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“Is This What We Came To Florida For?":
Florida Women and the Fight Against Air Pollution
in the 1960s

by SCOTT HAMILTON DEWEY

Somewhere along the line the American woman is bound to make certain that the air her family breathes is clean. The American woman is not only a great factor in the stimulation of public opinion but also is a dynamic factor in helping to bring about legislation that will promote the health and welfare of her family.

Miss Chloe Gifford, president
General Federation of Womens Clubs,
November 1958¹

An airborne irritant cost a few more women [in Jacksonville] their nylon stockings today but authorities said they were lucky they still had their health.

New York Times, February 17, 1949

Environmentalism sometimes has been characterized, and criticized, as primarily a men's movement. Most of the early conservationists were indeed men preoccupied with outdoor recre-

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1. Quoted in Edwin N. Lightfoot, "Air Pollution," in *Conservation in Florida: Study Course Prepared for the Junior Women, Florida Federation of Women's Clubs*, 8, in U.S. Senate: Senate Office (373-1), Edmund S. Muskie Collection, Edmund S. Muskie Archives, Bates College, Lewiston, Maine.

ation and wilderness experiences.² Yet beginning in the late nineteenth century, women throughout the United States took a leading role in what would become by 1970 one of the most important branches of the environmental movement—the fight against air pollution. Although women reformers were never the only group combating air pollution, they frequently were among the most numerous and radical of such early environmental activists.

Although women's early efforts on behalf of environmental causes even before the emergence of the environmental movement at the end of the 1960s have been relatively ignored, women were determined opponents of industrial air pollution, motivated by concerns over economic and aesthetic damage, and fears for the health of their families and communities. Whether or not they were aware of their predecessors, the activists of the 1960s could draw on a long tradition of female smoke-fighting stretching back to the Progressive Era and the early campaigns to make America's suddenly swollen, filthy, chaotic cities liveable. Adhering to the ethic of "civic motherhood," also known as "municipal housekeeping," turn-of-the-century reformers took the traditional women's duty to keep the home and family clean, safe, healthy, moral, and attractive and extended it to include the wider city and neighborhood. Smoke made homes and neighborhoods filthy and ugly, and was further perceived as a danger to health and even to morality. Along with such issues as playgrounds for children, sanitation, and the control of liquor, gambling, or prostitution, air pollution was an obvious target for these early female reformers. By challenging contemporary assumptions of many political and economic leaders that smoke posed no threat to health and was necessary for eco-

2. Regarding the environmental movement's allegedly excessive maleness, whiteness, middle-classness, or preoccupation with wilderness through history, see, for example, Marcy Damovsky, "Stories Less Told: Histories of US Environmentalism," *Socialist Review* 22 (October-December 1992), 11-54; Mark Dowie, *Losing Ground: American Environmentalism at the Close of the Twentieth Century* (Cambridge, Mass., 1995), 14-26 and generally; William C. Tucker, *Progress and Privilege: America in the Age of Environmentalism* (Garden City, 1982); and Aaron Wildavsky, "Aesthetic Power or the Triumph of the Sensitive Minority Over the Vulgar Masses: A Political Analysis of the New Economics," in Roger Revelle and Hans H. Landsberg, eds., *America's Changing Environment* (Boston, 1970), 147-60. Of course, some women also took a strong interest in wilderness conservation, such as Florida's famous defender of the Everglades, Marjory Stoneman Douglas, author of *The Everglades: River of Grass* (New York, 1947). Women were also active in the Sierra Club and Audubon Society at the turn of the century, and Carolyn Merchant notes other early female conservationist activities in "Women of the Progressive Conservation Movement, 1900-1916," *Environmental Review* 8 (Spring 1984), 57-85. Given this record, it seems that the attack on the early conservation movement for being too male may be overdrawn.

conomic growth, the early female smoke-fighters also challenged men's grip on the reins of power in turn-of-the-century America. After 1962 and the publication of *Silent Spring*, the book that first exposed most ordinary Americans to ecological concepts and the danger of toxic chemicals, early female environmental activists could also look to the book's author, Rachel Carson, who paired traditional feminine preoccupations with the health and safety of family and community with wider ecological concerns while personally confronting the masculine realm of the scientific professions. Postwar female air pollution fighters likewise adopted the ethic of civic motherhood. These activists used the traditional feminine role as protector of the home as a foundation for environmental activism and as an indirect challenge to male authority.³

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3. The fullest discussion of turn-of-the-century smoke control efforts in the United States and the first historical study to recognize women's crucial and relatively radical role in air pollution control is Robert Dale Grinder, "The Anti-Smoke Crusades: Early Attempts to Reform the Urban Environment, 1893-1918" (Ph.D. diss., University of Missouri, 1973). See also Grinder, "The Battle for Clean Air: The Smoke Problem in Post-Civil War America," in Martin Melosi, ed., *Pollution and Reform in American Cities, 1870-1930* (Austin, 1980), 83-103; Maureen A. Flanagan, "The City Profitable, The City Livable: Environmental Policy, Gender, and Power in Chicago in the 1910s," *Journal of Urban History* 22 (January 1996), 163-90, and Harold L. Platt, "Invisible Gases: Smoke, Gender, and the Redefinition of Environmental Policy in Chicago, 1900-1920," *Planning Perspectives* 10 (January 1995), 67-97. There are few if any studies discussing the role of women in air pollution control after the Second World War. For more general background on women's early participation in other environmental battles, see also Suellen M. Hoy, "'Municipal Housekeeping': The Role of Women in Improving Urban Sanitation Practices, 1880-1917," in Melosi, ed., *Pollution and Reform in American Cities*, 173-98; Merchant, "Women of the Progressive Conservation Movement, 1900-1916," 57-85; and Raymond W. Smilor, "Toward an Environmental Perspective: The Anti-Noise Campaign, 1893-1932," in Melosi, ed., *Pollution and Reform in American Cities*, 135-51. Regarding the notion of "civic motherhood" and its relation to environmental and other reforms, see Grinder, "The Anti-Smoke Crusades," 22, 33, 95-102. For more general information on the ideology of civic motherhood and women's participation in reform movements of the late nineteenth and early twentieth centuries, see Carl N. Degler, *At Odds: Women and the Family in America from the Revolution to the Present* (New York, 1980), 279-361; Kathleen D. McCarthy, "Parallel Power Structures: Women and the Voluntary Sphere," in Kathleen D. McCarthy, ed., *Lady Bountiful Revisited: Women, Philanthropy, and Power* (New Brunswick, 1990), 1-23; and Anne Firor Scott, "Women's Voluntary Associations: From Charity to Reform," in McCarthy, ed., *Lady Bountiful Revisited*, 44-46 and generally. For a helpful discussion of women's participation in the environmental movement since 1970, see generally Robert Gottlieb, *Forcing the Spring: The Transformation of the American Environmental Movement* (Covelo, Calif., 1993). Regarding Rachel Carson, her beliefs, and her defiance of male scientists or her status as an inspiration for later ecofeminists, see Linda Lear, *Rachel Carson: Witness for Nature* (New York, 1997), 259-60, 429-30, and generally; Mary A. McCoy, *Rachel Carson* (New York, 1993), 106-107; and Carol B. Gartner, *Rachel Carson* (New York, 1983), 17-18 and generally.

Florida women joined in this postwar activism, becoming aggressive advocates for air pollution control in Jacksonville, Miami, and the central Florida phosphate belt, where serious pollution threatened injury to health as, well as economic and aesthetic damage. Despite a common tendency to view environmentalism as a hobby of the affluent, and despite the fact that middle-class clubwomen with greater leisure opportunities and resources traditionally dominated women's political and social reform movements in the United States, working-class Florida women from a poor, blighted neighborhood in Jacksonville fought air pollution along with senior citizens and middle-class clubwomen from other parts of the state. Rallying to the defense of home, family, and community, these women persisted in their efforts despite often substantial resistance from business and government in an aggressively pro-business, pro-development state that cavalierly traded environmental quality for jobs and industrial growth during the early decades after World War II. Although such stubborn opposition to clean-up brought long, frustrating delays in pollution control, the efforts of Florida women to mobilize their neighbors and put pressure on public officials kept the issue from being swept aside during the years before the major surge in nationwide public environmental awareness and governmental action around 1970.⁴

By the 1960s after several decades of mostly frantic and unregulated economic and demographic growth, the state of Florida was beset with many serious environmental problems that threatened to undo many of the special attributes that had made it seem a tropical paradise to so many Americans. For instance, expansion of residential development, tourist facilities, and agriculture destroyed habitat of the peninsula's exotic flora and fauna. As early as 1929, naturalist John Kunkel Small bemoaned the "wholesale devastation of the plant covering, through carelessness, thoughtlessness, and vandalism [that was] everywhere apparent" and predicted that "the future of North America's most prolific para-

4. For background on Florida's rapid, sometimes reckless industrialization, see Raymond F. Dasmann, *No Further Retreat: The Fight to Save Florida* (New York, 1971), 52; Charlton W. Tebeau, *A History of Florida* (Coral Gables, 1971), 271-78, 409-410, 416-18; Michael Gannon, *Florida: A Short History* (Gainesville, 1993), 47, 61, 85; David Nolan, *Fifty Feet in Paradise: The Booming of Florida* (New York, 1984), 118; and Charles I. Harding, Samuel B. McKee, and Jean J. Schueneman, *A Report on Florida's Air Resources* (Jacksonville, 1961), 28. For relevant background on the similar patterns of industrialization and economic development in the South following the Civil War, see generally James C. Cobb, *Industrialization and Southern Society, 1877-1984* (Lexington, 1984).

dise seems to spell DESERT." Fellow naturalist Thomas Barbour in 1944 characterized the state as "a vanishing Eden" in his book of that name. By the postwar period, the threats to wildlife and habitat from development had grown exponentially. The Everglades and other wetland areas faced injury from residential construction or agricultural use, road building, diversion of fresh water for residential or agricultural consumption, and proposed major construction projects such as the Cross-Florida Barge Canal or the Miami Jetport. Coastal saltwater marshes and mangrove swamps were dredged and filled to make building sites for more seaside homes or resorts, and coastal marine life and coral reefs were threatened by urban sewage, oil pollution, or even the thermal pollution from the new Turkey Point nuclear generating station. Meanwhile, the state's population continued to explode, more than doubling between 1950 and 1970, and tourists continued to throng Florida's beaches and other scenic or recreational attractions. As with the nation's other tropical paradise, Hawaii, Americans and foreign visitors threatened to love Florida to death.⁵

Along with development pressures threatening scenic and recreational resources, mostly in the more exotic southern part of the state, Florida also faced industrial pollution problems more typical of other states oriented toward resource extraction. Northern counties suffered serious water pollution from an almost totally unregulated paper pulp industry that severely contaminated streams and rivers. In the phosphate belt of central Florida, mining and processing operations created storage ponds full of sludge or acidic wastes that ruined rivers and killed fish when impoundment dams periodically broke. In its desperation to gain industry and jobs, Florida classified certain waterways as "industrial rivers," essentially turning them into sewers into which virtually unlimited quantities of industrial effluent could be dumped with impunity. Meanwhile, state authorities hesitated to take action against pollut-

5. Quotations from C. Richard Tillis, "The Spaceship Earth," in W. Ross McCluney, ed., *The Environmental Destruction of South Florida* (Coral Gables, 1971), 5-6. For a good overview of the threats to Florida's special ecosystems in the 1960s, see generally McCluney, ed., *The Environmental Destruction of South Florida*, and Dasmann, *No Further Retreat: The Fight to Save Florida*. For an interesting, impressive study of urban growth in Florida and efforts to manage it properly, see generally R. Bruce Stephenson, *Visions of Eden: Environmentalism, Urban Planning, and City Building in St. Petersburg, Florida, 1900-1995* (Columbus, 1997). Stephenson notes a sudden change in Florida policy from nearly pure boosterism to a new environmental awareness and sense of ecological limits in development policy during the early 1970s. See pp. 143-48.

ing industries. Florida's fresh water and coastal environments were further threatened with contamination by runoff of pesticides and fertilizer from agricultural operations. Like other mining operations throughout the nation, the Florida phosphate industry simply dumped mining spoil into sterile heaps next to the excavations, leaving a blasted and useless landscape, though significant progress was made on reclaiming mined areas during the 1960s.⁶

In addition to these other, better-known environmental problems, parts of Florida suffered from serious air pollution. By far the worst such situation existed in the phosphate belt. During the post-war years up to 1970, air pollution was often wrongly presumed to be strictly a big-city problem. Yet between 1948 and 1970, the phosphate industry in rural central Florida, which processed raw minerals into chemical fertilizer and released large amounts of fluorides and sulfur oxides into the air, caused serious damage to surrounding cattle ranchers and citrus farmers, and provoked bitter complaints from other residents. This industry, located mostly in Polk and Hillsborough Counties to the east of Tampa, became the most serious air polluter in Florida and one of the most notorious in the nation.⁷

The emergence of a major extractive industry monopolized by a handful of large, powerful corporations could not help but greatly alter the culture of a mostly rural area traditionally devoted to raising cattle and citrus fruit. For many local citizens in Polk and Hillsborough Counties, however, the most crucial change had begun, almost unnoticed, in the late 1940s and early 1950s, when phosphate mining companies began to branch out into the chemical processing of fertilizer. Traditionally, the extraction, separa-

6. Regarding the paper industry and the industrial stream classification, see David Helvarg, *The War Against the Greens* (San Francisco, 1994), 371-79. Regarding the water pollution and land reclamation problems of the phosphate industry, see Arch Frederic Blakey, *The Florida Phosphate Industry: A History of the Development and Use of a Vital Mineral* (Cambridge, Mass., 1973), 113-21.

7. The air pollution problem of the central Florida phosphate belt became so serious and notorious that it was included on the agenda for 1964 United States Senate field hearings on air pollution as the only rural area among better-known urban problem areas such as Los Angeles, Denver, Chicago, and New York City. Later, in 1969, when *Life* magazine reflected the growing national anxiety over the environment by publishing shocking photographs of some of the nation's most notorious air pollution problems, central Florida was again featured along with the big cities. See "Air Pollution," *Life*, February 7, 1969 38-50. For helpful background on the development of the Florida phosphate industry, see Blakey, *Florida Phosphate Industry*, 9-14, 19-20, 25-27, 34-35, 39, 56, 60-75, 90-97, 100-104; Lewis D. Harris, "The Florida Phosphate Industry and Air Pollution" (master's thesis, Florida State University, 1967), 7-14.

tion, and crushing of mineral phosphates had produced dust and spoil but little else, and the product was shipped elsewhere without further chemical refining. However, after 1948, when the Armour Agricultural Chemical Company opened the first local chemical fertilizer plant and sulfuric acid plant for producing superphosphate, a compound with more usable phosphorous, and phosphoric acid for making triple superphosphate, the phosphate industry's emissions to the air and water grew progressively more complex and damaging to local residents.⁸

In addition to requiring treatment with acid to unlock more available phosphate ions than could be gotten from unprocessed phosphate rock, the Florida deposits also contained significant amounts of fluoride that had to be removed before nourishing phosphates could be released. The various sulfur and nitrogen oxide byproducts of the chemical processing of phosphates were potentially harmful when released into the environment, but even more damaging to local residents were the fluoride emissions released during the processing, drying, and curing of phosphates. Fluorides from the phosphate processing plants were emitted as dusts or gases to blow freely through the surrounding countryside, with the chemically active fluorine atoms in them ready to react anew with whatever they contacted.⁹

Airborne fluorides were not only a potentially serious human health hazard if present in high enough concentrations; they also

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8. Blakey, *Florida Phosphate Industry*, 94-95, 108-109; Harding et al., *Report on Florida's Air Resources*, 22. Harding et al. attribute the phosphate mining companies' decision to move into chemical processing to increased freight rates following World War II.
 9. Blakey, *Florida Phosphate Industry*, 9-12, 94-95, 108-109; Harris, "Florida Phosphate Industry and Air Pollution," 2-4, 27-35; Harding et al., *Report on Florida's Air Resources*, 22-27; *Florida Health Notes*, Special Edition, "Clean Water— Clean Air," 48 (December 1956), 221, in file "Florida (Polk County)," U.S. Public Health Service, Air Pollution Engineering Branch: Correspondence, 1959-1960, RG 90, Accession Number NN3-090-91-003, National Archives, Washington, D.C. [hereafter NA] Since fluorine is one of the most chemically active elements, it is almost invariably found in compounds with other elements known generically as fluorides. The phosphates in Florida's natural phosphate deposits are rendered largely unusable due to the presence of fluorine, which bonds very tightly to the tricalcium phosphates, making them insoluble in water and hence unavailable to plants and animals, causing stunted growth and reproductive difficulties. A process known as beneficiation involves breaking the relatively insoluble tricalcium phosphate structure into more water-soluble monocalcium phosphates and removing the fluoride. Phosphates are also used for many purposes other than fertilizer; see the Florida Phosphate Council's pamphlet, *Phosphate: Florida's Hidden Blessing— Mineral of Life* (Lakeland, 1966).

proved harmful to many of the traditional mainstays of the local economy of central Florida, including cattle ranching, citrus growing, truck farming, and the raising of gladiolus flowers.¹⁰ Hardest hit in central Florida's Polk and Hillsborough Counties were the major livestock and citrus industries, although at first, few knew what was afflicting their livelihoods. In 1949, Florida was one of the largest cattle-producing states in the nation, and Polk County had more cattle than any other county in Florida. Florida was also the nation's leading supplier of oranges, limes, lemons, and grapefruit, and Polk was square in the center of the state's great citrus belt, producing a quarter of the state's citrus crop and sixteen percent of the nation's citrus during the 1950s. However, by that time, Polk County was also the center of the nation's phosphate industry. Florida alone produced nearly eighty-six percent of the nation's phosphates and thirty percent of the world total. The great majority of this activity was squeezed into an area about twenty-five miles wide and thirty miles long centered on the town of Bartow and including towns such as Lakeland and Mulberry in western Polk County, as well as slivers of Hillsborough County to the west and Manatee County to the southwest. Central Floridians would soon learn that the traditional economic mainstays and the newcomer really did not mix, as citrus leaves and fruit failed to develop properly while cattle sickened and starved from fluorine poisoning. Although it took a few years before scientists realized the connection with the phosphate industry's fluoride emissions, by the early 1950s, state citrus experts and veterinary researchers at universities in Florida and Georgia had found this link.¹¹

10. Blakey, *Florida Phosphate Industry*, 109; Harris, "Florida Phosphate Industry and Air Pollution," 40. For further information on the effects of fluorides on animal, plant, and human health, see generally National Research Council Committee on Biologic Effects of Atmospheric Pollutants, *Fluorides* (Washington, D.C., 1971); National Research Council Subcommittee on Fluorosis, *Effects of Fluorides in Animals* (Washington, D.C., 1974); National Research Council Subcommittee on Health Effects of Ingested Fluoride, *Health Effects of Ingested Fluoride* (Washington: D.C., 1993).

11. Blakey, *Florida Phosphate Industry*, 108-109; Harris, "Florida Phosphate Industry and Air Pollution," 14, 40-45; Harding et al., *Report on Florida's Air Resources*, 42-44; Statement of Donald S. McLean, in U.S. Senate, Subcommittee on Air and Water Pollution, 88th Cong., 2d Sess., *Clean Air: Field Hearings Held on Progress and Program Relating to the Abatement of Air Pollution*, Tampa, Florida, February 20, 1964 (Washington, D.C., 1964) [hereafter 1964 *Senate Field Hearings*], 779, 792-93; Thomas D. Crocker, "Some Economic Aspects of Air Pollution Control With Special Reference to Polk County, Florida" (Ph.D. diss., University of Wisconsin—Milwaukee, 1968), 64, 72.

As they came to comprehend the extent of the pollution, local citizens mobilized to confront and abate the threat. A citizens' committee comprised of afflicted ranchers, large and small citrus growers, and other residents concerned about potential health risks or unhappy over damage ranging from ruined ornamental plants to corroded television aerials and car roofs formed in Polk County during the early 1950s, documented evidence of fluorine damage, and presented it to state and local authorities by 1954.¹² In 1955, as a result of their agitation, the state legislature created an interim committee to investigate the many public complaints about industrial air pollution in central Florida. After numerous public hearings between 1955 and 1957, this committee issued a report to the state legislature recommending that it establish a state air pollution control commission with authority to enact all needed control regulations, while state health officials began a limited program of sampling for atmospheric sulfur oxides and fluorides in central Florida. On June, 18, 1957, the state legislature passed a law creating the Florida Air Pollution Control Commission (APCC), a panel of nine (later ten) members representing government, industry, and the general public to hear and take action on complaints about air pollution in the state in conjunction with the State Board of Health. Chronic polluters were to be warned and given a chance to correct their problems voluntarily; however, if such "conference, conciliation, and persuasion" did not work within a given

12. The aggrieved agricultural producers in the phosphate belt included not only major landowners with extensive cattle or citrus holdings, but also smaller operators, such as Jane H. May, a retired schoolteacher with a six-acre orange grove, and Faye Dobbs and her husband, who had no irrigation system for their modest-sized citrus grove and had to try to water it by bucket during droughts. The expansion of Florida citrus production earlier in the twentieth century had led smaller landowners to join their wealthier neighbors in commercial citrus raising. Similarly, while the ranchers tended to be relatively wealthy, large landowners, there was variation in this, too, with some smaller landowners probably operating smaller, more marginal beef cattle-raising or dairying operations. Individual homeowners were also upset by the industrial emissions. See Jane H. May to United States Senator Edmund S. Muskie, February 23, 1964, U.S. Senate: Senate Office (1005-8), Muskie Collection; A. B. Howell and S. Opal Howell to Senator Muskie, February 20, 1964, in *ibid.*; "Exhibit Number 1 [Statement of Mrs. W. A. Dobbs]," in "Transcript: Proceedings of Hearings— Possible Effect of Fluorides on Citrus— before the Florida Air Pollution Control Commission, Lakeland, Florida, June 2-3, 1966," in file "OCC: Florida Air Pollution Commission," Records of the National Center for Air Pollution Control, 1967-1968, RG 90, Accession Number 70-A-4011, NA [hereafter NCAPC 1967-68, file "OCC: Florida APC"].

time, the APCC could give an incorrigible polluter a final ultimatum backed with the threat of a court injunction against all further violations.¹³

After Governor Leroy Collins appointed the first commissioners in September 1957, unhappy residents of Polk County quickly called for the creation of an air pollution control district in the phosphate belt. By March 1958, the commission had created Florida's first air pollution control district, which covered Polk County. In July 1959, a similar district was created for Hillsborough County, and on June 10, 1960, these two districts were merged to form the Polk-Hillsborough County Air Pollution Control District, which for several years was the only one in the state. State authorities also set fluoride emissions standards and other regulations on the phosphate mills.¹⁴

Like their counterparts in other states during the 1950s and 1960s Florida officials proved reluctant to confront a powerful polluting industry bringing jobs and tax revenue to the state. The recurrent cries of local citizens for protection from the pollution brought soothing responses but little action. During the late 1950s the federal government also participated in some limited preliminary investigations into health effects on livestock and phosphate workers, and general impacts on the local community and economy. Federal officials found enough evidence to suggest a potentially serious, chronic problem, but in an era of limited federal funding for environmental purposes and jealously guarded states' rights, federal officials did little to follow up on their findings. Nevertheless, local citizens continued to demand action, complaining

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13. Blakey, *Florida Phosphate Industry*, 110; Crocker, "Some Economic Aspects of Air Pollution Control," 240; Harding et al., *Report on Florida's Air Resources*, 52; *Florida Health Notes*, 221-22; Statement of Edwin N. Lightfoot in *1964 Senate Field Hearings*, 742; Statement of Robert W. Rutledge in *ibid.*, 808; "Polk-Hillsborough," undated report from around December 20, 1963, based on Harding et al., in file "Cooperation 2- Florida," U.S. Public Health Service, Division of Air Pollution, Subject Files, 1963-1964, RG 90, Accession Number 67-A-1655, NA [hereafter DAP 1963-64, file "Cooperation 2- Florida"].
14. Blakey, *Florida Phosphate Industry*, 110; Harding et al., *Report on Florida's Air Resources*, 52; Statement of Edwin N. Lightfoot, 742; Statement of Robert W. Rutledge, 808; Herman F. Steele to Florida Air Pollution Control Commission, October 19, 1957, and attached Resolution of Florida Citrus Mutual, in DAP 1963-64, file "Cooperation 2- Florida."

directly to federal officials as they lost faith in getting any response from their state government.¹⁵

One of the leading citizen activists against the local pollution plague, and probably the most persistent, was Harriet N. Lightfoot, a senior citizen and wife of a retired engineer. She began a new career as a community environmental activist as the "chairman" of the local Women's Club's Community Improvement and Air Pollution Committees and of the Division of Health of the Chamber of Commerce of Lakeland. When the Polk County Citizens' Committee on Air Pollution was founded in 1954, Lightfoot headed its Division of Health. From the late 1950s to the 1960s, as once-hopeful citizens became increasingly frustrated with the state's inaction, Lightfoot led the charge, prodding state and federal authorities to act. During the 1960s, she launched a one-woman letter-writing campaign to prevent state officials from ignoring the air pollution issue. For instance, in 1963, in a furious letter to the state APCC, Lightfoot complained of "various times during the past three months when the air was so bad that I just could not be out in it." She reported how she had repeatedly suffered "severe burning of the eyes and skin" causing "excruciating pain" requiring medical attention due to acidic phosphate plant emissions. "Gentlemen," she asked, "if this air contamination can do this to one's skin, what does it do to one's lungs? I came here nineteen years and some months ago to enjoy the fresh air and sunshine; but for the past

15. "Visit to Florida Board of Health, Division of Industrial Hygiene," memo from Harry Heimann, M.D., April 17, 1957, in file "Florida Air 3-1-1," U.S. Public Health Service, Air Pollution Engineering Branch, Correspondence, 1959-1960, RG 90, Accession Number NN3-090-91-003, NA [hereafter APEB 1959-60, file "Florida Air 3-1-1"]; "Division of Special Health Services— Air Pollution Medical Program: Trip Report," memo from Harry Heimann, April 25, 1957, in file "721.3— to Florida," U.S. Public Health Service, Air Pollution Medical Program, Project Records, 1955-1960, RG 90, Accession Number NN3-090-91-003, NA; U.S. Public Health Service Occupational Health Program and Florida State Board of Health, *Industrial Hygiene Survey of the Phosphate Industry in Polk County, Florida* (Washington, D.C., 1958), 1, 4, 5, 17, and generally; "Trip Report— Lakeland, Florida— July 24-26, 1957," memo from C. Stafford Brandt to Arthur C. Stern, July 31, 1957, in APEB 1959-60, file "Florida Air 3-1-1"; "Trip Report (A. C. Stern and C. S. Brandt)— Tampa, Florida— February 27-28, 1958," memo from Arthur C. Stern to Harry G. Hanson, March 7, 1958, in *ibid.*; letter and livestock inspection report from Dr. Norman L. Garlick, D.V.M., June 2, 1958, 4-7, in *ibid.*; Edwin N. Lightfoot to Assistant Surgeon General Mark D. Hollis, with attached "Proposed Outline of the Polk County Air Pollution Control Study," August 8, 1958, in *ibid.*; Lightfoot to Hollis, November 5, 1958, in *ibid.*; John H. Dewell to Harry G. Hensen [sic], January 26, 1959, in *ibid.*

eight years I have been forced to stay indoors when the wind comes from the phosphate processing plants.” She concluded urgently, “I must insist upon your cooperation to stop this evil which descends upon our unsuspecting citizens from the phosphate processing plants.”¹⁶

When this letter brought no meaningful result, Lightfoot wrote Governor Farris Bryant to urge him to request help from the federal government. The angry citizen activist alleged that by lifting injunction warnings on various phosphate plants, allegedly without due process or public notice, the Florida APCC was still treating the phosphate industry gently while disregarding the rights and needs of local citizens. She also reported that the past summer had been “the worst in our history as far as air pollution is concerned. . . . Plants, flowers and trees were killed. People were coughing and sneezing and suffering head pains and sore throats. . . . A health officer told me that one doctor alone treated eleven patients for nose bleed and spitting up blood in a day, yet nothing seems to be done to relieve this situation.” Noting that her physicians had told her “not to go out unless I was completely covered from head to foot when the wind blows from the Phosphate plants,” she asked angrily, “Is this what we cam[e] to Florida for, to be steamed to death in the hot summer, with temperature ninety-five in the shade and no shade, robed in mummy fashion to keep from getting burned by Sulfuric Acid?” Sounding a note of warning for a state still heavily economically reliant on tourism and emigration from colder northern climes, Lightfoot continued, “Friends have written me that they were coming to see us and I had to write and tell them that this was no place to visit until the Air Pollution was controlled.”¹⁷

After receiving a hollow note of reassurance from state control authorities that everything was well in hand, Lightfoot again wrote the governor. Referring to the letter from the state Department of Health, she pointed out that while the phosphate industry was “spending millions in correcting this, pollution,” they were “spend-

16. Harriett A. Lightfoot to Florida Air Pollution Control Commission, August 13, 1963, in NCAPC 1967-68, file “OCC: Florida APC”; Harriett Lightfoot to United States Attorney General Robert F. Kennedy, February 11, 1964, in *ibid.*; Senator Edmund S. Muskie to Mrs. E. N. Lightfoot, June 11, 1964, U.S. Senate: Senate Office (98-9), Muskie Collection.

17. Harriett Lightfoot to Florida Governor Farris Bryant, October 12, 1963, in NCAPC 1967-68, file “OCC: Florida APC.”

ing many more millions in constructing new and larger plants and the emissions as a whole are far greater than they were." Contrary to state officials' claim that bringing fluorides under control had revealed previously unsuspected trouble from sulfur oxides, Lightfoot denied that the fluoride emissions were under control and further declared, "The State Board of Health has been aware of the sulfur oxides for years." In her frustration, she charged that even the Soviet Union more adequately shielded its citizens from sulfur oxides and alleged that the phosphate industry was receiving special protection from local and state authorities. Warning of the serious losses to local citrus and cattle operations, Lightfoot then appealed to the traditional male self-image as protector of supposedly helpless women. She urged Bryant to act on behalf of his people, and particularly women, echoing an earlier dramatic incident in Jacksonville: "You are the father of our state and we want you to help us, we need it. I was told that ladies wearing nylon stockings have experienced destruction of their nylons during an air pollution attack in Bartow and Mulberry." She concluded by arguing that since the federal government was offering financial help and the State Board of Health was always pleading poverty as an excuse for their inactivity, there was every reason to request federal intervention. At the time, such overleaping of 1950s' notions of states' rights remained a relatively radical proposal.¹⁸

Lightfoot also wrote to United States Attorney General Robert F. Kennedy. Having heard Kennedy on television discussing how the United States Constitution guaranteed all citizens equal protection under the law and other issues connected with the growing civil rights movement, the Florida clubwoman decided that this federal protection against the taking of life or property without due process must also apply to citizens facing air pollution from the phosphate plants. Recounting the limited accomplishments of state authorities and enclosing copies of earlier correspondence, she pleaded on behalf of the air pollution victims who were not receiving equal protection under the law:

[M]any of the farmers, citrus growers, and cattle people,
are poor people, made poor by the vicious fumes from the

18. David B. Lee to Mrs. E. N. Lightfoot, November 1, 1963, and Lightfoot to Governor Bryant, February 10, 1964, both in NCAPC 1967-68, file "OCC: Florida APC."

processing plants. Some are helpless widows, who were left well provided for by their departed husbands; but are becoming destitute. Some are old people whose life's savings are in their land, which now is worthless, because the fumes distroy its growing power. . . . There is much illness among these people of the "Golden Triangle" as the area around the phosphate plants is known. . . . Can these plants continue to distroy the livelihood of our citizens?

In going over the heads of inactive state officials by appealing directly to the attorney general, Lightfoot was typical of many other citizens throughout the nation complaining about air pollution at this time. Also like them, she merely got a polite explanation from the federal authorities that under the Clean Air Act of 1963, they could intervene in intrastate pollution situations only with the permission of state authorities, which was seldom forthcoming.¹⁹

Undaunted, Lightfoot mobilized her neighbors to demand action from state authorities. In February 1966, acting as president of the Polk Federation of Women's Clubs and division chairman of Clean Air Environment of the Florida Federation of Womens' Clubs, she presented to state officials a petition she and the local women's clubs had circulated demanding stricter control. The petition's excessively polite wording reflected both the uncertain position of women acting in the still largely male-dominated realm of public policy, as well as the frustrating situation of ordinary citizens relying on technical experts to define and address a scientifically complicated issue. It read:

We respectfully request that you take immediate and resolute action to prevent and abate the acid gases, fumes, chemicals, and toxic particles which are continuously be-

19. Harriett Lightfoot to United States Attorney General Robert F. Kennedy, February 11, 1964, and Vernon G. MacKenzie to Harriett Lightfoot, March 30, 1964, both in NCAPC 1967-68, file "OCC: Florida APC." For further examples of concerned citizens nationwide who requested help from the federal government and were politely reminded of the limited federal role in air pollution control before 1970, see Emma Kai (New York City) to Senator Edmund S. Muskie, September 21, 1966, U.S. Senate: Senate Office (595-1); Rose Owen (Philadelphia) to Muskie, March 24, 1969, U.S. Senate: Senate Office (765-1); Henry A. Kreutzer (North Carolina) to Muskie, July 28, 1969, U.S. Senate: Senate Office (764-10); Thomas A. True (Louisiana) to Muskie, U.S. Senate: Senate Office (625-11); all in the Muskie Collection.

ing spilled into the air in the Polk-Hillsborough Air Pollution Control District, at an enormous rate, especially in the Western part of Polk County. . . . We do not know what steps should be taken to control this menace. However, as experts on the air pollution and charged with the responsibility under the laws of this State of Florida to control it we respectfully request your help.

This gentle language belied the depth of feeling among the many unhappy citizens in the area about the air pollution scourge. By early February, 3,000 local residents had signed the petition; within a few weeks, Lightfoot could claim 5,000 signatures, and several hundred more citizens would add their support during the following months.²⁰

During 1966, Lightfoot also continually pressured state air pollution control officials to resist the influence of the powerful phosphate industry and to seek federal intervention. She also gathered letters from local citizens suffering serious injury from phosphate industry emissions and repeatedly brought this evidence of state officials' nonfeasance before meetings of the Florida Air Pollution Control Commission. Of one hard-hit family, Lightfoot observed, "These people are poor, they feel helpless, the fumes are making them physically and psychologically ill." Because the alleged complainants had not come to him directly, one annoyed control official charged Lightfoot with manufacturing complaints. Lightfoot obligingly submitted a further signed statement indicating a pattern of unresponsiveness and non-enforcement that was driving citizens to despair of contacting the authorities.²¹

20. Harriet Lightfoot to the Florida State Board of Health and the Florida Air Pollution Control Commission, February 11, 1966, in NCAPC 1967-68, file "OCC: Florida APC"; Harriett Lightfoot to Vernon G. MacKenzie, May 14, 1966, in *ibid.*

21. Harriet Lightfoot to the Florida State Board of Health and the Florida Air Pollution Control Commission, February 11, 1966, in NCAPC 1967-68, file "OCC: Florida APC"; "Minutes— Meeting of the Florida Air Pollution Control Commission, Tampa, Florida, April 15, 1966," 2-9, in *ibid.*; Harriett A. Lightfoot to the Florida Air Pollution Control Commission, April 15, 1966, included as Addendum Number 8 in "Minutes— Meeting of the Florida Air Pollution Control Commission, April 15, 1966," 13, in *ibid.*; K. K. Huffstutler to Harriett Lightfoot, May 31, 1966, in *ibid.*; W. R. Lamb to the Florida State Board of Health and the Florida Air Pollution Control Commission, June 3, 1966, included as Addendum Number 2 in "Minutes— Meeting of the Florida Air Pollution Control Commission, Lakeland, Florida, June 3, 1966," in *ibid.*

Throughout 1966, Lightfoot also persistently sought help from federal officials. Late that year, she notified Vernon MacKenzie, director of the Division of Air Pollution in the United States Public Health Service, that she planned to be in Washington, D.C., for the Third National Conference on Air Pollution that was to begin on December 12, 1966. She begged MacKenzie to grant her a private audience to discuss the situation in central Florida. There is no indication of what exactly Lightfoot hoped to accomplish— whether she merely hoped to impress upon the federal official the severity of the local problem, as she had already tried to do through letters, or had more sophisticated plans— and there is no evidence that MacKenzie ever met with her, although as an official who apparently tended to be more sympathetic with the public in air pollution disputes than some federal bureaucrats, MacKenzie may even have granted her wish. As long as federal law prohibited federal intervention in intrastate air pollution control without a formal invitation from a state governor, MacKenzie remained unable to offer much help.²²

Other local women also took action. In a letter of April 10, 1959, addressed to the non-existent “U. S. Department of Public Health,” Jane H. May of Plant City complained bitterly and asked for federal help. Identifying herself as “a retired school teacher, living on land homesteaded by my parents many years ago,” she noted the “serious damage to adjoining farms and groves from the nearby phosphate plant” that had ruined her own orange grove and harmed the health of local residents. “Many residents of the area have been ill or even hospitalized from the amount of fluorine dust in the air,” she concluded. “I, personally, have been under a doctor’s care for many months due to dust allergies from same. . . . May we expect some action from your department concerning this serious and increasingly grave economic and health hazard?” May’s complaint may have been part of a small orchestrated neighborhood campaign against phosphate industry pollu-

22. Harriett Lightfoot to Vernon G. MacKenzie, May 14, 1966, in NCAPC 1967-68, file “OCC: Florida APC”; MacKenzie to Lightfoot, May 27, 1966, in *ibid.*; undated, handwritten letter from Lightfoot to MacKenzie, late 1966, in *ibid.*

tion, for on the same date that she wrote her letter, A. B. Howell and his wife, Opal, neighbors of May's, wrote a similar letter, also addressed to the "U. S. Department of Public Health." May joined various neighbors in filing a lawsuit against a nearby phosphate plant after "conferences, phone calls, letters to the various authorities. All to no avail." This suit remained unresolved in early 1964, and damage continued. As May complained, "The company claims to have installed the most expensive equipment to prevent the escape of gases. The local men tell us confidentially, of course, after a period of leaf damage that they had not used the equipment in a rush of orders. This happens over and over. We call, or write the authorities and we get no relief. Last week things were burned, and we could hardly breathe from the fumes." Noting further health impacts, she claimed that she was economically trapped in the shadow of the phosphate mills: "I spent two years under the care of a throat specialist with weekly treatments and now can only live here with costly medication. I know you wonder why we do not sell and move away. We have tried and it means giving the place away. Anyone who could afford to pay knows that the mine has made it wor [t]hless."²³

May and her neighbors' pleas to federal officials for an "impartial investigation" indicates that they, too, had despaired of getting action out of their state' government, but they, like Lightfoot, were disappointed to receive the standard federal response. Lightfoot, May, and their neighbors continued to suffer from heavy phosphate industry emissions into the late 1960s, when increasingly successful private lawsuits—mostly settled out of court—and growing pressure from the federal government prodded Florida and the phosphate industry toward more rapid progress. Though the state and industry proclaimed victory over the phosphate belt's air pol-

23. Jane H. May, April 10, 1959, in file "Florida— AP/61," U.S. Public Health Service, Division of Air Pollution, Subject Files, RG 90, Accession Number 65-A-0286, NA [hereafter DAP 1961-62, file "Florida-AP/61"]; A. B. Howell and S. Opal Howell, April 10, 1959, in *ibid.*; Jane H. May to United States Senator Edmund S. Muskie, February 23, 1964, and A. B. Howell and S. Opal Howell to Senator Muskie, February 20, 1964, both in U.S. Senate: Senate Office (1005-8), Muskie Collection.

lution problem by 1970, it had taken a painful fifteen years of unending public activism to get there.²⁴

Jacksonville traditionally had the largest concentration of population and industry in Florida before Miami and Tampa rocketed ahead of it during the 1940s and 1950s and it was correspondingly early in showing the air pollution typical of other good-sized American industrial towns and regional transportation hubs. While Jacksonville had little of the heavy metallurgical industry that befouled

24. Blakey, *Florida Phosphate Industry*, 111-12, 139; Crocker, "Some Economic Aspects of Air Pollution Control," 236-40, 243-53; Harris, "Florida Phosphate Industry and Air Pollution," 66-68, 87-93; Thomas F. Williams to Jane H. May, April 29, 1959, in DAP 1961-62, file "Florida-AP/61"; Williams to A. B. Howell, April 29, 1959, in *ibid.*; "Trip Report—Tampa, Florida—March 30th-April 3, 1959," memo from August T. Rossano, Jr. to Arthur C. Stern, April 16, 1959, in APEB 1959-60, file "Florida Air 3-1-1"; "Air Pollution in Florida," memo from Ralph C. Graber, May 15, 1959, in *ibid.*; Robert H. Taylor to Senator Muskie, March 16, 1964; and Edward A. Bosarge, esq., to Senator Muskie, June 4, 1964, both in U.S. Senate: Senate Office (1005-8), Muskie Collection; "Courts May Decide Florida's Phosphate Industry Pollution Issue," *Air/Water Pollution Report 2* (Monday, June 15, 1964), in U.S. Senate: Senate Office (99-4), Muskie Collection.

It is difficult to get precise information on specific lawsuits over air pollution in the phosphate belt. The sources that discuss the topic, such as Blakey, Crocker, or Harris, do not refer to any specific court cases concerning air pollution, save one abortive action brought by state officials. *American Jurisprudence 2d* and the *West Law* series cited no significant Florida cases regarding phosphate industry air pollution. A review of the *Southern Reporter 2d* and the *Florida Supplement* similarly produced no significant court decisions or precedents regarding the phosphate industry's aerial emissions in cases in which a phosphate processor was named as either defendant or plaintiff between the late 1940s and the early 1970s. Any significant legal precedents regarding air pollution that emerged from Florida concerned other industries besides phosphates, though the precedents had implications for the phosphate industry as well. Most significant was *State of Florida ex rel. Shevin v. Tampa Electric Company*, Florida Appeals, 291 So. 2d. 45, a decision rendered in the Second District Court of Appeal of Florida on January 16, 1974, and later upheld by the Florida Supreme Court. Apparently, most phosphate cases never got this far in the legal process. Crocker, in his dissertation, notes that by the later 1960s, phosphate companies began regularly settling air pollution cases and purchasing the land of plaintiffs to avoid likely losses in court trials, with the support of state air pollution officials. See Crocker, "Some Economic Aspects of Air Pollution Control," 236-40, 256-52. Florida gradually stiffened its overall pollution control effort by the later 1960s and early 1970s with the establishment of a combined, stronger Air and Water Pollution Control Commission in 1967 and the creation in 1971 of an even larger, more powerful new State Department of Pollution Control. By the late 1960s, states such as Florida were being pushed by the federal government to take more meaningful action on air pollution, culminating in Congress's passage of the Clean Air Act Amendments of 1970 (P.L. 91-604), which finally gave the federal government direct authority to intervene in intrastate air pollution problems without state officials' permission if state control efforts were inadequate.

the skies of the steel towns near the Great Lakes, it had become a regional center of the wood products and paper industries. By 1959, Florida's daily woodpulp production surpassed that of Washington State to become the largest in the nation and a Florida industry second only to tourism. The state's giant pulp mills accounted for one tenth of the nation's production capacity, and a number of them were near Jacksonville. These, along with significant food processing, chemical production, and shipbuilding operations, brought numerous industrial jobs and smokestacks to town. It was in Jacksonville where, in a graphic demonstration of the potential seriousness of local air pollution, women on their way to work one morning early in 1949 first found their nylon stockings dissolving from sulfuric acid-laden soot emitted by a local industrial boiler.²⁵

By 1960, when state officials were preparing the first *Report on Florida's Air Resources*, Jacksonville already had a complex air pollution problem. Local industries were major contributors. Hydrogen sulfide and other contaminants from two large paper pulp mills on the northern side of town provoked frequent public complaints of noxious odors and damage to paint. Jacksonville also had two large phosphate fertilizer plants of the sort causing such trouble in central Florida, and these, along with their related sulfuric acid plants, emitted dust, odors, and corrosive gases leading to human physical discomfort, metal corrosion, window etching, paint discoloration, and other damage to vegetation and materials. An oil reclaiming plant and large petroleum tank farms, in addition to other industrial concerns, suffered significant evaporative losses and contributed to the overall problem.²⁶

By 1960, the city had more than 200,000 inhabitants, and the population of surrounding Duval County numbered 455,411, making it the second most populous county behind Miami's Dade County. Jacksonville also had the standard pollution sources of any large population center in America at the time. Three large municipal incinerators burned citizens' refuse incompletely and ineffi-

25. Gannon, *Florida: A Short History*, 85; Tebeau, *History of Florida*, 431; Harding et al., *Report on Florida's Air Resources*, 28-31, 41; *Florida Health Notes: Clean Water-Clean Air*, 220; *New York Times*, February 17, 1949. While the population within the city limits of Tampa evidently had grown larger than that within the Jacksonville city limits, Greater Jacksonville remained the second largest metropolitan area in Florida throughout most of the 1960s.

26. Harding et al., *Report on Florida's Air Resources*, 41.

ciently, spewing soot and ash on their closest neighbors. Electric generating plants and countless home furnaces also contributed to the overall pollution burden. Although in the early 1960s it was still generally believed that automobiles posed no significant air pollution threat anywhere outside of Los Angeles, local residents' cars were polluting the air significantly in Jacksonville and elsewhere. The postwar proliferation of automobiles in Jacksonville helped explain why local residents began to notice a white haze lingering even after frequent winter morning temperature inversions broke up around 10 or 11 a.m. As the 1961 *Report on Florida's Air Resources* noted, "This haze might be the first sign of photochemical smog."²⁷

After the *Report* was released, Jacksonville's growing air pollution problem received increased official attention. In late May 1961, following a widely publicized episode of vegetation damage by air pollution during the spring, State Health Officer Wilson T. Sowder formally requested federal assistance to study the local affliction. Sowder noted that local officials had undertaken preliminary surveys but had neither the staff, the equipment, nor the budget to conduct a proper air pollution inventory without federal cooperation. The federal government responded favorably to Sowder's request and sent federal experts to study problems ranging from vegetation damage to widespread skin disorders allegedly linked to air pollution. Thereafter, in August 1961, a joint federal-state-local emissions study found significant levels of carbon monoxide and hydrocarbons, chiefly from automobiles, along with sulfur compounds from industry in the local atmosphere.²⁸

In the wake of this initial study, official activity dropped off again. Yet the overall problem continued to grow, and public agita-

27. Tebeau, *History of Florida*, 431; Harding et al., *Report on Florida's Air Resources*, 41.

28. Charles I. Harding, *Final Progress Report: Greater Jacksonville Air Pollution Control Program* (Gainesville, 1966), 209-210; Wilson T. Sowder to W. H. Aufranc, May 31, 1961, in DAP 1961-62, file "Florida -AP/61"; telegram from Howard W. Chapman to Vernon G. MacKenzie, June 21, 1961, in *ibid.*; Jean J. Schueneman to Wilson T. Sowder, June 30, 1961, in *ibid.*; "Jacksonville, Florida," Progress Report by James P. Sheehy for Jean J. Schueneman, August 15, 1961, in *ibid.*; "Trip Report— Jacksonville, Florida," memorandum from Marvin D. High, August 22, 1961, in *ibid.*; Dohrman H. Byers to Dr. Edwin H. Williams, July 11, 1961, in file "Florida Air 311," U.S. Public Health Service, Division of Air Pollution, Subject Files, RG 90, Accession Number 65-A-0286, NA [hereafter DAP 1961-62, file "Florida Air 311"]; "Dermatoses Investigation Conducted By Marcus H. Key, Assistant Chief, Dermatology Section, Division of Occupational Health, Public Health Service, U.S. Department of Health, Education, and Welfare," June 14-16, 1961, pp. 2-5, in *ibid.*

tion similarly increased, leading state officials to request further help from the federal government again in late 1963.²⁹ Much of the public pressure for action to control air pollution in Jacksonville came from citizens in the working-class neighborhood of Talleyrand, situated in the shadow of some of the worst industrial polluters. Talleyrand and nearby communities had suffered most of the vegetation damage earlier in 1961. The neighborhood's outspoken leader on the air pollution issue was Ann Belcher, a white working-class woman whom the *Jacksonville Journal* called "the crusading mother from Talleyrand." On October 8, 1963, after months of mobilizing efforts, Belcher took a petition containing the names and signatures of more than one thousand neighbors in Talleyrand and nearby communities demanding immediate action against air pollution in the city to the city council. Belcher also led a delegation of 100 women from the Talleyrand area to complain to the city council about how the air in their neighborhood damaged their homes, cars, clothing, and health. Declaring that the problem by 1963 was "much worse than it was in 1961," Belcher brought a badly stained sheet and a sickly potted plant as exhibits to demonstrate the effects of air pollution on vegetation and previously clean laundry. Regarding the impact of industrial pollution on vegetation in her neighborhood, Belcher fumed, "Everything looks like it has been damaged by a hard freeze." Local resident Edna Taylor complained that conditions were so bad that she had to buy oxygen to help her emphysemac husband sleep through the night, while deposits of soot and dust had permeated her home and seriously damaged her new furniture.³⁰

Thirteen other area residents, including several men, followed Belcher's lead in demanding action. Nicholas Panchen blamed the city generating station and the Owens-Illinois paper pulp mill for foul-smelling fumes that gave him "trouble breathing" and left corrosive residue on houses and cars. Another neighbor of Belcher's, Stanley Charles Carter, vowed that area residents would keep fighting until they got results. He vowed to take direct citizens' action against the polluters, threatening, "We'll lie down in front of trucks

29. Wilson T. Sowder to H. B. Cottrell, December 6, 1963, in DAP 1963-64, file "Cooperation 2- Florida"; "Request From Florida State Board of Health," memorandum from Gene B. Welsh to Vernon G. MacKenzie, January 2, 1964, in *ibid.*

30. Randy McLaughlin, "Talleyrand Pollution Fighters Win Hearing," *Jacksonville Journal*, October 9, 1963, newspaper clipping in U.S. Senate: Senate Office (625-5), Muskie Collection; Harding, *Final Progress Report*, 209.

[at the pulp mill] and keep them from moving.” Another working-class citizen to speak out for cleaner air was Ulysses Cook, a spokesman for African American residents in the neighborhood, who angrily told how the pollution had caused one of his children to develop chronic respiratory trouble and had corroded his sister’s heating equipment to where it was dangerous. That ordinary working-class people such as Cook, Carter, Panchen, and Belcher’s legion of angry housewives should have gone out of their way to appear before the Jacksonville City Council to demand cleaner air goes against the common assumption that environmentalism is and always was strictly a white middle-class professional pastime. It is particularly a tribute to Belcher’s organizing efforts that both white and black representatives appeared in tandem in a still-segregated southern state.³¹

Various city officials gave Belcher and company considerable rhetorical support, branding the “damnable fallout” of air pollution “a dirty shame,” proclaiming, “It’s a wonder half of the people aren’t dead,” urging that citizens take the offenders to court, and promising to look into the issue. Others, such as the city sanitary engineer, were more hesitant, noting that air pollution was a complex issue, and that neither the city nor the state had the money or facilities to bring it under control. Unfortunately, little action was forthcoming from a strongly pro-business city and state.³²

When there was still no sign of any meaningful response from local officials, Jacksonville citizens attempted to go over their heads to higher authorities. On December 5, 1963, Belcher wrote an angry letter to Governor Farris Bryant complaining mostly of the property damage from the corrosive air pollution in her neighborhood and the unresponsiveness of the local government. She fumed,

We have Eleven hundred signature on a petition against Owen Illinois Co + the City Electric Co. they shift us from one meeting to another make a lot of talk + dont seem to get any thing done [.] . . . We have lost four new cars to the Owens Illinois or City light plant [.] . . . We have been liveing here seven years. + I have put 3 sets of screens in my windows + doors. And we need a set now. . . . What ever it

31. McLaughlin, “Talleyrand Pollution Fighters Win Hearing.”

32. *Ibid.*

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is it eat up metal, clothing every thing that it contacts [.]
 We own a 1962 Pontiac, and I'll bet it wouldnt bring five
 hundred dollars if it was sold. not from being wrecked but
 from the acid that falls.

Belcher emphasized that she and her neighbors were poor folks who did not want to cause trouble but only wanted justice: "All the people on the petition are working people + retiree [.] We cant afford to keep replacing things that are being Distroyed. This petition was carried to Mayor Burns's office. . . . he sit up there like his mind was a million miles away [.] I doubt if he heard a word that was being said." Belcher was careful to affirm no desire to close the offending plants down, only to make them clean up their emissions. This indicates that like elsewhere in the state and country, Belcher and her neighbors were probably warned that demanding cleanup would shut down the plants and throw people out of work; they may also have been accused of deliberately trying to shut down the plants, a common ploy used in trying to turn environmental activists' neighbors against them then and now.³³

As in Polk and Hillsborough Counties, citizens in Jacksonville were excited to learn early in 1964 of the upcoming visit of United States Senator Edmund S. Muskie and his Subcommittee on Air and Water Pollution to the state, which offered the promise of attention from a still higher level of authority. The irrepressible Ann Belcher immediately grasped this opportunity, writing to the Maine senator of the run-around she and her neighbors were getting on their air pollution problem. "We have called everybody we though[t] that could help us with our problem," she explained. "We have attended all the meeting[.] We carried Dead flowers ruined clothes + rusted out cars. to each meeting but all we got was shifted to other meeting[.] And the last meeting we attended was at the State board of health in Nov they told us that they would study our area for Eighteen months and *if* there was a problem they would reccomed a Pollution Controll Center[.]" Belcher begged Muskie to consider holding the hearing, scheduled for Tampa, closer to Jacksonville. "We would like to attend the meeting in Tampa," Belcher wrote, "but most people in this area are just plain working people + lots of them retiree and not finacly

33. Ann Belcher to Florida Governor Farris Bryant, December 5, 1963, in U.S. Senate: Senate Office (625-5), Muskie Collection.

able to go." She also warned the senator against believing anything Florida officials said about the situation in Jacksonville, observing, "[i]f you ask our health Dept I think they will give you the run around like they have us."³⁴

Mrs. Joseph C. McGuffey, a neighbor of Ann Belcher's in Talleyrand, and Lula J. Dovi, a schoolteacher from Jacksonville, also wrote Muskie to urge him to hold hearings in Jacksonville. Hard as these women pled, though, the federal government remained unable to do anything more than assist research and control efforts undertaken by state and local officials. The Tampa hearing barely mentioned Jacksonville.³⁵

Subsequent events helped to keep air pollution in the spotlight in Jacksonville. For instance, during December 1964, stagnant, windless atmospheric conditions allowed pollution concentrations to rise much higher than normal, bringing a week-long fumigation of the whole city that caused serious paint discoloration and great public displeasure. Then, beginning around May 15, 1965, residents of the neighborhoods of Springfield, Talleyrand, and Arlington, all of which were near industrial areas, again began to notice and complain of obvious and extensive damage to vegetation in their communities. The die-off continued into the summer months, leading local officials to hastily bring down another federal expert, who found evidence of "an interaction of chronic sulfur dioxide injury and low level fluoride exposure, modified in some cases by heavy dust loadings." The following year brought further public complaints from residents of Arlington about noxious fumes from a nearby asphalt plant, as well as another episode of nylon stocking disintegration.³⁶

In 1965, the Florida legislature authorized the creation of the Duval County Air Improvement Authority, but little action followed in the next few years except for further research into the problem. In August 1966, Dr. Charles I. Harding, Program Director of the Air Pollution Research Laboratory at the University of Florida in Gainesville, published a *Final Progress Report: Greater Jacksonville Air Pollution Control Program*, which examined the results of

34. Ann Belcher to United States Senator Edmund S. Muskie, January 2, 1964, in U.S. Senate: Senate Office (625-5), Muskie Collection.

35. Mrs. Joseph C. McGuffey to Senator Muskie, January 6, 1964, in U.S. Senate: Senate Office (625-5); Lula J. Dovi to Senator Muskie, January 2, 1964, in U.S. Senate: Senate Office (1005-8), both in Muskie Collection.

36. Harding, *Final Progress Report*, 211-12, 216, 222-23, 351-52.

local pollution studies. In his introduction, Harding profusely thanked various members of the governmental agencies involved and local business and industry for their cooperation; he made no mention of Ann Belcher or the other local citizens who had triggered whatever limited progress the city could claim on the issue. Thereafter, the city gradually set up its long-delayed air pollution control authority and emissions standards.³⁷

Miami followed Jacksonville and the phosphate belt in developing an air pollution problem, but its situation was much less severe through the 1960s. Miami's pollution woes had less to do with industry and more to do with demographics. By the 1960s Dade County accounted for over a quarter of the state's non-agricultural jobs and more than one fifth of Florida's manufacturing employment. However, a large percentage of the non-agricultural positions were in the relatively non-polluting white-collar service sector, while Miami's major industries, such as food processing, sportswear manufacturing, metal fabrication, and aircraft maintenance, were generally less polluting than primary heavy industries such as steel, chemicals, and paper pulp. Recent arrivals, such as cement plants, and proposed new additions, such as two new electric-arc steel mills, showed a trend toward increased heavy industry and industrial pollution already evident in 1960, when the state's official *Report on Florida's Air Resources* was being written. Yet industry remained a relatively minor source of air pollution in southern Florida.³⁸

Rather, Miami's growing air pollution problem resulted mainly from the huge numbers of people that had swarmed to the area since the 1920s, swelling the city from a mere town of just under 30,000 to a city of nearly 300,000 by the early 1960s. Almost half of Dade County's million residents had arrived after 1950, and neighboring counties had seen similarly explosive growth. In half a century, southern Florida had gone from a frontier to one of the most urbanized regions in the United States.³⁹

Air pollution problems grew with the population. Some major pollution sources in southern Florida were businesses that supplied construction materials for Miami's unending building boom, such as cement plants and asphalt plants. In addition, smoky, burning

37. *Ibid.*, ii-iii, 1-6.

38. Harding et al., *Report on Florida's Air Resources*, 44-45.

39. *Ibid.*; Gannon, *Florida: A Short History*, 85; Tebeau, *History of Florida*, 417, 431-32.

dumps consumed the garbage from the hordes of newcomers. Fashionability and hot, humid weather led to a proliferation of smoky laundries. Jetliners full of tourists and potential immigrants polluted the skies around the region's bustling airports. Above all, like other sunbelt cities, Greater Miami was built around the automobile, with nearly half a million of them by 1959, and a daily gasoline consumption of over twenty tons per square mile per day, on par with smoggy Los Angeles. State officials warned in 1961 that Miami would already suffer from smog were it not for steady trade winds. The city experienced its first photochemical smog incidents in the early 1960s, leading alarmed local officials to seek help from federal experts. The federal authorities found no major problem but warned of serious potential risks both to regional agriculture and particularly tourism if industrial growth ruined the region's special attributes and turned Miami into just a warmer, muggier version of polluted industrial cities elsewhere.⁴⁰

These worries were brought to a head in the early 1960s when Seadade Industries, Inc., of Florida, a branch of a major U.S. oil tanker operator, proposed building a large new oil refinery complex at Homestead. Located along the southern Florida coast, the project would process oil imported from the Middle East and Latin America. The refinery would only take up a portion of the building site, but the remainder of the 2,200-acre location would cater to related petrochemical operations and other light industry. Since the refinery would be receiving ocean-going tankers, it would require both new port facilities and a channel through offshore reefs for the large ships, requiring a permit from the U.S. Army Corps of Engineers. The proposed petrochemical complex also threatened serious air and water pollution near two of southern Florida's most spectacular tourist attractions— both the Everglades National Park, about 15 miles west-southwest of the refinery site, and the John Pennekamp (Key Largo) Coral Reef Preserve,

40. Harding et al., *Report on Florida's Air Resources*, 36-37, 44-45; Jean J. Schueneman to Wilson T. Sowder, March 14, 1961, in DAP 1961-62, file "Florida Air 311"; "Trip Report— Miami, Florida— April 10-14, 1962," memorandum from Dean Matthews, June 11, 1962, in DAP 1963-64, file "Cooperation 2— Florida"; "Trip Report— Miami, Florida," memorandum from C. Stafford Brandt to Jean J. Schueneman, April 17, 1962, in *ibid.*; "Letter from Harold E. Kendall, Jr., to Secretary Orville Freeman," memorandum from C. Stafford Brandt to Arthur C. Stern, June 11, 1963, in *ibid.*

then the nation's only underwater park, less than 4 miles south of the proposed ship channel.⁴¹

As a result of such threats to their special local environment, concerned residents of southern Florida mobilized to protest the construction of the proposed refinery. In Miami in January 1962, a citizens' organization called the Safe Progress Association (SPA) initially formed around a small core of local conservationists to fight the Homestead project. The Association affirmed the necessity and desirability of economic growth and diversification but blasted the refinery plan as "'dirty' industry which would destroy our clean air and water and consequently our recreation and basic tourist economy." The group instead called for growth through "light, clean industry."⁴²

At an initial hearing on January 11, 1962, concerning the rezoning of the 2,200-acre Seadade project site, the local anti-refinery activists mustered twelve members to go and speak against the proposal. The county commissioners let them talk for an hour, but it only took ten minutes of testimony from the representative of the Seadade corporation to convince the officials to vote unanimously in favor of rezoning the site along Biscayne Bay as "industrial unlimited." The group then began the slow, laborious process of educating the public about the issues involved in the refinery project and what they had to lose. They distributed a pamphlet entitled *The Creeping Peril! Industrial Pollution and You—Fact Book*. Drawn largely from information collected by Miami's own city manager regarding possible serious economic harm to the local tourist industry and further warning of possible injury to health, this pamphlet gave strong reasons to stop the Seadade refinery. The authors blasted county officials for their rezoning decision, warning, "This monstrous thing which has been thrust upon us without our consent may very well spell the beginning of the end of Dade County as a major tourist center and its beginning as the Smogville of the

41. Secretary of Interior Stewart L. Udall to Secretary of the Army Cyrus R. Vance, November 30, 1962, in DAP 1963-64, file "Cooperation 2—Florida"; W. F. Schaub to Secretary Udall, December 14, 1962, in *ibid.*; Arthur C. Stern, "Proposed Portion of Reply to 6/3/63 Letter of Secretary Udall to Secretary Celebrezze Re: Air and Water Pollution, Dade County, Florida—DRAFT," June 7, 1963, in *ibid.*

42. *The Creeping Peril! Industrial Pollution and You—Fact Book* (Miami, [1962?]), in *ibid.*; Polly Redford, "Small Rebellion in Miami," *Harper's*, February 1964, 97-101.

south." It further reminded readers, "Notice that there is no such thing as a pollution free refinery and notice also that medical men have said that there is no such thing as a SAFE level of pollution." Elsewhere in the pamphlet, the editors printed a similarly alarming message: "You Will Be A Victim of Dade County's Destruction!"⁴³

Although the original, twelve-member SPA was primarily led by men, it was significantly helped by the group's one-woman "women's division," Belle Scheffel, who had connections to various other conservation and women's groups as "treasurer of the local nature conservancy, past president of the council of garden club presidents, founder of the Kendall Garden Club, the South Florida Garden Club, and the first garden club on the Florida Keys." Scheffel spoke before these groups and others, helping to rally local women's clubs against the proposed refinery and in favor of new pollution control legislation for Dade County. Members of such clubs, sharing the long-established special interest of women's clubs around the nation in aesthetic considerations, cleanliness, and health, were already predisposed to be concerned about threats to scenic beauty and the health of their families, and they helped stimulate wider public support for environmental protections in their communities.⁴⁴

The impending threat of the Seadade refinery helped catalyze public concern about air pollution and created pressure for passage of a strict air pollution control ordinance in Dade County. After a public hearing in January about a proposed ordinance drafted by the SPA, at which many ordinary citizens criticized the refinery proposal, the Dade County Commission passed the tough new regulations on April 23, 1963, over the objections of local developers and industrial interests, though the refinery remained an open question. A visiting federal air pollution control official found the new air pollution law to contain "all safeguards against evasion that can reasonably be written into law, in the present state of knowledge." Local activists still vowed not to be satisfied with what they termed "the weak new antipollution ordinance," and they promised to continue the fight to prevent the Seadade refinery complex from ever being built. Miami, with its large tourist industry, environmental amenities, and comparatively high environmen-

43. Redford, "Small Rebellion in Miami"; *The Creeping Perill*, 3; M. L. Reese, "Report to the City Commission of the City of Miami on the Proposed Oil Refinery in South Dade," April 25, 1962, reprinted in *The Creeping Perill*.

44. Redford, "Small Rebellion in Miami."

tal sensibilities, had won a rare, preemptive victory for air pollution control in Florida.⁴⁵

Florida women took an active, early role in the state's major battles against air pollution during the 1960s acting like environmentalists even before the modern environmental movement took shape around 1970. In doing so, and in questioning the economic and political practices that had allowed air pollution conditions to develop or worsen, these women also indirectly challenged male economic and political leaders even before the modern feminist movement emerged. The issue galvanized different sorts of women, from relatively affluent senior citizens and clubwomen such as Harriet Lightfoot to working-class women such as Ann Belcher and her neighbors, whose concerns ranged from scenic beauty and quality of life to health risks and economic damage to individuals and their communities. Although their efforts initially brought limited results in the face of government and industrial resistance in central Florida and Jacksonville, the female crusaders for clean air helped create the public pressure that ultimately brought significant change. Together with other male and female activists throughout the nation, they also helped pave the way for federal intervention in air pollution control. Congress heard the crescendo of complaints from around the nation and passed the 1970 federal Clean Air Amendments, which pushed aside many obstructions from the 1950s-vintage notions of the sanctity of states' rights that had long sheltered polluters. Through their stubborn persistence, Florida women helped to generate the nationwide surge of concern over environmental pollution that would come to dominate the new environmental movement of the early 1970s.

45. *Ibid.*; "Trip Report, Miami, Florida and Washington, D.C., January 21-25, 1963," memorandum from Jean J. Schueneman, February 1, 1963; handout distributed by Lloyd Miller of the Safe Progress Association at hearing in Miami, January 22, 1963; William B. Deichmann to Lloyd Miller, January 21, 1963; John R. Goldsmith to William B. Deichmann, April 15, 1963; Leslie A. Chambers to Deichmann, April 16, 1963; "Letter from Harold E. Kendall, Jr., to Secretary Orville Freeman," memorandum from C. Stafford Brandt to Arthur C. Stern, June 11, 1963; Walter A. Gresh to Howard W. Chapman, April 30, 1963; "Metropolitan Dade County Pollution Control Ordinance," memorandum from Jean J. Schueneman to Howard W. Chapman, May 31, 1963; Jean J. Schueneman to Robert Quick, May 31, 1963; Secretary of Interior Stewart L. Udall to Secretary of Health, Education, and Welfare Anthony J. Celebrezze, June 3, 1963; Arthur C. Stern, "Proposed Portion of Reply to 6/3/63 Letter of Secretary Udall to Secretary Celebrezze Re: Air and Water Pollution, Dade County, Florida— DRAFT," June 7, 1963, all in DAP 1963-64, file "Cooperation 2— Florida."