation. Atomic wastes now interred in four other locations over the country would be moved to the new salt mine depository.

Learning of the AEC's interest last week, the Board of Health wisely decided to hold up any endorsement of the project until full details are made public. Also, Gov. Robert Docking has asked for scientific studies within the state and a report on such findings, together with a recommendation.

In other words, Kansas wants to consider this with more than the proverbial grain of salt.

In a June 9, 1970, editorial the Topeka State Journal *captured the prevailing Kansas mood toward the possible construction of a waste repository by citing, on the one hand, the economic benefits of the "somewhat debatable honor of becoming an atomic garbage dump" and, on the other hand, the need to resolve outstanding safety issues.*

a Ph.D. in geology from the University of Kansas and became director of the Kansas Geological Survey just as the Lyons issue was gaining prominence. Hambleton knew Docking on a first-name basis from civic activities in Lawrence and regarded the governor as an exceptionally thoughtful and gracious individual. On April 17, 1970, he outlined the political and technical issues that, in his judgment, required careful consideration. He pointed out that "radioactive waste disposal by anyone, anywhere is today a very sensitive public, political, and environmental issue." Hambleton focused on the technical questions that he believed had not been adequately addressed. Although the AEC had "done very definitive work on the properties of salt under a wide range of pressure and temperature conditions," it had not provided the "very detailed information" that was needed to build a waste repository at a specific location. This could be obtained only by a "very careful drilling program" at the site.[14]

As Kansas officials considered a series of questions surrounding the proposed waste facility, the AEC moved ahead with its plans. One step it took was to request that the National Academy of Sciences Committee on Radioactive Waste Management, which had been formed in 1968, appoint a special panel to review the "concept of long-term storage of solid radioactive wastes in salt mines." This subcommittee, called the Panel on Disposal in Salt Mines, included Hambleton among its seven members. At its first meeting in Oak Ridge in May 1970, it heard from John A. Erlewine, who was the coordinator and point of contact for the

14. William W. Hambleton to Robert B. Docking, April 17, 1970, box 41 (Atomic Waste Disposal 1970), Robert Docking Papers, Kansas Collection, Spencer Research Library, University of Kansas, Lawrence (hereafter Docking Papers); William W. Hambleton, *Selected Speeches* (Lawrence: Kansas Geological Survey, 1987), iv–v; William W. Hambleton, interview by author, Lawrence, Kans., July 13, 2005.

AEC's waste disposal programs. Erlewine had received a law degree from Columbia University and joined the AEC as a staff attorney in 1952. He had risen quickly through the ranks of the AEC and was highly regarded as an able administrator and an effective spokesman for agency policies. Erlewine told the members of the Panel on Disposal in Salt Mines that the "Commission believes that sufficient R&D has been performed and that it is now appropriate to construct a repository as soon as possible." He revealed that the AEC would soon ask for congressional funding.[15]

After the meeting Hambleton and his staff at the Kansas Geological Survey prepared a detailed discussion of matters that in their minds needed further research. Asserting that existing studies had provided an "oversimplified view of the geology" of the Lyons region, they expressed concern about the "inadequacy of base-line data on water quality and quantity," the presence of oil and gas drill holes in the area, the prospect of "sagging and fracturing" if salt thickness were not uniform, and the possibility of structural weaknesses in geological formations. Hambleton thought that investigating those questions would produce useful data within about six months. After he shared his reservations with his colleagues on the Panel on Disposal in Salt Mines, they agreed to meet in Lawrence on June 16–17, 1970, to review outstanding technical issues.[16]

While Hambleton was expressing his misgivings, the AEC continued to push ahead. On June 12, 1970, the staff recommended to the commissioners, who made final decisions on policy issues, that the agency designate Lyons as the site of the demonstration project and take action to acquire the property. Although the staff recognized that additional geological and hydrological studies could "seriously challenge the suitability" of the location, it believed, based on the findings of Project Salt Vault, that the Lyons mine would prove to be "well suited for construction of a long-term facility" for disposal of high-level and transuranic waste. The staff was "reasonably confident" that the project would be favorably received in Kansas. The commission approved the staff's proposal on June 15. Two days later Erlewine announced the "tentative" plan for the Lyons repository at a press conference in Topeka, Kansas. He estimated that the cost of the work at the site would run to $25 million and would employ two hundred people, mostly from the Lyons vicinity. He reported that new studies would be conducted to confirm the acceptability of the site and added, "It will be go or no-go in the next six months."[17]

A staff member of the AEC's Division of Public Information who traveled to Topeka reported that the agency had done a "good job of handling notifications to state and local officials." But the AEC, in fact, had offended Kansas scientists who were deliberating on the same day in Lawrence over the use of the Lyons site. The meeting included members of the Panel on Disposal in Salt Mines and representatives of Oak Ridge National Laboratory, the AEC, the Kansas Geological Survey, and the Kansas Department of Health. Erlewine had disclosed the tentative selection of Lyons to the press in Topeka without waiting for a report from the conference in Lawrence. Erlewine's announcement came as an unpleasant surprise to Hambleton and his colleagues, who saw it as an indication that the AEC was not taking their views seriously. The AEC had committed a grievous and avoidable blunder. Some staff members, including those who attended, were certainly aware of the meeting. The AEC had apparently experienced a breakdown in internal communications, perhaps from arranging the press briefing with ill-considered haste. It also appeared to suffer from acute tone deafness about the potential impact of its announcement. Erlewine's careful efforts to describe the Lyons decision as tentative were not enough to ease the disenchantment and growing distrust on the part of Kansas officials whose support for the project was vital.[18]

15. Cyrus Klingsberg to the Panel on Disposal in Salt Mines, June 10, 1970, and Robert W. Newlin to J. A. Erlewine and D. Donoghue, July 24, 1970, AEC Records, History Division, Department of Energy; *Nucleonics Week*, November 18, 1971; e-mail message from Richard G. Hewlett to the author, March 5, 2005.

16. Klingsberg to Panel on Disposal in Salt Mines, June 10, 1970; William W. Hambleton and Gary F. Stewart to John H. Rust, June 5, 1970, box 27 (Disposal in Salt Panel), series 1, Subject Files (Salt Vault: Atomic Energy Commission), Kansas Geological Survey Records; Hambleton to Robert Docking, June 8, 1970, box 41 (Atomic Waste Disposal 1970), Docking Papers.

17. AEC 180/87 (June 12, 1970), AEC Records, History Division, Department of Energy; AEC Press Release, June 17, 1970, printed in Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 1983–1984; *Wichita Eagle*, June 18, 1970; *Washington Post*, June 18, 1970; *New York Times*, June 18, 1970

18. Robert W. Newlin to John Harris and Joe Fouchard, June 19, 1970, and Cyrus Klingsberg to the Panel on Disposal in Salt Mines, July 1, 1970, AEC Records, History Division, Department of Energy; William W. Hambleton, "Interim Report of the Kansas Geological Survey on Storage of Radioactive Waste in Salt at Lyons, Kansas," July 7, 1970, printed in Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 1998–2002. Hambleton and his colleague Ernest E. Angino vividly recalled their disaffection with the AEC over Erlewine's

William W. Hambleton (left), director of the Kansas Geological Survey, talks with Howard J. Carey Jr. (center), president of the Carey Salt Co., and Dale E. Saffels, chairman of the Kansas Advisory Council on Ecology, at a meeting in Lyons.

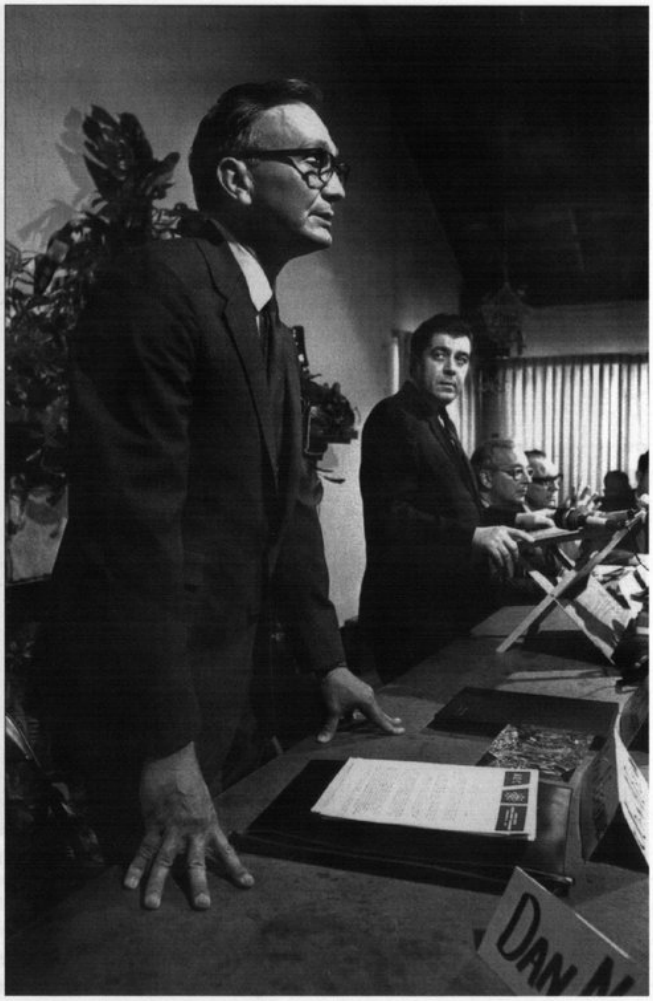
Although the AEC seemed oblivious to the resentment that Erlewine's announcement had generated, it was keenly aware that an outspoken member of the Kansas congressional delegation, Joe Skubitz, had serious doubts about the Lyons proposal. Skubitz's district did not include Lyons; he represented the southeastern section of Kansas, some two hundred miles away. Nevertheless, he followed the developments surrounding the Lyons project with close and increasingly critical vigilance. Skubitz, whose parents had emigrated to Kansas from Slovenia, was a native of the area that he served in Congress. He had worked as a teacher and later as a principal; at the same time, he had earned bachelor's and master's degrees from the local teacher's college (now Pittsburg State University). He later served as an administrative assistant to Senator Andrew Schoeppel and received a law degree from George Washington University in Washington, D.C.

In 1962, after Schoeppel's death, Skubitz won a seat in Congress as a Republican. Like many members of his party, he was deeply suspicious of government bureaucracy and wary of federal incursions into areas traditionally reserved for the states. Skubitz was forthright and occasionally im-

press conference thirty-five years after it occurred. Ernest E. Angino, interview by author, Lawrence, Kans., July 13, 2005; and Hambleton, interview by author.

politic in expressing his opinions. As the debate over the Lyons waste repository became increasingly bitter, he publicly denounced one prominent supporter of the project as a "stooge of the AEC." Skubitz first became interested in the AEC's plans for Lyons because of his experience with the issue as a member of Schoeppel's staff. Like Schoeppel, he had gained the false impression that the AEC had intended to conduct experiments in Hutchinson a decade earlier by pouring high-level liquid radioactive waste directly into a salt mine.[19]

Skubitz's flawed memory of the Hutchinson tests made him skeptical of the AEC's plans for the Lyons repository from the outset. He raised a series of questions with Erlewine in a phone call on April 23, 1970, and received assurances that Project Salt Vault had shown that radioactive waste in Kansas salt deposits "would be in as safe a geologic formation as can be found in the United States." In subsequent correspondence, Skubitz asked Erlewine about the size of the proposed repository, the amount of waste that would be stored, how it would be cooled, and why Kansas was under consideration rather than other states that had large salt deposits. Erlewine replied promptly and conscientiously, but he did not ease Skubitz's growing reservations. On June 18, the day after Erlewine's press conference in Topeka, Skubitz sent a letter to Docking in which he disclosed his "grave doubts about the safety of this project in view of the many differing facts and conflicting opinions." He argued that "we are being asked to assume unknown risks to make Kansas a nuclear dumping ground for all the rest of the nation." Skubitz elaborated on his concerns in a twelve-page, single-spaced letter to Seaborg. He complained that although Kansas was "expected to assume the risks of storage of nuclear waste material," it had not received the "benefits provided by a nuclear power plant" that could attract industry and deliver a "real economic boost to the entire state."[20]



The AEC's John A. Erlewine (left) addresses citizens at meeting in Lyons on July 29, 1970, as Governor Robert B. Docking looks on. This photograph was published the next day in the Topeka Daily Capital.

19. *Wichita Eagle-Beacon*, February 7, 1983; *Pittsburg Morning Sun*, February 6, 2000, September 13, 2000; *Congressional Record*, 92nd Cong., 1st sess., 1971, E2426; Joe Skubitz to W. W. Chandler, June 16, 1971, box 48 (Atomic Waste Disposal 1971), Chet Holifield Papers, University of Southern California, Los Angeles (hereafter Holifield Papers).

20. The correspondence between the AEC and Joe Skubitz is printed in U.S. Atomic Energy Commission, *Environmental Statement: Radioactive Waste Repository, Lyons, Kansas*, WASH-1503, June 1971, Appendix (no page numbers).

Ronald H. Baxter, chairman of the executive council of the Kansas chapter of the Sierra Club, speaks at the July 29, 1970, meeting in Lyons.

Skubitz, like Hambleton, raised questions about the safety of the Lyons site but did not categorically reject it. The Kansas chapter of the Sierra Club, a prominent national environmental organization, took a more dogmatic stance. Ronald H. Baxter, a former aide to Docking and the chairman of the chapter's executive council, revealed the day after Erlewine's June 17 press conference that his group opposed the project. "We intend to see that Kansas is not used for such a dump," he declared, "and intend to be successful in halting such action." In light of the reactions to Erlewine's announcement, the AEC decided to address the doubts that had been aired and to explain its position in a public appearance in Lyons.[21]

The meeting, held on July 29, 1970, was attended by more than 150 local citizens. It also attracted about thirty media representatives who were mostly, but not exclusively, from Kansas newspapers and radio and television stations. The session was moderated by Governor Docking, who outlined his cautious approach in his first public statement on the Lyons proposal. While he hoped that the project would provide "economic gains" to the local area and the state, he emphasized that "we do not want new industry in Kansas at the expense of our citizens' health and welfare." Therefore, Docking withheld support for the Lyons repository until he received the results of the scientific investigations that were under way. Erlewine told the audience that the AEC had the same objectives as the governor. "We sincerely believe this is a good project," he said, "but we, too, want to see the studies completed." He estimated that if the assessments were favorable, the site could open for high-level waste in 1975.[22]

The National Academy of Sciences Committee on Radioactive Waste Management submitted its evaluation of safety at the Lyons site to the AEC in November 1970. It drew on the findings of the Panel on Disposal in Salt Mines. The committee concluded that the "use of bedded salt for the disposal of radioactive wastes is satisfactory" and that "the site near Lyons, Kansas … is satisfactory, subject to the development of certain additional confirmatory data and evaluation." Thus, it offered a favorable but conditional endorsement of the Lyons project, and it recommended research on many of the issues that troubled the Kansas Geological Survey. Nevertheless, the AEC, while acknowledging the need to resolve outstanding issues, emphasized

21. *Wichita Eagle*, June 19, 1970.

22. Ibid., July 30, 1970; *Topeka Daily Capital*, July 30, 1970; Robert E. Hollingsworth to Edward J. Bauser, August 26, 1970, AEC Records, History Division, Department of Energy.

the support the document offered for the Lyons repository.[23]

Kansas Geological Survey scientists were less pleased with the Committee on Radioactive Waste Management's report. Hambleton thought the committee's chair, John C. Frye of the Illinois State Geological Survey, had watered down the conclusions of the Panel on Disposal in Salt Mines. By the fall of 1970 Kansas geologists, in collaboration with the U.S. Army Corps of Engineers, had drilled two deep holes and about forty shallow holes in the Lyons area, and Hambleton prepared a preliminary report on their findings. The fieldwork and discussions with Oak Ridge experts alleviated some of his concerns but heightened others. One issue, which Hambleton described "as crucial to the safety of the repository site," was heat transfer from radioactive waste to salt. He regarded the heat-flow equations that the AEC and Oak Ridge had used as oversimplified and was dismayed that they "exhibited remarkably little interest in the heat flow problem." He feared that excessive heat could fracture rocks that sealed the salt formations and open them to the entry of water.

Hambleton expressed similar objections to the failure of Oak Ridge and the AEC to sufficiently consider radiation damage in the salt mine, which he viewed as an "extremely critical" issue. His concern was that "stored energy" in salt exposed to high levels of radiation could undergo "sudden thermal expansion" and cause small explosions that would threaten the integrity of the repository. In addition to the geological questions that needed attention, Hambleton and his staff believed that provisions for transportation of waste canisters to Kansas were "completely inadequate." Further, they complained that the AEC had developed "no contingency plans" for retrieval of the waste in the event that the repository proved to be unsuitable for permanent disposal. Ernest E. Angino, the deputy director of the Kansas Geological Survey, found it "confusing and disturbing" that the AEC appeared to take a "head in the sands" approach to retrieval.[24]

In early 1971 the already lively debate over the Lyons repository became increasingly visible and acrimonious. The principal cause was the AEC's request for an immediate $3.5 million appropriation for the purchase of land around Lyons and preliminary architectural and engineering work, and for a long-term $25 million authorization for the entire project. On February 12, 1971, in a long, impassioned letter to Docking, Skubitz announced his opposition to the AEC's application for funding and to the development of the waste repository. Explaining that he had "not come lightly to this decision," he accused the AEC of ignoring the views and the rights of the state of Kansas. "The Federal Government cannot compel a sovereign State to do itself and its citizens possible irreparable injury if its officials refuse to be stampeded," he wrote. Skubitz complained that the AEC was "far from certain about the safety" of the site it proposed to use "as a dump for the most dangerous garbage in the knowledge of mankind." He asked that Docking, the Kansas legislature, and "cognizant State officials" support his position. The letter received a great deal of attention both within and beyond Kansas after the Sierra Club's Ronald Baxter released it to the press. Baxter also distributed copies of Hambleton's preliminary report of December 1970 that criticized the AEC's approach to the Lyons project.[25]

The reaction in Kansas to Skubitz's letter was mixed, reflecting the continuing ambivalence of many state officials and citizens. Some papers, especially in Skubitz's district, hailed his effort to stop the Lyons project. The *Parsons Sun* commented that the AEC was "tangling with a buzzsaw in Skubitz," who not only was "waging a battle for Kansas but probably for the whole nation." The *Iola Register* told its readers that "Joe Skubitz appears to be one of the few in a position of responsibility in Kansas who is looking at this

23. Committee on Radioactive Waste Management, *Disposal of Solid Radioactive Wastes in Bedded Salt Deposits*, November 1970, printed in Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 2003–2031; Panel on Disposal in Salt Mines, Draft by William W. Hambleton, July 6, 1970, box 26 (Salt Vault Project), series 1, Subject Files (Salt Vault: Atomic Energy Commission), Kansas Geological Survey Records; John A. Erlewine to Robert B. Docking, November 18, 1970, box 41 (Atomic Waste Disposal 1970), Docking Papers.

24. E. E. Angino to W. W. Hambleton, September 10, 1970, box 27 (Salt Vault Conferences), and Floyd W. Preston and John Halepaska to Hambleton, October 29, 1970, box 27 (Correspondence: Salt Vault), series 1, Subject Files (Salt Vault: Atomic Energy Commission), Kansas Geological Survey Records; Dale E. Saffels to Russell Train, December 1, 1970, "Preliminary Report on Studies of the Radioactive Waste Disposal Site at Lyons, Kansas by the State Geological Survey of Kansas," December 1970, box 41 (Atomic Waste Disposal 1970), Hambleton to Patrick Burnau, August 25, 1971, box 56 (Atomic Energy Commission, Atomic Waste Repository, Lyons), Docking Papers; Hambleton, interview by author.

25. *Congressional Record*, 92nd Cong., 1st sess., 1971, 4342–4343; *Wichita Eagle*, February 17, 1971; *New York Times*, February 17, 1971.

question clearly." Others were less enamored of Skubitz's arguments. The *Wichita Eagle*, while calling for a careful investigation of the questions raised by the Kansas Geological Survey, remarked that "it would only hinder the search for answers if every Kansan got as hysterical as has Rep. Joe Skubitz."[26]

Docking, who had won reelection the previous fall, responded to Skubitz's appeal for support by listing the actions he had taken to investigate the safety of the Lyons site. He emphasized that if the proposed repository posed "any potential danger" to the citizens of Kansas, *"I will not hesitate to use all the powers of the governorship to halt the project"* (emphasis in original). But Docking refused to endorse Skubitz's unequivocal opposition to the project. This brought an impatient rejoinder from Skubitz, who rebuked the governor for a "weasling [sic] statement." He made his reply available to the press and told a reporter that Docking had "tried to shunt aside his responsibilities as governor."[27]

The AEC prepared its own response to Skubitz's letter of February 12. Seaborg reiterated that use of the Lyons site depended on the favorable outcome of scientific studies, including investigations of the issues of concern to the Kansas Geological Survey. "To date," he added, "we have no reason to believe that this important project should not proceed if authorized." Those assurances did not ease Skubitz's concerns or mollify his growing indignation. He told Seaborg in a ten-page, single-spaced letter that the key issue was the prerogative of the state to refuse to host the waste repository. He was offended by the "'big-daddy-knows-best' campaign that is at best disingenuous" and advised the AEC to recognize that Kansans were "not country bumpkins who can be taken for granted."[28]

Skubitz's correspondence with Docking and Seaborg set the stage for hearings conducted on March 16–17, 1971, by the Joint Committee on Atomic Energy on the AEC's request for funding for the Lyons project. The Joint Committee exercised enormous influence as the oversight committee for the AEC; both houses of Congress referred all proposed legislation relating to atomic energy to it. It also controlled the AEC's budget. Skubitz, who was not a member of the Joint Committee, led off the hearings with a lengthy statement in opposition to the allocation of funds for the Lyons project. "If this committee authorizes the funds and permits the AEC to purchase the ground," he declared, "it will have effectively denied Kansas people any choice in this vital issue." He denied that the AEC had demonstrated that the site would be safe. "We are talking about people's lives," he exclaimed. "The AEC is playing God."

Skeptical members of the Joint Committee quizzed Skubitz about the position of members of Congress from the area where the waste repository would be located. As a result, Garner E. Shriver, whose district included Lyons, and Keith Sebelius, who was likely to represent Lyons after a pending redistricting, submitted a joint statement. They urged that safety issues be further investigated, but, unlike Skubitz, they did not oppose the AEC's request for funds.[29]

Skubitz supported his arguments about the scientific uncertainties surrounding the AEC's plans by quoting extensively from Hambleton's reports. When Hambleton took the stand, he delivered a message that distressed both the Joint Committee and the AEC. Appearing as the governor's spokesman, he announced that Docking had "reluctantly" concluded that the AEC's efforts "to minimize the problems raised by scientists in Kansas … support fears of many Kansans that if funds are appropriated for design and site acquisition the project cannot be stopped at a later date if it is … found to be unsafe." He urged that funding for the project be deferred until scientific studies were completed and the results evaluated. Docking's statement made clear that he had moved closer to Skubitz's position, and it demonstrated the differing perspectives of Hambleton and representatives from Oak Ridge and the AEC. Hambleton praised the Oak Ridge experts as "cooperative, candid, and forthright" but added that "when it comes to dealing with the Atomic Energy Commission … we get evasive answers, and this is what causes the concern among most Kansans." He complained that the AEC had not provided some reports that "we requested many months ago."[30]

26. *Congressional Record*, 92nd Cong., 1st sess., 1971, 4338–4340; *Wichita Eagle*, February 21, 1971.
27. *Congressional Record*, 92nd Cong., 1st sess., 1971, 4343–4344; *Wichita Eagle*, February 27, 1971.
28. Glenn T. Seaborg to Joe Skubitz, February 23, 1971, and Skubitz to Seaborg, March 1, 1971, printed in U.S. Atomic Energy Commission, *Supplement to the Environmental Statement, Radioactive Waste Repository, Lyons, Kansas*, July 1971.
29. Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 1308–1344.
30. Ibid., 1350–1357.

Milton Shaw, director of the AEC's Division of Reactor Development and Technology, responded to Hambleton's indictment. Shaw was a strong proponent of nuclear power; the trade journal *Nucleonics Week* once described him as "probably without peer in convincing someone that nuclear power is to be embraced with little or no reservation." The AEC was convinced that nuclear power would not continue to expand unless the waste disposal issue was resolved, and therefore, Shaw took an active interest in the Lyons debate. He told the Joint Committee that he was astonished by Hambleton's allegation that the AEC had withheld information. "I certainly feel we have made every reasonable attempt to keep him informed," he declared. He acknowledged, however, that bureaucratic procedures could have delayed transmission of the information that Hambleton sought. Shaw, who became emotional enough during his testimony that he was "visibly shaking," turned the tables by complaining that the AEC had not known of Hambleton's highly critical preliminary report of December 1970 until Erlewine had received a call from a *New York Times* reporter about it. Like Shaw, Floyd L. Culler, deputy director of Oak Ridge, said he was perplexed by Hambleton's comments. He assured the Joint Committee that Oak Ridge was investigating the technical issues that Hambleton had raised, including heat flow and radiation damage to salt. This was welcome but surprising news to Hambleton and his deputy, Ernest Angino.[31]

The conflicting views that the hearings highlighted greatly disturbed Senator John O. Pastore, chairman of the Joint Committee. He pointed out that the AEC had not convinced key officials in Kansas that the Lyons site was suitable, and, judging from his experience as a former governor of Rhode Island, he told Shaw that the agency could not "run roughshod" over Docking or "stuff this down his throat." Pastore suggested that instead of authorizing the full $25 million that the AEC requested, the Joint Committee should approve only the $3.5 million to purchase land and draw up designs for the facility. He thought this would alleviate fears in Kansas that a $25 million authorization "would be a fait accompli." Shaw disagreed with Pastore's proposal because he preferred a "long-term commitment" to the project that would enable the AEC to attract "good people to work on it." He also contended that the smaller amount would delay if not sidetrack testing on specific conditions at the Lyons site. "We are at the point," he said, "that we must test in place."[32]

The AEC believed that it had provided reasonable responses to the questions that Kansas officials presented during the Joint Committee hearings. It affirmed that it would sponsor research on the technical issues that Hambleton cited and would terminate work on the Lyons project if the mine turned out to be unsuitable. It argued that since it had transported nuclear materials safely for years, it was confident that the same procedures for moving waste to Kansas were appropriate. And it pledged to design the facility in a way to allow for retrieval if it ever became necessary. Those assurances did not satisfy Hambleton, who insisted that the essential research could and should be performed "before they actually go into this so-called demonstration site." The sometimes heated debates during the hearings deepened the rift between state officials and the AEC.[33]

Shortly after the Joint Committee hearings, Docking commented that "AEC officials were nothing less than downright shabby" in their response to Hambleton's testimony. "They apparently thought," he added, "they could just throw their weight around and make us all play dead for them." He urged Pastore to defer funding "until safety of the project is assured" and attacked the "high-handedness of some AEC officials in their 'steam-roller' approach to moving ahead." He complained to President Richard M. Nixon about the "arrogance" and "patronizing manner" of the AEC, which, he said, had "treated as trivial the concerns of Kansans for a potentially dangerous project." Docking instructed Vern Miller, attorney general of Kansas, to explore the legal options available to the state to oppose the Lyons repository and declared that "if the only recourse to halting the project near Lyons is a lawsuit, then I would support a lawsuit."[34]

31. Ibid., 1355–1365, 1446; *Nucleonics Week*, June 11, 1970; "Kansas Officials Oppose AEC on Radioactive Waste Repository," *Nuclear Industry* 18 (March 1971): 24–27.

32. Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 1367–1374, 1445–1464; *Nucleonics Week*, March 25, 1971.

33. Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 1344–1396.

34. Robert Docking to Vern Miller, March 18, 1971, Docking to John Pastore, March 19, 1971, and Docking to Richard M. Nixon, June 21, 1971, box 56 (Atomic Energy Commission, Atomic Waste Repository, Lyons), Docking Papers; Docking to Pastore, April 28, 1971, box 48 (Atomic Waste Disposal), Holifield Papers; *Kansas City Times*, April 15, 1971.

Congressman Skubitz heartily applauded the governor's more militant stance. He wired Docking that "as one who felt very alone for almost a year in this fight, ... I commend your position in opposing the installation of a nuclear waste dump at Lyons." The governor, despite the vocal objections he expressed, sought to keep his distance from Skubitz. He still had not closed his mind to the Lyons site if the AEC agreed to delay the project until more scientific studies were completed. His staff told reporters that Docking's recent protests were not a result of "noise from Skubitz" but reflected his long-standing position that he would act to stop the project if its safety was doubtful. The Joint Committee hearings had "confirmed for him what he suspected"—that the AEC was "not inclined to pursue tests" that Hambleton thought were necessary.[35]

Hambleton felt the same way. He thanked Pastore for his "unfailing courtesy" during the hearings, which "relieved an otherwise difficult session." He summarized the differences between the AEC and the Kansas Geological Survey for the Joint Committee chairman. "The Atomic Energy Commission judges it has adequate information for proceeding with the radioactive waste disposal project ... and that any or all problems can be engineered or designed *out* of this 'demonstration project' when and if they appear," he wrote. "The Kansas Geological Survey holds to the view that safety should be designed and engineered *into* the project before it is undertaken." Discussions with Oak Ridge scientists after the hearings had further convinced him of the need for careful investigation of heat flow, radiation damage, retrieval, and other issues. "Father knows best," Hambleton commented about the AEC at a public meeting in April 1971. "He's like a steamroller. If you don't budge, he will roll over you and treat the effect as a negligible problem."[36]

Docking and Hambleton's bitter denunciations of the AEC in the wake of the Joint Committee hearings made clear that the Lyons project faced severe, if not insurmountable, political difficulties. This was a source of concern for Senator Robert J. Dole and other prominent Kansas politicians who wished to mitigate the controversy. In light of the "potential energy crisis" confronting the United States, Dole maintained that nuclear power was needed to meet the nation's power demands. Dole shared many of Docking's reservations about the Lyons proposal, but he was persuaded that the basic problem was a "lack of communication" rather than AEC indifference to the concerns of Kansas. Therefore, he advised Nixon to appoint an advisory council to assess the risks of the Lyons site in a way that would satisfy both the federal government and the people of Kansas. The council would include one representative from each of four federal agencies, including the AEC, and two representatives of Kansas.[37]

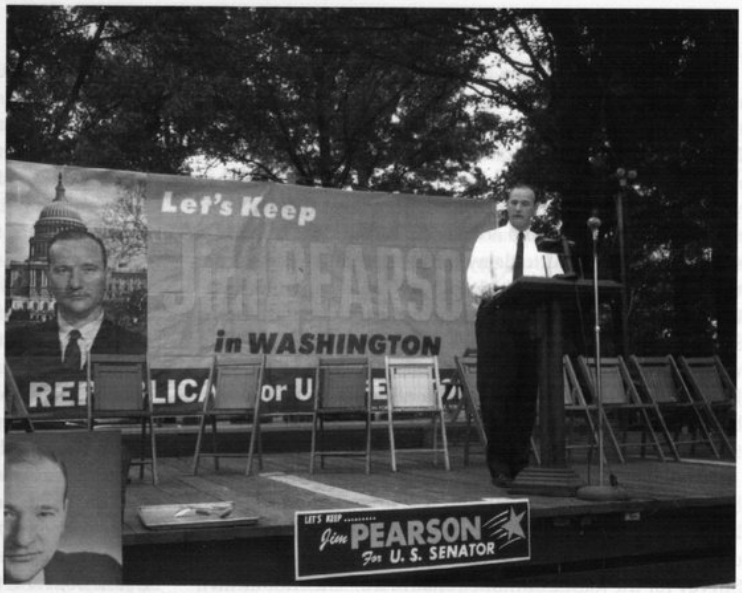
Matters came to a head after the Joint Committee voted on June 30, 1971, to approve Pastore's recommendation for a $3.5 million appropriation for the purchase of land and preliminary work at the Lyons site. The recommendation contained two conditions. The first was that the project would be canceled if it did not meet "reasonable standards" of safety, and the second was that an advisory council be established. The Joint Committee's action brought strong protests from Docking and Skubitz. The governor informed Pastore that he would "use all the authority of the Kansas Governor's Office to prevent the AEC from forcing this potentially dangerous project on the people of Kansas." Skubitz offered an amendment on the House floor to eliminate the funds approved by the Joint Committee. After it was defeated, he appealed for support from his fellow Kansans in the Senate. He told Dole and James B. Pearson that the proposed advisory council was a "patent fraud."[38]

35. Pat [Burnau], Note to the Governor, April 5, 1971, box 56 (Atomic Energy Commission, Atomic Waste Repository, Lyons), Docking Papers; unidentified newspaper article, "Bob Threatens AEC Suit," March 19, 1971, AEC Records, History Division, Department of Energy.

36. William W. Hambleton, "Statement to the Federal and State Affairs Committee of the House of Representatives of the Kansas Legislature," March 29, 1971, box 68 (Lyons Radioactive Storage–Kansas Legislative Hearing), Accession No. 329-89-198, Robert J. Dole Papers, University of Kansas (hereafter Dole Papers); Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 2229–2233; *Kansas City Times*, April 21, 1971.

37. Ward [White] to Senator Robert J. Dole, n.d., Dole to Richard M. Nixon, April 26, 1971, and Dole to Robert Docking, June 30, 1971, box 68 (Lyons Radioactive Storage–Correspondence), Accession 329-89-198, Dole Papers; J. Frederick Weinhold to Edward E. David Jr., April 15, 1971, Subject File (Atomic Energy Commission, 1971), RG 359 (Records of the Office of Science and Technology Policy), National Archives, College Park, Md.; Joint Committee on Atomic Energy, *Hearings on AEC Authorizing Legislation Fiscal Year 1972*, 1466–1468, 2228.

38. Frederick C. Schuldt to the Director, July 19, 1971, White House Central Files, Staff Member and Office Files: John C. Whitaker, box 29 (Atomic Energy Commission, 1971), Richard M. Nixon Papers, Nixon Presidential Materials Project, National Archives, College Park, Md. (hereafter Nixon Papers); Robert Docking to John Pastore, July 13, 1971, and



Kansas Senator James B. Pearson, who assumed the position upon the death of Senator Schoeppel in January 1962 and is seen here during his special election campaign later that year, worked with the Joint Committee to reach a compromise on the Lyons funding. The state's two senators agreed on legislation in 1971 that provided for a nine-member advisory council and allocated funds for the AEC to lease but not purchase land in the Lyons area. And it specified that radioactive materials could not be used for testing at the site unless they were "fully retrievable."

Despite their differences, Skubitz, Pearson, and Dole worked with the Joint Committee to reach a compromise on the Lyons funding. The two senators agreed on legislation that provided for a nine-member advisory council that would include at least three members from Kansas. It allocated funds for the AEC to lease but not purchase land in the Lyons area. And it specified that radioactive materials could not be used for testing at the site unless they were "fully retrievable." When the Senate passed the bill with those conditions, Docking announced that he was "very encouraged." Although Skubitz complained publicly that Kansas had been "badly served" by its senators, he eventually accepted a slightly revised version of the legislation. The compromise amendment that Congress passed in August 1971 won editorial acclaim throughout Kansas.[39]

While congressional and state leaders arrived at a compromise that resolved the sharp political disagreements over the Lyons site, new and ultimately fatal technical issues arose. The problem was that information provided by the American Salt Corporation of Kansas City, Missouri, indicated that water flowing underground from previous drilling in the Lyons area could reach the Carey mine in which radioactive waste would be stored. If this occurred, the water could carry radioactivity from the repository into adjacent aquifers and contaminate water supplies. The great advantage of using salt mines for disposing of radioactive waste was the dryness of their geological environment, and a serious threat of penetration by moving water would make the Lyons location unacceptable.

The president of the American Salt Corporation, Otto Rueschhoff, first informed Oak Ridge of his concerns about the potential vulnerability of the Carey mine on May 4, 1971. He had learned only recently that the radioactive waste vault would be an "integral part of the old Carey mine," which caused him to worry that his company's nearby mine could "act as a conduit, transporting water from the aquifer above our operations to the vicinity of the proposed repository." The entry points for the two mines were only about 1,800 feet apart. Rueschhoff also warned that oil and gas wells that had been drilled in the Lyons area could enable the movement of fluids from the "salt strata" to the aquifer. In a meeting with the Kansas Geological Survey on July 26, 1971, Rueschhoff reported that in 1965 the company had pumped about 170,000 gallons of water into an "injection well" near Lyons as part of its "solution mining" pro-

Joe Skubitz to James B. Pearson and Robert J. Dole, July 19, 1971, box 56 (Atomic Energy Commission, Atomic Waste Repository, Lyons), Docking Papers.

39. E. J. Bauser to John O. Pastore, July 24, 1971, box 48 (Atomic Waste Disposal 1971), Holifield Papers; Robert Cahn to Robert B. Docking, August 24, 1971, box 56 (Atomic Energy Commission, Atomic Waste Repository, Lyons), Docking Papers; *Hutchinson News*, July 21 and 25, 1971; *Wichita Eagle*, July 24 and 28, 1971; *Manhattan Mercury*, July 21, 1971; *Kansas City Times*, July 23, 1971; *Parsons Sun*, July 23, 1971; *Emporia Gazette*, July 28, 1971.

Senator Robert J. Dole held some reservations about the Lyons project but wished to mitigate the controversy. In light of the "potential energy crisis" confronting the United States, the senator believed nuclear power was needed to meet the nation's power demands. This photograph was taken during Bob Dole's first senatorial reelection campaign in 1974. Challenger Dr. William R. Roy, a two-term Democratic congressman from Topeka, is seated in the background. Courtesy of the Robert J. Dole Institute of Politics Archive, University of Kansas, Lawrence.

cedures. The water, rather than circulating back to a return well, had disappeared, and the company had "no idea as to where the loss occurred or where the fluids went." This incident signaled a risk of unknown proportions that underground water could compromise the integrity of a waste repository under Lyons. Hambleton remarked that "the Lyons site is a bit like a piece of Swiss cheese, and the possibility for entrance and circulation of fluids is great."[40]

Reuschhoff's revelations provided new impetus for opponents of the Lyons project. Skubitz announced on September 30, 1971, that the "Lyons site is dead as a dodo for waste burial." The AEC denied that it had decided to abandon Lyons, though it acknowledged that it would begin "looking into possible alternatives," including other salt deposits in Kansas. By that time the agency had exhausted its already meager political capital in Kansas. Docking told James R. Schlesinger, who had recently replaced Seaborg as AEC chairman, that he did not believe the agency had acted "honestly and faithfully." He made a "strong recommendation" that it "extend its search for a suitable disposal area beyond the boundaries of Kansas, and beyond the boundaries of the continental United States."[41]

The AEC still refused to publicly renounce the Lyons proposal, but it eventually recognized that the site was unsalvageable, both politically and technically. In early 1972 the White House Office of Science and Technology noted that the AEC had "all but given up" on Lyons. A recent Kansas Geological Survey report had described the site as the "poorest choice" among seven "possible areas" in the state where radioactive waste might be buried in salt. A short time later the AEC announced that although it would continue to search for suitable salt deposits, it would shift its emphasis to storing high-level radioactive waste in large concrete-and-steel structures that would be placed aboveground. Skubitz remained skeptical. In response to his inquiries, he received assurances in June 1974 from Dixy Lee Ray, who followed Schlesinger as chairman of the AEC, that the agency did "not plan to dispose of radioactive wastes in the State of Kansas" and that it intended to "manage all high level radioactive waste in retrievable surface storage." Nevertheless, Skubitz introduced a bill in Congress three years later that would require a referendum by the citizens of a state in which a nuclear waste repository would be located. His motive, he explained, was "to prevent the Lyons, Kansas, situation from ever developing again."[42]

40. Otto Rueschhoff to F. M. Empson, May 4, 1971, "Summary of Discussions with Mr. Otto Rueschhoff, Kansas City Missouri, on July 26, 1971," box 26 (American Salt Corp., AEC), series 1, Subject Files (Salt Vault: Atomic Energy Commission), Kansas Geological Survey Records; Hambleton, *Selected Speeches*, 140–141.

41. News Release from Congressman Joe Skubitz, September 30, 1971, Press Release Binder, Joe Skubitz Papers, Pittsburg State University, Pittsburg, Kans. (hereafter Skubitz Papers); Robert D. O'Neill to Bob Dole, October 1, 1971, box 68 (Lyons Radioactive Storage–Correspondence), Accession 329-89-198, Dole Papers; Robert Docking to James Schlesinger, October 27, 1971, box 56 (Atomic Energy Commission, Atomic Waste Depository, Lyons), Docking Papers; *Congressional Record*, 92nd Cong., 2nd sess., 1972, 4847; *Denver Post*, September 28, 1971; *Lyons Daily News*, September 29, 1971.

42. Stephen J. Gage to Edward E. David Jr., February 18, 1972, White House Central Files, Staff Member and Office Files: Glenn R. Schleede, box 6 (AEC–Atomic Energy Commission), Nixon Papers; Joe Skubitz to Dixy Lee Ray, May 1 and May 30, 1974, Ray to Skubitz, June 17, 1974, box 113 (AEC: Waste Disposal Correspondence), and Congressman Joe Skubitz News Release, March 22, 1977, box 159, folder 3684, Skubitz Papers; AEC Press Release, January 21, 1972, Nuclear Regulatory Commission (NRC) Records, NRC Public Document Room, Rockville, Md.; "AEC Shifts to Surface Engineered Waste Storage Facilities," *Nuclear Industry* 19 (May 1972): 25; *Nucleonics Week*, May 18, 1972.

The AEC's first effort to identify a permanent site for the disposal of high-level and transuranic radioactive waste failed spectacularly. In its haste to fulfill its pledge to Senator Church and to build a repository for the growing quantities of commercial reactor waste, it not only selected a location that it eventually found to be unsuitable but also offended political leaders and scientists whose backing for the project was essential. The AEC was not indifferent to the safety of the Lyons site, but its ham-handed treatment of controversial issues often made it appear that way. Preliminary investigations of the Carey mine were promising enough for the agency to explore its advantages as a permanent waste repository. But the AEC became so focused on Lyons that it too casually dismissed the serious questions raised by the Kansas Geological Survey. Rather than taking its time to investigate scientific uncertainties and reach strongly defensible conclusions, it offered disputable assurances and pressed ahead. The AEC knew of the presence of another salt mine and oil and gas wells close to the proposed repository, but it took no concerted action to study the risks of previous drilling until after the American Salt Corporation expressed its concerns. Its refusal to fully assess the potential pitfalls of the Lyons project was an embarrassment that could have and should have been avoided by a more deliberate approach to the inherently complex problem of disposing of radioactive waste.

Congressman Joe Skubitz, seen here with President Gerald R. Ford, introduced a bill in 1977 that required a referendum by the citizens of a state in which a nuclear waste repository would be located. His motive, he explained, was "to prevent the Lyons, Kansas, situation from ever developing again." Courtesy of the Joe Skubitz Papers, Pittsburg State University.

The AEC handled the political aspects of the Lyons debate in an equally inept manner. It was aware that the construction of a waste repository would not proceed without the support of the local community, and it was committed to addressing public concerns. But the AEC did not deal adroitly with the political issues that arose in Kansas, in large part because it tended to group critics of the Lyons proposal into a monolithic whole. It failed to distinguish between the reservations that Hambleton cited and the much more strident and intractable position adopted by Skubitz. Docking and Hambleton were open-minded about the project at the outset; they eventually became disillusioned with the AEC after it dismissed or refused to aggressively investigate the questions they raised. The increasingly harsh tone of their rhetoric after the Joint Committee hearings in March 1971 reflected their perception that the AEC had not taken due account of their expertise and responsibility for the safety of the citizens of Kansas.

Long before the AEC realized that the Lyons project was technically unsuitable, it had lost the political support it needed. Although Kansas officials were favorably impressed with the staff members from Oak Ridge and the AEC with whom they met personally, they were repeatedly frustrated and dumbfounded by the policy decisions of AEC headquarters. Erlewine's press conference in Topeka in June 1970 was the first in a series of AEC political missteps during the Lyons controversy. The agency's clumsy political performance was a result of its conviction that its procedures would assure the safety of the facility and of its unseemly rush to build a waste disposal repository. The AEC paid a heavy price for its errors. The Lyons debacle received wide national attention that diminished confidence in the agency and made its search for a solution to the waste problem immeasurably more difficult. KH

EDITOR'S NOTE

Here, at the dawn of the journal's thirtieth year, I would like to begin this year-end note with a few words of gratitude and farewell. Bobbie Pray, who helped birth *Kansas History: A Journal of the Central Plains* in 1978 and served as its managing editor for most of the last fifteen years, and Sue Novak, associate editor, who joined our staff in 1993, both left the Society late last summer. Bobbie retired after thirty years of service, first in the library and then in publications. Sue accepted a position at the University of Kansas. Bobbie and Sue were *Kansas Heritage* during its notable fourteen-year run; and together we guided *Kansas History* through the 1990s and brought it into the twenty-first century in style, if I may say so. I think I may, since the journal's appearance and more has largely depended upon their expertise, dedication, and commitment to professional excellence. Bobbie and Sue are and will be greatly missed.

During the year just past we noted the death of Emporia State University professor of history William H. Seiler (see, summer 2006 issue), a valued friend of Kansas history and mentor to many, and now I must mention Dr. Edwin C. Moreland, also of ESU. Ed Moreland, who died on February 14, 2006, impacted the academic lives of many students, including your editor, during his long and fruitful career as a professor of geography at Kansas State Teachers College (and then ESU). I still remember his Kansas geography class, which I enjoyed as an undergraduate many years ago.

As always, we were privileged to recognize an outstanding contribution to Kansas historiography with the presentation of the Edgar Langsdorf Award for Excellence in Writing at the Society's annual meeting on November 3. Board member Deborah Barker, director of the Franklin County Historical Society, chaired this year's committee, which selected the "best" article published in volume 28 of *Kansas History: A Journal of the Central Plains*. Dr. Bruce D. Mactavish, Washburn University; Dr. Sue Zschoche, Kansas State University; D. Cheryl Collins, director, Riley County Historical Society; and William McKale, director, U.S. Cavalry Museum, ably assisted Deb. Their very worthy choice was Karen Manners Smith's article, "Father, Son, and Country on the Eve of War: William Allen White, William Lindsay White, and American Isolationism, 1940–1941," published in the journal's spring 2005 issue.

In her award-winning article on the Whites of Emporia, Kansas, Dr. Smith, a professor of history at Emporia State University, explored a complex father and son relationship at a seminal point in American history. Like the rest of Middle America, William Allen White was slow to accept the need for full U.S. participation in this second European war of his lifetime—ultimately, of course, the Japanese attack on Pearl Harbor converted him, as it did many others. "But throughout 1941, as Bill [William Lindsay] White and other war correspondents returned from Europe with attitudes tempered in the Great Fire, the heartland heard, in the voices of its own native sons, an increasingly urgent chorus of pro-British, anti-isolationist propaganda."

In addition, this year's Langsdorf award committee decided to give honorable mention to Aram Goudsouzian for his widely-praised, autumn 2005 article, "'Can Basketball Survive Chamberlain?': The Kansas Years of Wilt the Stilt." Dr. Goudsouzian, assistant professor of history at the University of Memphis, skillfully examined the controversial Kansas basketball career of the great Wilt Chamberlain, who "personally helped effect the racial desegregation of Lawrence" but who "was a considerably more complicated figure than an integrationist pioneer in the mold of Jackie Robinson." Chamberlain was a national icon who "foreshadowed the changing landscapes of American sports and race relations."

Finally, I should end with a special note of thanks to our editorial advisory board, several dozens of anonymous readers who evaluated last year's manuscript submissions, and the staff of our fine Library and Archives Division--especially helpful in the preparation of the winter issue in the absence of a publications staff were Nancy Sherbert, Lisa Keys, Barry Worley, and Craig Cooper.

Virgil W. Dean

REVIEWS

Kansas Archaeology

edited by Robert J. Hoard and William E. Banks

xiii + 432 pages, photographs, tables, maps, appendix, references cited, the contributors, and index.
Lawrence: University Press of Kansas, 2006, cloth, $34.95.

Nineteen of the most prominent researchers in the disciplines of Kansas prehistory are brought together in this edited work. One of the elders of Kansas archaeology, Alfred Johnson, starts the process with an excellent foreword that summarizes the history of the research itself. The book's editors, Robert Hoard and William Banks, provide an introduction, including a historical chronology, key concepts of archaeology, and an important reminder that descendants of the Native Americans who created many archaeological sites still live in the area today. The authors explain topics such as dating technology or taxonomy in a concise and understandable manner.

Rolfe Mandel continues the context with a description of ancient and modern environments. He gives a solid description of the physiographic provinces and subprovinces and explores how the climate, flora, and fauna have changed since the end of the last ice age. A brief discussion of some technical terms such as *till, loess,* or *coluvium* would have been helpful, but Mandel's writing is clear and concise. Mandel also contributed a chapter on the effects of landscape evolution on the archaeological record.

The Paleo-Indian and Archaic periods are combined in Chapter 4, which was written by Jeannette Blackmar and Jack Hofman. The authors do a very good job of synthesizing the data available. It is refreshing that they discuss the importance of isolated finds and oral tradition, which usually receive little attention. I was a little uncomfortable with combining such a large stretch of time in a single chapter, but given the sparse reference material, it is understandable.

Woodland adaptations in eastern Kansas are the subject of Brad Logan's chapter. A thorough discussion of origins and relationships of Woodland groups is fleshed out by a discussion of defined groups in the early, middle, and late Woodland periods and a well-thought-out discussion of the data. John R. Bozell follows with a chapter on Woodland complexes in western Kansas and adjacent portions of Nebraska. An excellent discussion of defined cultures and the traits that define them is included, followed by a discussion of origins, development, and termination.

Donna Roper gives a discussion of the Central Plains tradition. This is generally a high-quality description, but I am a little uncomfortable with the casual inclusion of the Steed-Kisker phase with so little discussion of why this decision is justified. Other well-known authors have been far more cautious about this relationship. I was also surprised that a defined entity such as the Solomon River phase was not even mentioned. It is understandable that authors may disagree on the definition of phases, as shown in Logan's Chapter 5 description of the Butler and Greenwood phases, but such disagreement should be mentioned. It was good to see the discussion of the often-overlooked topics of trade networks and of relationships with nonagricultural groups. Laura Scheiber's chapter on the High Plains groups is a valuable contribution. Many Kansas scholars have heard about these groups but have not taken the time to bring together the useful information presented here.

The Oneota are covered by Lauren Ritterbush in an excellent summary of an important cultural group. In addition to a thorough discussion of cultural patterns, she brings out good questions on interactions between the Oneota and the Central Plains tradition. The Great Bend aspect is described by Donald Blakeslee and Marlin Hawley. Again, it is an excellent discussion of cultural patterns and particularly of the economy of the group.

The description by Scott Brosowske and Tod Bevitt of the Middle Ceramic period in southern Kansas is a much-needed contribution. It is particularly useful to have these scattered data consolidated and summarized in one place. I was surprised by the number of sites documented here.

Susan Vehik's discussion of Wichita ethnohistory provides well-researched data on relationships of the ancestral Wichita. I would have been more comfortable if she had used words such as "probably" or "likely" a little more often. Although she has provided some very strong evidence, I was not convinced that the relationships of known groups to names used in historical documents are quite as certain as the text indicates.

The description of the Kansa by James O. Marshall is again a much-appreciated contribution. Much of the information has long been out there, but it is very helpful to have it brought together in a well-organized summary. Likewise, Donna Roper brings together much valuable but previously hard-to-find data on the Pawnee. While some may not agree with all of the interpretations offered, I believe it is useful to have these ideas brought forth.

Mary Adair gives a clear, concise summary of paleoethnobotany. She describes what the discipline is and what it has to offer to archaeological analysis. Her chapter demonstrates the importance of integrating other disciplines into the study of archaeology. The final chapter is a summary of Kansas lithic resources by C. Martin Stein. Stein's impressive compilation of exhaustive information on geologic resources used in prehistory will be of great value to future archaeological studies.

In summary, this book provides a valuable resource in light of the breadth and depth of data on Kansas archaeology that are brought together here. There are a few ideas that I would have preferred to see debated in scholarly journals prior to their inclusion in an authoritative synthesis, but that concern is far outweighed by the amount of insightful information that is presented.

Reviewed by Bob Blasing, *area archaeologist for the Oklahoma-Texas Area Office of the Bureau of Reclamation.*

American Paper Son: A Chinese Immigrant in the Midwest

by Wayne Hung Wong, edited and with an introduction by Benson Tong

x + 162 pages, appendix, notes, index.
Urbana: University of Illinois Press, 2006, paper, $20.00.

Sources on the history of Asian Americans in Kansas are as rare as, well, Asian Americans in Kansas. The 1930 census counted only sixty Chinese residents in the state and, even today, Asians comprise only about 1.7 percent of all Kansans. Painstaking works on Kansas history—Craig Miner's *Kansas: The History of the Sunflower State* and Jennie Chinn's *Kansas Journey*—have unearthed enough information for only a few sentences or paragraphs on the Asian American experience in the state. Beyond Julie Courtwright's important 2002 article on the 1886 "Chinese ouster attempt" in Wichita, little substantive primary research has been conducted on Kansas's small but long-standing populations of Asian descent.

This dearth of historical documentation makes *American Paper Son* a particularly valuable and indeed unique addition to the literature on Asian Americans in Kansas and on the Great Plains. This memoir of Wayne Hung Wong, a resident of Wichita for over seven decades, is an unassuming but thoroughly compelling chronicle of one individual's arc from rural south China through grueling kitchen work in numerous "Oriental" cafés and yeoman service in the U.S. Army to the eventual American dream of small-business ownership and entrepreneurial success.

Born Ying Wing Mar to a well-to-do Chinese family, Wong came to America in 1935 as a thirteen-year-old, using a common subterfuge—posing as the child, the "paper son," of a legitimate immigrant from China—in an era of restrictive and racist limitations on Chinese entry to the United States. Wong joined his father, the partner in the Pan-American Café in downtown Wichita, clearing tables and washing dishes while attending Carleton Grammar School and Wichita North High School. With the outbreak of World War II, Wong (who these days would be tagged an "illegal alien") joined the U.S. Army Signal Corps and was assigned to an all-Chinese American unit, which served (largely uneventfully) in Yunnan Province on China's southern front. After the war, Wong brought a bride from China back to Wichita and, with U.S. citizenship gained through the "confession" amnesty program, started a family and a career in his adopted hometown. After managing Chinese restaurants and a strip club, Wong and his wife took over the Georgie Porgie Pancake Shop and eventually became successful real estate investors and restaurant operators, building facilities for several Quicktrip convenience stores and owning three Long John Silver's franchises in Wichita.

Wong's concise memoir was edited by Benson Tong, a historian formerly at Wichita State University, who also contributed an introduction and voluminous notes on the text. Tong's endnotes are impressively thorough (to the extent that some might call them pedantic), with remarkably detailed information on the Chinese restaurants of Wichita, World War II in China, and Asian immigration to the United States. The introduction and a short appendix on methodology and sources are far more problematic, however. Tong is insistent that we not accept Wayne Hung Wong's narrative at face value but that we approach his autobiography as "a cultural, constructed artifact, a selective memory no less" (p. 120). Tong seems particularly disappointed that Wong does not have more tales to tell of racist discrimination in Wichita; rather than accepting the author's words—that life as a Chinese immigrant in Kansas was hard, but prejudice was muted and opportunity plentiful—Tong assures us that Wong must be unconsciously suppressing painful memories and imposing an imagined trajectory of progress on an (undoubtedly) downtrodden and thwarted existence. As the historical record of Asian American life in twentieth-century Kansas is so limited, Tong's assumption of widespread discrimination and racial hostility lacks empirical support, and, in the end, his dismissal of Wong's account as a kind of false consciousness seems arrogant and even churlish.

Readers of this book without an ethnic studies ax to grind would be well advised to skip the introduction, go easy on the notes, and immerse themselves in the revealing and frequently charming story of one modest, resilient, and enterprising Kansan.

Reviewed by William M. Tsutsui, *professor of history and executive director of the Confucius Institute, University of Kansas, Lawrence.*

[In Progress] Kansas history: a journal of the central plains

Indians and Emigrants: Encounters on the Overland Trails

by Michael L. Tate

xxiv + 328 pages, notes, bibliography, index.
Norman: University of Oklahoma Press, 2006, cloth $29.95.

There is an admittedly apocryphal statement made by a newspaper editor that came to mind while I was reading Michael Tate's compelling study of encounters between Indians and emigrants on the overland trails: "When a bus arrives safely at school, it's not news." Peaceful, reciprocal interactions between American Indians and overland emigrants are not the stuff of legend and lore. The encounters between these two disparate groups that *did* make the news of the time, and that quickly entered the public consciousness and popular culture, were the infrequent violent episodes. As Tate convincingly points out, however, the norm for interaction between American Indians and overland emigrants was much more cooperation than confrontation.

Beginning with a well-reasoned explanation for how he selected the time period to examine (1840–1870) and what, for the purposes of this study, constitutes and defines the terms *trails*, *Indians*, and *emigrants* (no small concern when one considers the multiple possible definitions of each), Tate examines the tremendous amount of misinformation and preconceived notions about American Indians that swirled around the jumping-off towns for the overland trails. For nearly two centuries Europeans and Americans had been presented with a confusing depiction of Indians as both "noble savages" and "villainous, treacherous thieves." Captivity narratives had been around (and widely read) since America's Colonial period. Yet few overland emigrants had any firsthand experience with Indians. Instead they received what knowledge they had from commercial guidebooks, personal narratives, newspapers, and dime novels. Publishers of the latter two forms, of course, had a vested economic interest in pushing the sensationalized (and mostly fictional) stories because they sold so well. Before emigrants even set out on their journey, therefore, most had incomplete, inaccurate, and negative views of the native peoples.

Drawing on an impressive number of sources, Tate goes on to closely examine many different encounters between Indians and emigrants. In a fascinating chapter on trade between the two groups, he documents how Indians used the trail traffic as a market for trading not just goods but services as well. Guiding emigrant groups along better trails or helping them ford streams and rivers were among the services provided. Like all forms of human interaction, these trade encounters sometimes went smoothly and sometimes did not. Cultural misunderstandings could lead to ill feeling. As Tate points out, Indian actions commonly referred to by emigrants as "thievery" often were seen by Indians in the context of gift-giving and appropriate reciprocity for services rendered.

Violence between the two groups did occur, of course, and Tate certainly does not discount this fact. He does, however, offer considerable insight into why the first reactions of many emigrants were uncertainty and fear. Traveling in unfamiliar territory, always concerned about supplies, and witnessing the deaths of family members and friends from illness and accidents created a high stress level for many on the journey. This stress, coupled with their lack of knowledge about the native inhabitants and negative popular-culture images of Indians, meant that many emigrants were understandably anxious about any encounter with those unlike themselves. As emigrant traffic along the trails grew each year, the once abundant grass and game upon which the Indians relied rapidly became depleted. Conflicts did break out along the trails, but even in the later years of overland travel, Tate finds that the vast majority of encounters were friendly.

Tate concludes that both Indians and overland emigrants acted according to what they perceived to be in their own best interests. "Often," Tate writes, "the American Indians who were situated along the trails acted upon their own ethical standards to extend aid without demanding payment of any kind. At other times, they traded items and performed services for whites in order to extract a profit. Like the overlanders, they responded to the realities of the immediate moment. They possessed no collective crystal ball to foresee that the federal government and white settlers would overrun their lands and challenge their sovereignty" (pp. 232–233).

Michael Tate has used a wealth of resources and an ethnohistorian's reading of the source documents to construct this important and complex story. He has expanded our understanding of this fascinating migration saga and has produced a must-read book for anyone with even a passing interest in the overland trails.

Reviewed by Bob Keckeisen, *museum director, Kansas State Historical Society.*

An Opportunity Lost: The Truman Administration and the Farm Policy Debate

by Virgil W. Dean

vii + 275 pages, notes, photos, bibliography, index. Columbia: University of Missouri Press, 2006, cloth, $29.95.

The great farm policy debates of the twentieth century are rapidly fading from the memory of Americans in the twenty-first. Faced with the increasing complexities of global interdependency and conflict, most contemporary citizens have little understanding of those debates, or why the issues meant so much to rural Americans. But more than three decades of the previous century were fraught with increasing rural-urban tensions as lawmakers sought to work out a farm program that would be equitable to both farmers and consumers.

The first round in the debate began in the 1920s and continued into the 1930s. It focused on the issue of parity prices—that is, how farmers could receive comparable value for products they sold and products they bought. The effect of these debates was to establish a consensus among lawmakers that problems of rural America could not be resolved without federal assistance, and the solution for the time was to create a system of flexible price supports to give farmers parity in the marketplace.

The drama of World War II pushed the farm debate to the background for four years, but the question emerged again in the immediate postwar years. No longer a question of "if" the government should be involved, the new debate was on how, or to what extent, federal policy should be employed. Virgil Dean has picked up the discussion at this point and in a well-written, well-reasoned narrative has brought clarity to the question. Summarizing the pre–World War II debates, Dean points out flaws in previous programs by noting that the marketing approach of the 1920s lacked adequate technology and infrastructure to support world markets, and the New Deal policies of the 1930s favored landowners and/or commercial farmers. But because more than 60 percent of the farm population was sharecroppers, tenants, or renters, much of rural America was left with a "raw deal" when it came to agriculture policy.

President Harry Truman's "Fair Deal" was intended to tweak the New Deal and make many of the Roosevelt administration's programs more equitable to more citizens. Policies to aid rural America were key elements in the Fair Deal initiatives. In particular, Truman wanted to restore some balance between small-unit "family farms" and the larger operations of commercial agriculture. To achieve that objective, he ultimately turned to Charles Brannan, his secretary of agriculture after 1947. Brannan concentrated on developing a plan that would define "family farm" and trade the flexible price supports of the Roosevelt era for direct payments to those who qualified as family farmers.

Brannan's work in drafting a farm bill based on direct payments to farmers, commonly called compensatory payments, in lieu of the parity or flexible price-support system favored in previous years, became the focus for the post–World War II debate on agriculture. The "Brannan Plan" that finally emerged, in the wake of the 1948 presidential campaign, emphasized fixed over flexible price supports and family farms over corporate enterprises. It had a decided partisan tone in its call to create equity for rural America by correcting policies that allowed an imbalance between large and small farm units.

Candidate Harry Truman used agricultural policy for partisan advantage in his bid to win the presidency in his own right and initially backed the Brannan Plan. However, the president eventually turned away from his agriculture secretary and allowed the conservative members of Congress to defeat the plan. Calling it too expensive, socialistic, and counter to emerging social and technological trends, critics of the Brannan Plan bottled the bill up in committee and prevented it from becoming law. In Dean's judgment, this defeat represented a "lost opportunity" to redress the economic and social problems that were causing rural America to become rapidly depleted of its human resources and to come increasingly under the influence of commercial agriculture. In making his case, Dean uses the extensive manuscript collections of the Truman Presidential Library and the Kansas Historical Society, numerous public documents, and a comprehensive search of the secondary literature. This is an excellent work for an understanding not only of agricultural policy but of the social and economic needs of rural America.

Reviewed by C. Fred Williams, *Professor of History, University of Arkansas at Little Rock.*

[In Progress] Kansas history: a journal of the central plains

American Confluence: The Missouri Frontier from Borderland to Border State

by Stephen Aron

x + 301 pages, figures, notes, index.
Bloomington: Indiana University Press, 2006, cloth, $29.95.

With *American Confluence*, a volume in the Indiana University Press series History of the Trans-Appalachian Frontier, Stephen Aron has crafted an effective interpretive style that takes our eyes off place-designating borders that were yet in the future in order to gain a better sense of the multiple frontiers, overlapping borderlands, and diverse peoples and histories that characterized the region from which the state of Missouri evolved. In effect, he offers a reorientation of our thinking about America's frontier past.

Aron employs the metaphoric phrase *the confluence region* to suggest an alternative geographic and intellectual reference point to the Missouri frontier(s) of the late eighteenth and early nineteenth centuries; namely, those intercultural frontiers and overlapping borderlands that met at the confluence of the Missouri, Mississippi, and Ohio rivers. The bulk of the study considers how the confluence region's changing imperial colonialisms in turn altered and influenced intercultural relations up to and shortly following Missouri's statehood in 1821. A considerable number of images depicting aspects of material culture, such as a Lewis and Clark peace medal, work well to enhance the narrative, although the maps drawn to represent the confluence region are so simplistic as to be of little use to the reader.

Aron argues for the prevalence of accommodations and acculturations as well as compromises and collaborations among the various Spanish, French (i.e., the *habitants*), British, American, and native peoples (including the powerful Osage) in the region; hence his likening of it to a confluence. Indeed, echoing historian Richard White, Aron makes the case that the complexities brought about by a history of multiple colonialisms and shifting Indian inhabitants inspired the construction of viable though not conflict-free middle grounds. Perhaps above all else, *American Confluence* demonstrates that colonial control does not necessarily translate into cultural hegemony or even true local authority, particularly where a significant degree of multiculturalism exists, as it did there. But times and populations change, as was evident in William Clark's career as territorial governor following his participation in the Corps of Discovery. Intercultural tensions became increasingly troublesome, Aron contends, because the newer migrants (who were creating a slave economy) "had no acquaintance with the confluence region's traditions of intercultural association and wanted no part of that kind of frontier" (p. 218). In other words, the vision of the future that the newer migrants brought with them was neither rooted in nor dependent upon the region's past, and so they were willing to leave it behind.

American Confluence is an important contribution to both Missouri and frontier histories, underscoring among other things the point that prior histories and their complex relations matter to historical analyses. Shifting the focus away from boundary-making and toward intercultural relations allows us to view the region's inhabitants as decision-makers and thus more largely responsible for creating their region from within. Yet I am not fully convinced that the term *confluence* is more appropriate than *convergence* and wonder if the former represents a somewhat romanticized view of that time and place. Moreover, Aron's sophisticated reorientation can leave the reader slightly disoriented without the usual intellectual benchmarks in development, and for this reason undergraduates would probably not do well with it. Graduate students, however, might become inspired to be as bold in their conceptualizations.

Reviewed by Ginette Aley, *assistant professor of history, University of Southern Indiana, Evansville.*

[In Progress] Kansas history: a journal of the central plains

Elias Cornelius Boudinot: A Life on the Cherokee Border

by James W. Parins

252 pages, 6 photographs, notes, bibliography, index.
Lincoln: University of Nebraska Press, 2006, cloth $60.00.

James W. Parins's new biography is the first full account of the life of Elias Cornelius Boudinot (1835–1890), the son of the famed Cherokee leader Elias Boudinot and nephew of Stand Watie, a Cherokee general in the Civil War. The Boudinot family, as a Southern Cherokee political faction, was in constant political battle with the traditional, full-blood Cherokee led by Principal Chief John Ross. Boudinot's life story provides an opportunity to understand the critical rights at stake for the Cherokee during the nineteenth century: sovereignty and land ownership.

Elias Cornelius Boudinot, Cherokee lawyer, businessman, newspaper editor, and progressive, was to be highly influential in the opening of Indian Territory to white settlement. He was involved intimately in many social, economic, and political events of the day. A controversial figure, he was hated by many Cherokees, to the point of having his life threatened.

Boudinot's father, founder of the first Indian newspaper, married the daughter of a prominent New England family at a time when such marriages were viewed in racist terms. The elder Boudinot and the younger Boudinot's uncles led the faction that agreed to Cherokee removal from their lands, which led to the infamous Trail of Tears in the late 1830s. Seen as traitors by traditional Cherokees, Boudinot's father and great-uncle were murdered in retaliation, and the four-year-old Boudinot was raised by his white family in the East. Parins interprets Boudinot's motivations as a desire for retribution and an attempt to regain the family's wealth and political leadership.

Elias Cornelius Boudinot returned to the Arkansas and Indian Territory area, became an attorney, and affiliated himself with his uncle Stand Watie, serving in the Confederate Army and as a delegate to the Confederate Congress. As a tribe, the Cherokee were torn between those who supported the North and the South; Chief John Ross leaned toward the Union cause but was eventually pulled into supporting the Confederacy. In an ironic move, Boudinot, who was involved in postwar treaty negotiations, played a part in accusations against Ross for supporting the South. To the detriment of the Cherokee, these political factions continued to play a negative role in tribal dealings with whites.

Always looking to accumulate wealth, Boudinot set up his operations from Fort Smith and other points along the Arkansas border and tried to find ways to gain political power in the Cherokee Nation—hence the subtitle of this book: *A Life on the Cherokee Border*. It was Boudinot's tobacco business in Indian Territory, established to gain economic advantage over rival St. Louis companies, that led to the famed Cherokee Tobacco Case, marking the first time the U.S government taxed Native Americans. This case had severe implications regarding Indian sovereignty and treaty guarantees and caused Boudinot to determine that the only way for the Cherokee to protect their rights was to become U.S. citizens and to hold land in severalty.

As part of that effort, Boudinot was involved in bringing in the railroads and opening up Indian lands. He established the town of Vinita and built a hotel for railroad employees. As a rancher, he brought in boomers to create a colony in the Cherokee Outlet. None of these financial schemes was particularly successful, but as a lecturer and newspaper editor Boudinot continued to promote the opening of Indian Territory. His later years were spent at Fort Smith as an attorney, and eventually he did come to represent Cherokees in several legal matters.

Parins pulls together the scattered record of Elias Cornelius Boudinot's life through extensive research in Boudinot's writings, the Cherokee Nation Papers at the University of Oklahoma, previous studies, legal documents, and other sources. With this work and his previous book, *John Rollin Ridge: His Life and Works* (Ridge appears briefly in this book as another relative of Boudinot's), Parins demonstrates his ability to write detailed biographies. However, except for a relationship with Vinnie Ream, the famed Washington, D.C., sculptress, and a late marriage to Clara Menear in 1885, the reader gets little of Boudinot's personal life. We learn that he was hot-tempered and driven for personal gain and that he was a great orator and reportedly well respected by white society. But rather than the story of a private life, this is primarily an account of Cherokee politics and business dealings.

Boudinot may be seen as a man of foresight who attempted to do the best for his people from his perspective, but his drive for financial gain, lingering anger over the family murders, and need for political position make his motivations suspect. Parins provides the facts in a straightforward manner and lets readers draw their own conclusions as to Boudinot's place in history. A map of Indian Territory and further analysis would have enhanced the book.

Boudinot's political and business activities as they conflicted with the Cherokee leadership provide a clearer understanding of the events and challenges facing the Cherokee during the mid–nineteenth century. Elias Cornelius Boudinot is a figure who will remain controversial. He was both respected and hated in his attempt to push the Cherokee into the white world. Parins's biographical work helps us understand Boudinot's drive to be a success for himself and for his people.

Reviewed by Daryl Morrison, *head of special collections, general library, University of California, Davis.*

[In Progress] Kansas history: a journal of the central plains

A Texas Cowboy's Journal: Up the Trail to Kansas in 1868

by Jack Bailey; edited by David Dary

xlvii + 111 pages, photographs, illustrations, maps, notes, bibliography, index.
Norman: University of Oklahoma Press, 2006, cloth, $24.95.

"Now you have my travels to Kansas [and] back home. I have left out some things that I wish I had put in but my paper run short before I got to Kansas. I dont force you to read this so if you dont like it, just lay it down [and] dont critisize me. ... Respectfully, Jack Bailey" (p. 90).

So ends Bailey's account of an 1868 cattle drive from northern Texas to eastern Kansas and back. It is the earliest-known daily journal kept by a Texas cowboy on the trail to Kansas just after the Civil War—and it is fascinating. Disregard his admonition; anyone with an interest in the Old West will want to read what this cowboy has written.

Along with notes on the availability of wood, water, and grass—the basis of most nineteenth-century travelogues—Bailey chronicles episodes we might expect on a cattle drive. We experience two stampedes of "the worst kind" in the midst of a Great Plains thunderstorm. We endure occasional illnesses ("hack berrys gave all of us the whats name last night") (p. 53), disabilities such as "bad boils" on a cowboy's "set down" that keep him out of the saddle for several days (p. 20), and discomfort from "the devil in shape of a storm" (p. 26). We enjoy practical jokes played among the trail hands. We engage in post–Civil War racism as Bailey derides what he considers preferential treatment given "Negro Ben" and "Lewis," two black cowboys in his outfit. We envy his horseback view of vistas and valleys, each "one of the pretiest I ever saw."

But as we ride with Bailey, we also encounter the unexpected. In 1868 this unnamed trail (following a route east of the 1870s Chisholm Trail) was busier and more cosmopolitan than twenty-first-century travelers might imagine. With Kansas-bound herds immediately ahead, behind, and even alongside Bailey's outfit, the cowboys (and stampeding cattle) often intermingled. Several times—in what we would consider "the middle of nowhere"—Bailey meets friends and acquaintances from Texas and Kansas. He mentions Mexicans on the road, as well as a unit of the 10th U.S. Cavalry. His Southern sympathies are evident as he criticizes these buffalo soldiers, calling their presence on the trail "the infernilest humbug I ever saw or heard of" (p. 9). His opinion of the numerous Native Americans they encounter in Indian Territory is not much better. "Cuss the Indians. I wish they would stay away" he says after "an old lieing Indian" (p. 21) points them to an undesirable campground.

Contrary to our conception of Old West cowboys, few of the men in Bailey's group apparently carried weapons. In one case he mentions firing his "sixshooter" to turn the herd but then makes only one other reference to guns. And these cowhands weren't necessarily fearless. In the midst of a stampede, "Dud Rogers, the spunkiest man in the crowd when there is no danger started to climb a tree [and] leave the women to fight it out as best they could. He was so bad scared he fell out of the tree and holered for some one to run here [and] help me up this tree" (p. 16). More than once, Bailey's herd forded rivers that weren't the watercourses they expected. These Texas cattlemen weren't lost, but they didn't always know exactly where they were, either.

The women Bailey refers to were another cattle trail anomaly. When trailing Texas herds to Kansas was commonplace in the 1870s and early 1880s, the experience was almost exclusively reserved for males. This outfit included women and children, one "old lady" being the wife of the trail boss. Bailey himself didn't fit the norm. Cowboys were often just that—single young men in their teens and early twenties. The rigors of trail travel weren't suited to older men. Bailey, however, was thirty-seven, married, and the father of two. Several times along the way he longs for his family, lists his ailments, and laments having agreed to make the trip.

Luckily for us, he did. Writing in his journal on the back of his horse, while resting under a tree, or sitting around the evening campfire, this tired Texan's observations bring an immediacy that recollections and secondary-source material can't provide. *A Texas Cowboy's Journal* will take its place alongside *The Trail Drivers of Texas*, compiled and edited by J. Marvin Hunter in the 1920s (currently available in paperback from University of Texas Press) as an important primary resource on Texas cattle drives to Kansas.

David Dary's masterful editing guides us easily through Bailey's adventures. In addition, the editor's lengthy introduction provides a solid background on the trail-driving era as well as some personal information about Bailey. Dary outlines efforts to track down the cowboy in newspapers, census reports, and other public documents. He had some success, but much of Bailey's life story remains a mystery. This is ironic, considering the intimate details we know about his experiences on the trail.

My only disappointment in this book is that the publisher provides only two maps. A large map of Indian Territory includes some locations mentioned by Bailey, and a smaller map traces his route near large modern towns and major highways. A few detailed maps throughout the text showing Bailey's travels in relation to historical sites, landmarks, and present-day communities would have been helpful.

Reviewed by Dave Webb, *assistant director, Kansas Heritage Center, Dodge City.*

BOOK NOTES

The U.S. Army in the West, 1870–1880: Uniforms, Weapons, and Equipment. By Douglas C. McChristian. (Norman: University of Oklahoma Press, 2006, xix + 315 pages, paper $24.95.)

The post–Civil War years were an eventful time for the U.S. military. The army was attempting not only to reunify itself but also to prepare for any conventional wars that might occur between the United States and the increasingly well-armed European powers. At the same time, the Indian campaigns in the West required much time and energy from those in the service. In *The U.S. Army in the West*, Douglas C. McChristian examines the years between 1870 and 1880, a period that is known as a decade of experimentation. By examining smaller topics such as uniforms, equipment, and small arms, McChristian is able to give his readers a clear idea of what life in the army might have been like. Over two hundred photographs add wonderful images to this already detail-rich volume. *Montana: The Magazine of Western History* calls this book "a landmark study that belongs in the library of every scholar, museum curator, and collector interested in the evolution of military policy and materiel."

Moonshine Harvest. By Don Hayen. (North Charleston, S.C.: BookSurge, 2006, 186 pages, paper $13.99.)

Although *Moonshine Harvest* is a work of fiction, readers of *Kansas History* will value this excitement-filled adventure set in post–World War II Kansas. The author, Don Hayen, was born and raised in Marion, Kansas, which serves as the basis for his fictional town of Afton; his memories of being a teenager during this historically significant time period are the foundation for this work. By cleverly using the murder of the town drunk as his central plot, Hayen is able to explore important issues such as political attitudes, fundamentalism, and bigotry through his characters. Both humorous and insightful, this novel can be enjoyed by everyone from young adults to those who actually recall the Truman era. In writing about small-town Kansas in the late 1940s, Hayen tries "to give the reader a feel for that time and place." For those Kansans who remember that time, *Moonshine Harvest* will be an enjoyable journey back to their early years; for those too young to remember, this book will be a pleasant look at what they missed.

By His Own Hand? The Mysterious Death of Meriwether Lewis. Edited by John D. W. Guice. (Norman: University of Oklahoma Press, 2006, xxi + 178 pages, cloth $24.95.)

The story of the expedition of Meriwether Lewis and William Clark is well known to most Americans. But what many do not realize is that only a few years after the explorers' triumphant return, Lewis was found dead in Tennessee, felled by two gunshot wounds to the head. At the time, the incident was ruled a suicide, a judgment that was widely accepted by those close to Lewis. But since this tragedy in 1809, historians have wondered: Was this "suicide" actually a murder? *By His Own Hand* reassesses the evidence and places this controversial episode in its proper historical context. Four historians of the trans-Appalachian West contributed to this well-written volume, and they chose to follow the format of a postmortem court trial. Not only is this bizarre event examined from every angle, but readers will also learn more about the era in general. According to Landon Jones, author of *William Clark and the Shaping of the West*, "What is most tellingly revealed here is the paradoxical nature of life on the frontier during the Early Republic."

The Birth of Development: How the World Bank, Food and Agriculture Organization, and World Health Organization Changed the World, 1945–1965. By Amy L. S. Staples. (Kent, Ohio: The Kent State University Press, 2006, xvi + 349 pages, cloth $55.00.)

Recent histories of foreign relations have argued that the Cold War was not just a battle between the democracies of the West and the evil Communists of the East but actually a North-South struggle over economic development. Historian Amy L. S. Staples carries this theme even further by examining the role of international organizations. By focusing on the World Bank, Food and Agriculture Organization, and World Health Organization, Staples makes it clear that these three organizations did attempt to increase programs in agricultural reform and public health and to aid general economic development. Staples convincingly argues that the goals of the individuals involved in these projects were actually more important than the results. Grounded in thorough archival research, *The Birth of Development* should appeal to readers of *Kansas History* not only because of its focus on agricultural issues but also because it places the past fifty years of American foreign policy in the proper historical context.

"Circumstances Are Destiny": An Antebellum Woman's Struggle to Define Sphere. By Tina Stewart Brakebill. (Kent, Ohio: The Kent State University Press, 2006, xx + 255 pages, cloth $34.95.)

"Circumstances Are Destiny" is the study of Celestia Rice Colby, a middle-class, literate white woman living in northern Ohio during the Civil War era. Although not directly related to the history of Kansas, readers will learn much from Colby's experiences. By using Colby's own writings, as well as secondary sources, author Tina Stewart Brakebill allows us to see what life was like for a seemingly ordinary woman during the mid- to late-nineteenth century. However, Brakebill argues that Colby was actually unique because she was not satisfied with the typical destiny of women during this time. Rather than being content with her somewhat limited role as a wife and mother, Colby challenged ideas about conventional gender expectations. Anyone interested in nineteenth century women and gender relations or the Civil War era in general will find this work both useful and enjoyable.

The National Grasslands: A Guide to America's Undiscovered Treasures. By Francis Moul. (Lincoln: University of Nebraska Press, 2006, xiv + 185 pages, paper $19.95.)

Readers of both environmental and political history will appreciate this insightful analysis of the nation's grasslands. The accompanying photographs by Georg Joutras alone would make this book enjoyable for readers, but Francis Moul's in-depth study of the four million acres of America's grasslands make it essential reading as well. Moul places his environmental study in historical context as he explains how the establishment of the grasslands was actually an important part of the New Deal programs. He continues by elaborating on the history of the grasslands and also gives a regional guide to these areas. According to Dan O'Brien, author of *Buffalo for the Broken Heart: Restoring Life to a Black Hills Ranch*, "Francis Moul has written a book that has been neglected for a long time. The history of the national grasslands and their ecological and economic importance should be common knowledge for all Americans."

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