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AIR POLLUTION: ITS CONTROL AND ABATEMENT

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The law has been concerned with air pollution for centuries. Smoke and fumes were considered a nuisance at common law, but not a nuisance per se. Thus, each case stood on its own facts.

Very early in our history special statutes were enacted to give more adequate protection from air contaminants. As early as 1306 the use of "sea-coal" (as distinguished from charcoal) was forbidden on penalty of death.¹ Queen Elizabeth is said to have forbade the burning of coal in London during sessions of Parliament. In 1661 John Evelyn wrote a book on air pollution; his plan was to move all industries to the leeward side of the city of London and plant sweet smelling and aromatic flowers and trees in the city.² Blackstone tells of a lead smelter, the fumes from which were a nuisance killing the neighboring farmers' corn.³

AIR CONTAMINATION AS A NUISANCE

Smoke was not a nuisance per se at common law, but evidence in each particular case would show whether the smoke was in fact a nuisance. Although the state may declare smoke to be a nuisance per se even though it was not such at common law, it would appear simpler and more direct to forbid the emission of smoke rather than to declare it to be a nuisance.

There is still loose language in the cases to the effect that a legislature may not declare to be a nuisance that which is not so in fact. Actually what the law does or should do is to forbid such contamination whether or not it is a nuisance. The validity of such a statute, based on the police power of the state, depends on its reasonableness to effect a public purpose and not being merely arbitrary.

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1. *New Jersey v. Mundet Cork Corp.*, 8 N.J. 359, 86 A.2d 1, 3-4 (1952).

2. *FUMIFUGIUM: OR, THE INCONVENIENCE OF THE AER, AND SMOAKE OF LONDON DISSIPATED TOGETHER WITH SOME REMEDIES . . .*, reprinted by the National Smoke Abatement Society, 23 King Street, Manchester, England (1933).

3. Similar early cases are collected in 77 Eng. Rep. 816 and in Appeal of Pennsylvania Coal Company, 96 Pa. 116 (1880).

Much confusion results from the attempt to use the language of common law nuisance for situations not within the scope of a common law nuisance. For instance in *Board of Health of Weehawken Township v. New York Central Railroad*,⁴ the court said:

"Directing our inquiry now to a consideration of the sections of the ordinance that the defendant was charged with violating, it is readily apparent that section 2 thereof does not prohibit acts constituting a public nuisance at common law. It makes unlawful 'the emission of any smoke from any source whatever of a density equal to or greater than that density described as No. 2 on the Ringelmann chart.' The emission of smoke of the requisite density *per se* is prohibited without the necessity of any showing that injury to the public was caused thereby, see *State v. Mundet Cork Corp.*, 8 N.J. 359, 369-370, 86 A. 2d. 1 (1952). The mere fact that the ordinance characterizes the emission of such smoke as a public nuisance does not elevate the offense to the level of a public nuisance as known to the common law.

". . . Since section 2 of the ordinance makes unlawful conduct that did not constitute an indictable offense at common law, it follows that violations thereof may constitutionally be tried summarily in the municipal court without indictment or jury trial."

The general rule is stated in *Penn-Dixie Cement Corp. v. City of Kingsport*⁵ as follows:

"The emission of dense smoke and dust into the atmosphere in populous cities may be declared a public nuisance and dealt with appropriately, under a general power to define and abate nuisances or to enact ordinances in behalf of the public health and welfare, since the emission of such smoke and dust is an annoyance and an interference with comfort, is destructive of property and under some conditions injurious to health. . . .

"We can conceive of no higher duty to be performed by a municipality than that of conserving the health of its inhabitants. The public welfare requires that conditions which are detrimental to health should be abated, or speedily regulated, without waiting for the legislature to declare by special act that such regulation is directly authorized. The health of the community, menaced by that which is commonly known to everyone as injurious, cannot always be made to wait upon the slow process of legislation. The law has never been so inconsiderate of the public welfare as to impose upon a municipality the necessity of obtaining specific legislative authority before it can cope with every condition which may be detrimental to the health of its people."

In the last quoted case the declaration was by means of an ordinance forbidding the emission of dense smoke, except for nine minutes "of density No. 2 smoke as defined in the Ringelmann Chart, or six minutes or less of a density in excess. . . ." The ordinance added:

4. 10 N.J. 294, 90 A.2d 729, 735 (1952).

5. 189 Tenn. 450, 225 S.W.2d 270, 273 (1949).

"Smoke shall be considered dense when equal to or greater density than No. 2 of said chart."⁶

In *Hofstetter v. Myers*,⁷ the trial court enjoined as a nuisance the operation of an asphalt plant ". . . at such times and manner that the dust and dirt coming therefrom will injure, molest, or interfere with the plaintiffs in the peaceable, quiet enjoyment of their property."⁸ The evidence showed the dust reached plaintiffs only when the wind was from the southwest, was not accompanied by soot, smoke, odors or fumes, was the same as the dust from unpaved roads in the vicinity and merely inconvenienced plaintiffs, who had built homes in the area notwithstanding the presence of two railroads and the municipal garbage dump. (However, these homes were built before defendant's asphalt plant.)

There must be some material damage to the public that is more than trivial, fastidious or offensive to the esthetic senses to constitute smoke a nuisance.

In the case of *Tuebner v. California Street Ry. Co.*⁹ involving a private nuisance, the court quoted with approval from *Cooley on Torts*, as follows:

"If the smoke or dust, or both, that arises from one man's premises and passes over and upon those of another, causes perceptible injury to the property, or so pollutes the air as sensibly to impair the enjoyment thereof, it is a nuisance. But the inconvenience must be something more than mere fancy, mere delicacy or fastidiousness; it must be an inconvenience materially interfering with the ordinary comfort, physically, of human existence, not merely according to elegant and dainty modes and habits of living, but according to plain, sober, and simple notions."

In the case of *People v. Detroit White Lead Works*,¹⁰ a large paint factory was operated in the midst of a populous community. The operation consistently produced odors, smoke and soot of such noxious character and to such an extent that they produced headache, nausea, vomiting and other pains and aches injurious to health. The court upheld the conviction of the corporation and its officers of violating a Detroit ordinance prohibiting any factory from allowing any nuisances on premises within the limits of Detroit, even though the business was carried on in a careful manner and nothing was done which was not a reasonable and necessary incident to the business. The court said:

6. *Id.* at 272.

7. 170 Kan. 564, 228 P.2d 522, 24 A.L.R.2d 188 (1951).

8. *Id.* at 567, 228 P.2d at 525.

9. 66 Cal. 171, 174, 4 Pac. 1162, 1164 (1884).

10. 82 Mich. 471, 46 N.W. 735 (1890).

"Whenever such a business becomes a nuisance, it must give way to the rights of the public, and the owners thereof must either devise some means to avoid the nuisance or must remove or cease the business. It may not be continued to the injury of the health of those living in its vicinity."¹¹

Impairment to health is not necessary. Discomfort, inconvenience and annoyance to the public are sufficient and impairment to health is not necessary to constitute the emission of smoke and fumes a nuisance and also to permit its abatement by law.¹²

In the case of *Judson v. Los Angeles Suburban Gas Co.*,¹³ the plaintiff filed an action for damages and to abate a nuisance. The defendant had constructed gas works near plaintiff's home on the bank of the Arroyo Seco in Los Angeles. The smoke, odor and noise interfered with the comfortable enjoyment of plaintiff's property, but there was no evidence that plaintiff's health or that of his family was injuriously affected, or their property damaged or reduced in value. The plaintiff complained that the smoke was so thick that it sometimes obstructed the landscape, had a penetrating odor and "at times strongly suggested a London fog." The appellate court upheld the injunction and judgment for damages, saying:

"The fact that other sources of possible discomfort to plaintiff existed in the neighborhood of his property is no defense to an action of this kind. (*Robinson v. Baugh*, 31 Mich. 294.) Nor can we say that the annoyance suffered by plaintiff was of a slight character and not such as justified the injunctive relief granted nor the damages awarded. Considered as a whole, we think the evidence on behalf of the plaintiff amply sufficient to sustain the judgment.

"In order that a judgment of this character may be upheld, it is not necessary that the health of plaintiff or of members of his household should have been impaired. It is sufficient if the odors, sounds, and smoke were offensive to the senses."

"A gas factory does not constitute a nuisance *per se*. The manufacture in or near a great city of gas for illuminating and heating is not only legitimate but is very necessary to the comfort of the people. But in this, as in any other sort of lawful business, the person conducting it is subject to the rule *sic utere tuo ut alienum non laedas*, even when operating under municipal permission or under public obligation to furnish a commodity. (*Terre Haute Gas Co. v. Teel*, 20 Ind. 131; *Attorney-General v. Gaslight and Coke Co.*, L. R. 7 Ch. Div. 217; *Sullivan v. Royer*, 72 Cal. 248, [Am. St. Rep. 51, 13 Pac. 655].) Nor will the adoption of the most approved appliances and methods of production

11. *Id.* at 477, 46 N.W. at 737.

12. *Moses v. United States*, 16 App. D.C. 428, 50 L.R.A. 532 (1900); *Judson v. Los Angeles Suburban Gas Co.*, 157 Cal. 168, 106 Pac. 581 (1910); *Dauberman v. Grant*, 198 Cal. 586, 246 Pac. 319 (1926); 39 AM. JUR., *Nuisances* § 54, p. 336, n. 19 (1942).

13. 157 Cal. 168, 106 Pac. 581 (1910).

justify the continuance of that which, in spite of them, remains a nuisance. (*Evans v. Fertilizing Co.*, 160 Pa. St. 223, [28 Atl. 702]; *Susquehanna Fertilizer Co. v. Malone*, 73 Md. 276, [25 Am. St. Rep. 594, 20 Atl. 900]; *Susquehanna Fertilizer Co. v. Spangler*, 86 Md. 562, [63 Am. St. Rep. 533, 39 Atl. 270].)

"The judgment in this case enjoins the appellant 'from conducting and operating the gasworks and manufactory . . . in such a manner as to cause or permit smoke, gases or offensive smells or fumes to be emitted therefrom or to be precipitated therefrom upon the property of the plaintiff.' . . . While the language does not limit the production of gases, etc., to such as would be inoffensive to plaintiff, it is clear, from the evidence of appellants' own witnesses, that the plant is operated with the least possible amount of escaping smoke, fumes, and gases. When so operated it has been a nuisance injuriously affecting respondent; therefore any conduct of the processes of manufacture for which that plant is equipped would but repeat the injury and annoyance to him. Consequently, the injunction is not too broad, as it might be if applied to some factory in which the injurious effects complained of might be prevented without abating the operation of the works entirely. In this essential particular the case at bar differs from *McMenomy v. Baud*, 87 Cal. 134, [26 Pac. 795], and that case is therefore not authority for the proposition that the injunction is too broad. Here it is conceded by appellant that the works cannot be operated at all without producing the conditions which obtained when plaintiff commenced his action."¹⁴

In the California case of *Dauberman v. Grant*,¹⁵ the court held that the defendant could be enjoined from maintaining a nuisance where he maintained a smoke stack at such a low height that heavy black smoke and soot were carried into plaintiff's adjacent dwelling. Impairment to health need not be shown.¹⁶ But in a proper case the court will take judicial notice of the fact that air pollution is injurious to health.¹⁷

Where there are several sources of pollution is there joint liability? At the time of the common law and the earlier American cases there was only *one* smelter or other source of air pollution in the neighborhood. With the growth of industry more and more cases arose where there were several sources of pollution. In some cases no one factory was responsible for enough pollution to constitute a nuisance, but the total contribution of two or more sources of pollution was a nuisance. Recent cases have found those responsible for the various contributions to be joint tortfeasors, or at least not in a position to object if the court divides the damages between them as best it can.

14. *Id.* at 171, 172-74.

15. 198 Cal. 586, 246 Pac. 319 (1926).

16. *New Jersey v. Mundet Cork Corp.*, 8 N.J. 359, 86 A.2d 1 (1952).

17. See *Penn-Dixie Cement Corp. v. City of Kingsport*, 189 Tenn. 450, 459, 225 S.W.2d 270, 275 (1949); *Board of Health of Weehawken Township v. New York Cent. R.R.*, 4 N.J. 293, 299, 72 A.2d 511, 514-15 (1950).

In *Ingram v. City of Gridley*,¹⁸ the court said:

"But it is also contended that no award of damages could be given against the appellants because the damages were not apportioned, the appellants claiming that damages in a case such as this must be apportioned among the creators of the nuisance and if that cannot, from the nature of the case, be done, damages cannot be awarded jointly against all. We think this contention likewise cannot be sustained. The record here reveals that each of the appellants, with full knowledge of the acts of the others, and in the case of repeated requests for a cessation of the acts which created the nuisance, continued to act and by their acts to create the nuisance complained of and treated with each other concerning the matter to such an extent that they should be held to be joint tortfeasors, each liable for the full damage. . . ."

In the case of *Glucose Refining Co. v. Chicago*,¹⁹ the court said:

"The bill admits the issuance of dense smoke, and it is a matter of common knowledge, of which the court may take cognizance (*State v. Tower* (Mo. Sup.) 84 S. W. 12; *Moses v. U.S.*, 16 App. D. C. 428; *Field v. Chicago*, supra), that smoke emitted from a tall chimney is carried over a wide territory, and that when dense it deposits soot to such an extent as to injure property and health wherever it spreads."

The Supreme Court of Indiana in the case of *Bowers v. Indianapolis*,²⁰ in upholding an ordinance of the City of Indianapolis provided:

"The emission of dense, black . . . smoke from any smokestack used in connection with any stationary . . . furnace of any description within . . . the city . . . except as a private residence, shall be deemed and is hereby declared to be a public nuisance."

The court said:

"The question we have to deal with is not as to the authority to regulate the emission of dense smoke in a sparsely inhabited locality, wherein the act could only result in the creation of a private nuisance, but of the right to prevent the emission of dense black or gray smoke (for so we construe the ordinance) within the corporate limits of a populous city, wherein, if there be no regulations upon the subject, the smoke from scores of steam plants must, in the nature of things, often cover the city as with a pall, thereby impairing the health and comfort of thousands, and casting grime upon every exposed object. If there is anything in the principle of the greatest good to the greatest number, or in the declared authority of government reasonably to regulate the use of property for the common good, it must be affirmed that power exists to deal with a condition which renders life in a great manufacturing city little short of impossible. . . . While it is possible that in

18. 100 Cal. App. 2d 815, 823-24, 224 P.2d 798, 803 (1950).

19. 138 Fed. 209, 215 (C.C.N.D. Ill. 1905).

20. 169 Ind. 105, 81 N.E. 1097, 1098 (1907).

some atmospheric conditions the emission of smoke from a particular stack situate in the outskirts of a city might not amount to a nuisance, yet it is scarcely conceivable that, with the general smoke of the city, it would not at all times operate to the discomfort of some persons, while with a sudden change of such conditions a large part of the people in the residential and business portion of the city might be annoyed thereby. These considerations make general restrictive regulations permissible, presenting, as they do, a case in which the discretion of the municipal legislature is invoked to determine whether, upon a consideration of the concrete circumstances relative to the particular city, a general regulation is required."

As stated by Lord Romilly in *Crump v. Lambert*:²¹

"The real question in all cases is the question of fact, namely, whether the annoyance is such as to materially interfere with the ordinary comforts of human existence."

In the case of *State v. Tower*,²² the court said:

"In a word, we assume that the basis of this contention is that, because at common law thick, dense smoke was not deemed a nuisance per se, but depended on the character of the smoke, the quantity, the location, and the circumstances, therefore it was not competent for our General Assembly to declare the emission or discharge into the open air of dense smoke within a city of 100,000 inhabitants a nuisance. The power of the General Assembly to pass all needful laws, except when restricted by the state or federal Constitution, is plenary, and the Legislature has the power to declare places or practices to the detriment of public interests, or to the injury of the health, morals, or welfare of the community, public nuisance, although not such at common law. The General Assembly, in the exercise of the police power, may declare that a nuisance which before was not a nuisance. . . . Even at common law smoke alone in certain circumstances constituted a nuisance; that is to say, when it produced a tangible injury to property, as by the discoloration of buildings, injury to vegetation, the discoloration of furniture, and like cases."

A leading case on the subject and involving smoke is the California case of *Ex parte Junqua*.²³ In this case the petitioner sought a discharge on a writ of habeas corpus from the custody of the police of the City of Sacramento to test the validity of a city ordinance. The ordinance provided:

"It shall be unlawful for any person, firm or corporation to permit any soot to escape from the smokestack or from the chimney of any furnace within the City of Sacramento in which distillate or crude oil is consumed as fuel."

21. L.R. 3, Eq. 409, 15 Week. Rep. 417 (1867).

22. 185 Mo. 79, 68 L.R.A. 402, 84 S.W. 10 (1904).

23. 10 Cal. App. 602, 103 Pac. 159 (1909).

The petitioner claimed that the ordinance was unconstitutional and void on its face, as under the ordinance it made no difference how little soot was emitted. The court stated:

"That the police power is an inherent attribute of every state or commonwealth in the Union is a proposition which will readily be conceded. It is not only a power which inheres in the sovereignty of the states, but is a power the exercise of which by the states is indispensably essential to the health, peace, comfort and welfare generally of the inhabitants thereof. In this state the people themselves, by their constitution, have asserted this power, and have thus expressly conferred its exercise upon all counties, cities, towns and townships within the state. (Art. XI, sec. 11.) Under this direct grant any such county, city, town, etc., may make and enforce within its limits all such police, sanitary, and other regulations as may be deemed necessary for the health, comfort and happiness of its inhabitants. The only limitation upon the exercise of this power prescribed by the constitution is that regulations so made shall not conflict with general laws.

"This power embraces the right to regulate any class of business, the operation of which, unless regulated, may, in the judgment of the appropriate local authority, interfere with the rights of others, for, as is said in *Dobbins v. City of Los Angeles*, 139 Cal. 179, (96 Am. St. Rep. 95, 72 Pac. 970), 'all property is subject to the police power.' In other words, the proposition cannot be maintained that the exercise of this power is confined to the regulation only of such interferences with the public welfare and comfort as come strictly within the common-law definition of a 'nuisance.' (*Dobbins v. City of Los Angeles*, 139 Cal. 179, (96 Am. St. Rep. 95, 72 Pac. 970).)"²⁴

In the case also of *Buffalo v. Geo. P. Ray Mfg. Co.*,²⁵ it was held in an action for a penalty for the violation of an ordinance making the emission of smoke unlawful, that it was not necessary to establish that the emission of smoke in fact constitutes a nuisance.

But all courts have not been so cooperative towards attempts to reduce air contamination. For example, in the case of *Glucose Refining Co. v. Chicago*,²⁶ the court said:

"It is held in the case of *Harmon v. Chicago*, supra, that a municipality cannot by ordinance make that a public nuisance which was not in fact such. The same rule is laid down in numerous cases, and must be deemed a settled rule for the purpose of this motion."

In the case of *State v. Chicago M. & St. P. Ry. Co.*²⁷ the court stated:

"It is elementary that the legislature cannot prevent a lawful use of property by declaring a certain use to be a nuisance which is not in fact a nuisance, and prohibiting such use."

24. *Id.* at 605, 103 Pac. at 160-61.

25. 124 N.Y. Supp. 913 (Sup. Ct. 1910).

26. 138 Fed. 209, 215 (C.C.N.D. Ill. 1905).

27. 114 Minn. 122, 130 N.W. 545, 546 (1911).

A statute or ordinance is not invalid and unreasonable merely because there is no known appliance to permit compliance.²⁸ In the case of *Moses v. United States*,²⁹ the court said:

"The defendants offered evidence tending to show that they had attached to their furnace, at the time, the best known smoke-consuming appliance; but that neither it nor any other, then known, would prevent the emission of such smoke for a brief period upon each occasion that fire might be started, or the furnaces 'coaled,' or 'raked down,' provided that soft bituminous coal be the fuel consumed. The evidence was excluded and exception taken. In this there was no error.

"That there may be no smoke-consuming appliances that will under all circumstances, prevent the nuisance, is not a matter of relevance. The facts concerning them were presumably within the knowledge of Congress also when it took action; and no provision has been made for their use. The use of smokeless fuel instead may have been expressly contemplated."

The doctrine of comparative injury, more commonly called "balancing the equities," is accepted in some jurisdictions and denied in others, or accepted as to one set of facts and denied as to other situations. Based on equitable principles it would seem to be properly applicable in cases of undue hardship. Yet the reasoning either way is hard to answer: that insofar as plaintiff is denied a decree enjoining an actual nuisance, defendant in effect is given an easement over plaintiff's land. This amounts to a taking of property for *private* use in violation of the Constitution. Where the defendant is required to pay plaintiff the reasonable value of his property, or the interest therein which is damaged, the effect is *condemnation* for the benefit of a private industrial plant which does not possess the power of eminent domain.

In *Hulbert v. California Portland Cement Company*,³⁰ where the owners of an \$800,000 cement plant sought to stay an injunction against its operation on posting a bond for the entire value of all the plaintiffs' property damaged by its cement dust, the court said:

"Even if the officers of the corporation are willing to furnish a bond in a sum equal to the value of the properties of Gilbert and of the Hulbert estate here involved, we cannot, under plain principles of equity, compel these plaintiffs to have recourse to their action at law only and take from them the benefit of the injunctive relief accorded them by the chancellor below. To permit the cement company to continue its operations even to the extent of destroying the property

28. *Northwestern Laundry v. Des Moines*, 239 U.S. 486 (1916); *Moses v. United States*, 16 App. D.C. 428, 50 L.R.A. 532 (1900); *People v. Detroit White Lead Works*, 82 Mich. 471, 46 N.W. 735 (1890).

29. 16 App. D.C. 428, 440, 50 L.R.A. 532, 538 (1900).

30. 161 Cal. 239, 245, 118 Pac. 928 (1911).

of the two plaintiffs and requiring payment of the full value thereof would be, in effect, allowing the seizure of private property for a use other than a public one—something unheard of and totally unauthorized in the law.”

In *McIvor v. Mercer-Fraser Co.*,³¹ the court analyzes the problem as follows:

“If appellants’ theory were sound, one who coveted his neighbor’s property could force a sale of the same by the simple expedient of injuring such property or impairing the enjoyment thereof and cause the owner to sell or forego all right to damages by tendering to the owner the cost of said property to him or the market value thereof. This of course cannot be the law.”³²

The question was raised in a little different form in *Guttinger v. Calaveras Cement Co.*,³³ where the court said:

“The trial court was thereby of necessity required to formulate a practical decree which would restrain respondent from maintaining a nuisance and yet permit the operation of its plant with as little interference as was reasonably practicable.

“. . . The trial court, while finding that a nuisance was being maintained, also found impliedly that the restriction imposed by the decree would eliminate the nuisance and that was all to which the appellants were then entitled. If further increase of cement production shall lead to a greater total volume of dust and gases, so that 13 per cent. thereof would be injurious, the court will be open to entertain a motion to extend the restrictions and adapt them to the new conditions. . . . The court of course retains jurisdiction over the cause to modify its decree from time to time to fit changing conditions.”

Relief is sometimes denied under the rule of coming to the nuisance, based, supposedly, on the early common-law doctrine that he who builds his house near a known and existing nuisance must take the consequences.³⁴

The rule of *Rex v. Cross* was adopted by the Supreme Court of Oregon in *East St. Johns Shingle Co. v. Portland*,³⁵ at least as applied to the limited situation of that case, where a public body is defendant and the nuisance arises from the performance of a governmental

31. 76 Cal. App. 2d 247, 251, 172 P.2d 758 (1946).

32. See also *Anderson v. Souza*, 38 Cal. 2d 825, 842, 243 P.2d 497 (1952); *French Art Cleaners v. State Bd. of Dry Cleaners*, 88 Cal. App. 2d 45, 46, 198 P.2d 91 (1948).

33. 105 Cal. App. 2d 382, 390-92, 233 P.2d 914 (1951).

34. *Rex v. Cross*, 2 C. & P. 483, 172 Eng. Rep. 219 (1826) (subsequently overruled in England).

35. 195 Ore. 505, 246 P.2d 554 (1952). The case is criticized in 41 CALIF. L. REV. 148 (1953).

function (sewage disposal). Two other recent cases have taken the opposite view.³⁶

But not all courts have been so cooperative in the campaign to clean up the air as most of those quoted *supra*. And many times even though plaintiff has been able to state a cause of action and survive a demurrer his case is lost for lack of proof on one or more of the technical requirements necessary to establish a common-law nuisance.

REGULATION OF AIR POLLUTION

Air pollution has become such a serious problem in many places that reliance on a common-law nuisance action is no longer satisfactory. It has been recognized from time to time, ever since 1306, that a statute based on some simple objective test is highly desirable, if not absolutely necessary, if the air in our great cities is to be purified. Scientific study is also needed, which cannot be done by the court in a nuisance action. In some places, as in Los Angeles, the problem is largely one of invisible vapors and fumes, and not primarily smoke.

From the legal standpoint the problem can be solved. The only limitations upon the full police power of the several states to control completely the air pollution nuisance and for that purpose to destroy an established business, regulate the manner of doing business and the use of property, or prohibit it altogether, or require large expenditures for equipment, if necessary, are the provisions of the United States Constitution. There appear to be no constitutional limitations which would prevent a satisfactory solution.

It has been well settled that any provision of a statute or ordinance regulating a nuisance, such as the smoke nuisance, is valid in so far as the due process clause is concerned, if it is reasonably necessary for the accomplishment of the purpose and for the public welfare generally, and if it is not unduly oppressive and does not arbitrarily interfere with private business nor impose unusual or unnecessary restrictions upon a lawful occupation.³⁷

It becomes largely a question of whether or not the law is reasonable. No hard and fast rule can be established for all cases. It depends upon the facts and circumstances of each case. A law is not invalid solely because it may put an establishment out of business or require the expenditure of large sums to comply with the terms of the law, nor because there are no appliances available to prevent the prohibited smoke or fumes. In some situations it amounts to a weighing of the advantages and disadvantages, although the doctrine is not

36. *Mahone v. Autry*, 55 N.M. 111, 227 P.2d 623 (1951); *City of Rochester v. Charlotte Docks Co.*, 114 N.Y.S.2d 37, 72-73 (Sup. Ct. 1952).

37. *Lawton v. Steele*, 152 U.S. 133 (1894).

placed on that ground. A slight inconvenience to the public will not justify an unnecessary destruction of property rights.

To some extent, and particularly in the case of private nuisances, the rule is based on the maxim of jurisprudence as stated in the California Civil Code:

“One must so use his own rights as not to infringe upon the rights of another.”³⁸

The leading case in the United States on the constitutional limitations on smoke abatement laws is the case of *Northwestern Laundry v. Des Moines*.³⁹

This case holds that ordinances merely prohibiting the emission of dense smoke in cities or populous neighborhoods, and also ordinances that prescribe a definite scientific standard for the density of smoke, such as the Ringelmann chart, are valid so far as constitutional limitations are concerned. The smoke may be forbidden without reference to the time or quantity of emission or the immediate surroundings.

In the *Des Moines* case, the laundry filed a bill in equity in the United States District Court in Iowa against the City of Des Moines, and the smoke inspector and members of the smoke abatement commission of that city, to enjoin the enforcement of a Des Moines ordinance providing that the emission of dense smoke in portions of the city was a public nuisance. It was claimed that the ordinance was void under the due process and equal protection clauses of the Fourteenth Amendment in that, among other things, the ordinance in providing for the use of Ringelmann's smoke chart, prescribed an arbitrary test of degrees of density. The standard of efficiency required the remodeling of practically all furnaces. It forbade remodeling or new construction without a license and gave discretion to the smoke inspector and abatement commissioners to prescribe requirements. The court held the ordinance valid and dismissed the bill upon its merits, stating:

“So far as the Federal Constitution is concerned, we have no doubt the state may by itself, or through authorized municipalities, declare the emission of dense smoke in cities or populous neighborhoods a nuisance and subject to restraint as such; and that the harshness of such legislation, or its effect upon business interests, short of a merely arbitrary enactment, are not valid constitutional objections. Nor is there any valid Federal Constitutional objection in the fact that the regulation may require the discontinuance of the use of property, or subject the occupant to a large expense in complying with the terms of law or ordinance. Recent cases in this court are *Reinman v. Little Rock*, 237 U.S. 171, 59 L.Ed. 900, 35 Sup. Ct. Rep. 511; *Chicago & A. R.*

38. CAL. CIV. CODE § 3514 (1949).

39. 239 U.S. 486 (1916).

Co. v. Tranberger, 238 U.S. 67, 59 L.Ed. 1204, 35 Sup. Ct. Rep. 678; *Hadacheck v. Sebastian*, decided December 20, 1915, (239 U.S. 394, ante, 348, 36 Sup. Ct. Rep. 143).

"That such emission of smoke is within the regulatory power of the state has been often affirmed by state courts. *Harmon v. Chicago*, 110 Ill. 400, 51 Am. Rep. 698."⁴⁰

There is no question that the above case states the general rule throughout the United States.⁴¹ The passage of time has taken nothing away from the authority of cases like *Northwestern Laundry Co. v. Des Moines*.

The liberal attitude of some courts toward air pollution control regulation is illustrated by the following quotation from *Penn-Dixie Cement Corp. v. Kingsport*:⁴²

"Ordinances to preserve the public health have been liberally construed, and the authorities have gone to a great length in enumerating the implied powers of municipalities to enact laws to protect the community from infections and contagious diseases, from bad water, against nuisances injurious to health, and noxious odors and gases. Inasmuch as the preservation of the public health and the safety of inhabitants is one of the chief purposes of local government, all reasonable ordinances in this direction have been sustained."

The basis for smoke regulation in most of the modern ordinances and statutes is the Ringelmann Chart, prepared by Professor Maximilien Ringelmann of Paris and brought to this country in 1897. It was used in St. Louis in 1904 and incorporated into the Boston ordinance in 1910.⁴³ The chart itself consists of four rectangular grills of black lines of definite width and spacing printed on white paper. The chart is posted a sufficient distance from the observer so that the black lines merge and the observer sees only the four large rectangles, each of a definite shade of grey or degree of blackness. No. 1 Ringelmann is twenty per cent black; No. 2 is forty per cent; No. 3 is sixty per cent; and No. 4 is eighty per cent. No. 0 and No. 5 Ringelmann are not included in the chart; they are, respectively, zero per cent black and one hundred per cent black.

The argument of counsel in *Northwestern Laundry Co. v. Des Moines*,⁴⁴ shows that the Ringelmann Chart was used in that case, but

40. *Id.* at 491.

41. 7 McQUILLIN, MUNICIPAL CORPORATIONS § 24.495, p. 473 nn. 32, 33 (3d ed. 1949); 37 AM. JUR., MUNICIPAL CORPORATIONS § 295, p. 239 n. 9 (1941); 62 C.J.S., MUNICIPAL CORPORATIONS § 298 n. 48 (1949); 39 AM. JUR., NUISANCES § 54 (1942); 18 CAL. JUR., MUNICIPAL CORPORATIONS § 141 (1924); Note, 46 CENT. L.J. 147, 151 (1898); SMOKE PREVENTION ASS'N OF AMERICA, MANUAL OF ORDINANCES AND REQUIREMENTS 24 (1940).

42. 189 Tenn. 450, 461, 225 S.W.2d 270, 275 (1949).

43. U.S. Bureau of Mines, Information Circular 6888, by Rudolph Kudlich (1936 revised 1941), obtainable from the Bureau of Mines, Washington 25, D.C.

44. 239 U.S. 486 (1916).

it is not mentioned by the court. While the Ringelmann Chart has been commonly used in ordinances and elsewhere as a measure of smoke emission for half a century, few cases referred to it and none actually approved its use. Recently the courts have been more generous in their notice of it. The Appellate Department of the Los Angeles Superior Court approved the use of the chart, saying:

"We think it is equally permissible for a statute to refer to and adopt, for description of a prohibited act, an official publication of any United States board or bureau established by law, such as the United States Bureau of Mines. The publications of that bureau are as readily available for examination by those seeking information on the effect of the statute as were the statutes and regulations, references to which were approved in the cases just cited. It is no more necessary here than it was in those cases that provision be made for free or other public distribution of the matter referred to. The courts take judicial notice of the official acts of the Bureau of Mines . . . and private citizens who are concerned with them are also charged with notice of them. . . .

"While, as already stated, the courts take notice of the Ringelmann Chart, our notice in this case is fortified by a copy which was introduced in evidence and is in the record. It is a plain white piece of paper divided into four sections, numbered from 1 to 4 and each about $5\frac{3}{4}$ x $8\frac{3}{4}$ inches in size. On each of these sections is printed a series of intersecting heavy black lines of uniform width for each section, with the lines growing progressively wider from section 1 to section 4, until on section 4 the black covers much more than half of the surface. This chart refers to Bureau of Mines Information Circular No. 6888, a copy of which is also in the record. From the chart and this circular, it appears that the chart is to be posted at a distance of 50 feet from the observer. When so posted the black lines and the white space merge into each other, by a process of optical illusion, so as to present the appearance of a series of gray rectangles of different color densities, No. 4 being the densest. Estimates of the density of smoke may be made by glancing from this chart so displayed to smoke, and picking out the section on the chart which most nearly resembles the smoke. This mode of measuring the density of smoke has been in use, it appears, for over 50 years. This affords a reasonably certain mode of determining and stating the density and opacity of smoke, and we think that the statute adopting it is not lacking in certainty.

"Three witnesses testified regarding the smoke discharged from defendants' place of business on the occasions specified in the complaint, and its degree of density and opacity as compared with the Ringelmann Chart. Defendants complain that these witnesses showed no qualifications sufficient to enable them to give expert testimony on this subject, and that their observations were not sufficient because they had no Ringelmann Charts with them when those observations were made. Assuming that the comparative density and opacity of the smoke is a matter for expert testimony only, we see no error in the rulings of the court admitting in evidence and refusing to strike the testimony

of these witnesses. The air pollution control district established under the statute in Los Angeles county maintained a school where its inspectors were trained to 'read smoke,' as they called it, by the aid of the Ringelmann Chart, and after they became experienced they no longer needed to look at the chart. The witnesses just mentioned attended this school before making the observations to which they testified, and by that and other experience acquired the ability to estimate the opacity and color of smoke such as they testified to with reference to the Ringelmann Chart without actually using the chart. Their testimony was sufficient in these respects to justify the ruling of the court that they were competent to testify as experts. . . ."⁴⁵

The chart has been approved in a number of other recent cases.⁴⁶

A St. Louis ordinance⁴⁷ attacks the problem from a different point of view. It prohibits the sale or use of soft or bituminous coal unless the volatile content has been reduced to twenty-three per cent or less or the fuel is used only in connection with a mechanical stoker. When this ordinance was challenged the Missouri court said:

"There can be no doubt that under the above sections that the legislative department of the City of St. Louis has the power to abate the smoke nuisance in the city by any reasonable method. To accomplish that object, it enacted Section 5340, *supra*. This section sought to obtain that object by regulating the kind of coal that can be burned in that city.

. . .

"Coal burned mechanically tends to create less smoke than the same coal burned by hand. Coal burned mechanically is distributed evenly in the fire box of the furnace and would tend to produce less smoke than coal that is distributed unevenly by hand, and this is true even if firing by hand is carefully performed. Since there is a reasonable classification between how the same coal is burned, and it applies equally and uniformly to all coal users in the City of St. Louis, we cannot say that it is an arbitrary classification."⁴⁸

The St. Louis ordinance, by eliminating the chief cause of black smoke, was successful in cleaning up the city. The problem in St. Louis had been one of black smoke. There is no mystery about black smoke: it can be easily seen and traced to its source; its cause and cure are matters of common knowledge. St. Louis adopted a practicable standard—and then enforced it.

45. *People v. International Steel Corp.*, 102 Cal. App. 2d 935, 938-39, 226 P.2d 587 (1951).

46. *Board of Health of Weehawken Township v. New York Cent. R.R.*, 4 N.J. 293, 72 A.2d 511, 512 (1950); *Board of Health of Weehawken Township v. New York Cent. R.R.*, 10 N.J. 294, 90 A.2d 729, 735 (1952); *Penn-Dixie Cement Corp. v. City of Kingsport*, 189 Tenn. 450, 225 S.W.2d 270 (1949); *New Jersey v. Mundet Cork Co.*, 8 N.J. 359, 86 A.2d 1, 3 (1952).

47. Section 5340 of Ordinance 41804.

48. *Ballentine v. Nester*, 350 Mo. 58, 164 S.W.2d 378, 382, 383 (1942).

In Los Angeles, however, very little coal of any kind was used. At that time little was known as to what the air pollutants were, where they came from or how they could be controlled or eliminated.

The California Air Pollution Control Act

The basic Air Pollution Control Law in California is the Air Pollution Control Act of 1947.⁴⁹ By this act the legislature declares that the people of the state have a primary interest in atmospheric purity.⁵⁰ It then creates an air pollution control district in every county with its boundaries co-extensive with the county boundaries, but such a district is not activated until the board of supervisors of the county holds a public hearing after notice and finds from the evidence at such hearing that the air in such county is polluted and that it is impracticable to rely upon local ordinances for enforcement.⁵¹

Thus, the Air Pollution Control Act is made effective only in the counties which seek an air pollution control district by affirmative action of their boards of supervisors, without violating the constitutional provision requiring uniform operation of laws.⁵²

The responsibility for the government of the district is clearly fixed by the designation of the county board of supervisors as *ex officio* the air pollution control board or governing body of the district.⁵³

The executive officer of the district is the air pollution control officer,⁵⁴ who is given the duty of enforcing the provisions of the Air Pollution Control Act, rules and regulations of the Air Pollution Control Board and all variances and standards prescribed by the hearing board.⁵⁵ To aid in carrying out his duties the air pollution control officer is made a peace officer⁵⁶ and is given authority to enter any building, except a private residence, and to stop and inspect any motor vehicle.⁵⁷

All county officers and employees are designated as *ex officio* officers and employees of the air pollution control district⁵⁸ in the county in which they are employed, thereby saving the district considerable expense over what it would cost to employ new officers in various staff positions. In addition to these, the air pollution control board may provide for assistants, deputies, clerks, attaches and other persons to be employed by the control officer,⁵⁹ subject to civil service

49. CAL. HEALTH & SAFETY CODE §§ 24198-24341 (1952).

50. *Id.* § 24198.

51. *Id.* §§ 24199-24212.

52. *County of Los Angeles v. Dockweiler*, 14 Cal.2d. 437, 94 P.2d 794 (1939).

53. CAL. HEALTH & SAFETY CODE § 24220 (1952).

54. *Id.* § 24222.

55. *Id.* § 24224.

56. *Id.* § 24231.

57. *Id.* § 24246.

58. *Id.* § 24221.

59. *Id.* § 24222.

rules,⁶⁰ and are entitled to the benefits of the County Employees Retirement Law.⁶¹

A hearing board consisting of three members, two lawyers and a civil engineer, none of whom is otherwise employed by either the district or the county, is created and empowered to hold hearings after notice, and after such hearings to grant variances similar to those granted under the zoning law, which will allow a person to operate his equipment with emission of air contaminants in excess of those prescribed by law but within the limits set by the hearing board for the period of time prescribed by the hearing board.⁶² The hearing board may also extend, modify or revoke any variance or permit.⁶³

Variances may be granted when the hearing board finds that compliance with the statute or rules of the district will result in an arbitrary and unreasonable taking of property or in the practical closing and elimination of any lawful business without sufficient corresponding benefit to the people in the reduction of air contaminants. In granting these variances the hearing board is authorized to exercise a wide discretion in weighing the equities involved, but is limited to the extent that no variance can be granted which will permit or authorize the maintenance of a nuisance.⁶⁴

The variance procedure prescribed in the act is needed for the reason that many industries were not immediately able to solve their air pollution problems. A long period of research and experimentation was necessary, followed by a period of waiting for delivery and installation of the necessary control equipment. Without these variance provisions these industries would be forced to close temporarily, pending completion of alterations or repairs, even if they were using every effort to eliminate the discharge of pollutants.

The decisions of the hearing board may be reviewed by a special statutory proceeding in the Superior Court which provides for a trial de novo.⁶⁵

The most useful provisions of the act, as shown by seven years' experience with its administration in Los Angeles County, are the rule-making power and those relating to the permit system.⁶⁶

The air pollution control board (board of supervisors) is authorized to make additional rules and regulations after a public hearing and publication of notice.⁶⁷ These provisions authorize the setting up, by means of rules and regulations of the district, of simple objective

60. *Id.* §§ 24222, 24228.

61. *Id.* § 24229.

62. *Id.* §§ 24225, 24226.

63. *Id.* §§ 24291-24323.

64. *Id.* §§ 24291-24321.

65. *Id.* §§ 24322-24323.

66. *Id.* §§ 24260-24282.

67. *Id.* §§ 24260-24261.

standards for the emission of various invisible gases and fumes, as these standards are established, and without the necessity of going back to the legislature for an amendment to the act. Thus, the act has within itself the means of forever keeping up to date with the latest advances of modern science in the matter of air pollution control. Some of these standards have now been established and have been made a part of the act by reason of being adopted as a rule or regulation of the district after public hearing before the air pollution control board.

These sections also authorize the adoption of rules and regulations setting up a permit system.⁶⁸ The great advantage of this method of enforcement is the severe penalty which may be invoked in the suspension or revocation of such a permit where a permittee fails to cooperate or to comply with the statute. Suspending or revoking such permit would require that the offending machinery or equipment be no longer used until the permit can be reinstated. In an integrated industrial plant this may very likely require closing the plant. Such a permit system was set up by the Air Pollution Control Board on December 30, 1947, immediately after the act became effective. Blanket permits were granted under a "grandfather clause" to all of those doing business between December 1, 1947, and the effective date of the rule. The act provides that the air pollution control board may require, by rule, that before any person builds, erects, alters, replaces or operates any article, machine, equipment or contrivance which may cause the issuance of air contaminants, such person must obtain a permit from the control officer.⁶⁹ A second permit may be required before using or operating any such equipment. Pursuant to this authority, the air pollution control board has enacted comprehensive rules establishing permit requirements and standards for granting permits.

Certain exceptions from the permit requirements are provided in the state act,⁷⁰ including mobile equipment, dwellings of four families or less, incinerators and barbecues used in connection with such dwellings, agricultural equipment and repairs not involving structural changes. It must be remembered that this exemption relates only to the permit requirements of the statute and does not exempt such equipment from any of the other requirements of the law.

The control officer is authorized to require the filing of plans, specifications and analyses in order to obtain a permit,⁷¹ and to deny, suspend or revoke any permit subject to the right to appeal to the hearing board for a public hearing as to whether or not such action was proper.

68. *Id.* §§ 24260-24282.

69. *Id.* §§ 24263, 24264.

70. *Id.* § 24265.

71. *Id.* §§ 24264, 24269.

A number of penal provisions are provided in aid of the enforcement of the permit system. The statute makes it a misdemeanor to make a false statement in an application for a permit or in any information submitted therewith or submitted by a permittee at the request of the control officer;⁷² to operate without a permit or while a permit is suspended or revoked;⁷³ to violate any order, rule or regulation of the district, or to refuse, fail or neglect to furnish information when required by the air pollution control officer.⁷⁴

When the Air Pollution Control Act became law, all existing installations were granted a blanket permit. In the event that any such installation exceeded the legal limits for emissions of air contaminants, the control officer could revoke the permit or the owner or operator could obtain a variance while making necessary repairs.⁷⁵ With the great influx of new industries to California, it is particularly valuable to the control officer to have a means whereby he can require that all new installations are properly constructed so that they will operate within the limits of the Air Pollution Control Law. The permit system provides this means, and unless an applicant can show that his installation is properly designed and constructed so that it will operate within the legal limits, he will be unable to obtain a permit either to build or operate the equipment.

The rules of the air pollution control district specify standards limiting the discharge of certain designated air contaminants. The state act may be supplemented by local rules enacted by the Air Pollution Control Board from time to time under the authority provided in the act. The specific provisions of the act and rules may also be supplemented further by the enactment of any local ordinance which is stricter than the provisions of the act and rules.⁷⁶ Any violation of the standards established in the act or rules may be enjoined in a civil action or prosecuted criminally as a misdemeanor with each day or portion of a day constituting a separate offense.⁷⁷

Definite limits are provided in the act for the discharge of visible air contaminants exceeding certain standards of shade or opacity. Any emission of "any air contaminant for a period or periods aggregating more than three minutes in any one hour which is: (a) as dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the U. S. Bureau of Mines," is prohibited.⁷⁸ This is a commonly accepted standard for measuring the density of black smoke.

72. *Id.* § 24277.

73. *Id.* § 24279.

74. *Id.* §§ 24280-24282.

75. *Id.* §§ 24291-24323.

76. *Id.* §§ 24247-24250.

77. *Id.* § 24253.

78. *Id.* § 24242(a).

But in addition to black smoke, the Los Angeles area had white smoke and smoke of various colors. The California Air Pollution Control Act was therefore written to prohibit emission for the same period of time of any contaminant which is: "(b.) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a) of this section"⁷⁹ (subsection "a" is No. 2 Ringelmann). This provision has not been passed on by any appellate court. The County Counsel of Los Angeles County justified this test in an opinion dated July 30, 1948, as follows:

"Paragraph (a) of Section 24242 applies to black smoke. The Ringelmann Chart is merely a simple and objective method of determining and expressing a definite percentage of blackness and is used in measuring the blackness or the apparent or optical density of black smoke. No. 2 of the Ringelmann Chart is equivalent to 40% black. The Ringelmann Chart is constructed by printing on perfectly white paper a rectangular grill of black lines of definite width and spacing. Department of Interior, Information Circular I. C. 6888 revised April, 1941, described the Ringelmann Chart and its use. It states that in card 2, which is the No. 2 referred to in our statute, the lines are 2.3 millimeters thick, 10 millimeters apart, leaving the white spaces 7.7 millimeters square. A little arithmetic shows that each small square of 100 square millimeters contains 59.29 square millimeters of white space or 40.71 square millimeters of black; thus the black lines cover 40.71% of the area of the chart. It may accurately be said then that black smoke of No. 2 Ringelmann is not only 40% black but that it also obscures 40% of an observer's view, or is 40% opaque.

"In further support of our conclusion, the information circular shows that zero Ringelmann is all white. No. 5 Ringelmann all black and that the five steps are equal. No. 2 is therefore 40% black. If we can assume that all white when applied to black smoke means no smoke at all and that all black means that the smoke is totally opaque and completely obscures an observer's view, it is apparent that No. 2 Ringelmann is not only 40% black when applied to black smoke but also 40% opaque and obscures 40% of the observer's view.

"Section 24242(b), Health and Safety Code, applies especially to white or colored smoke. The Ringelmann Chart may not be compared directly with white smoke or to colored smoke other than black. It is correct to refer to white smoke as 40% opaque. It is correct to refer to white smoke as being as opaque as black smoke which is No. 2 Ringelmann, which is the way it is expressed in Section 24242(b), Health and Safety Code. While it may not be a technically correct use of language, and it is of course a contraction, we see no harm in referring to white smoke as being No. 2 Ringelmann, provided the process of reasoning involved and the number of steps which must be gone through to compare white smoke to the black of a Ringelmann Chart is well understood. However, it may be less confusing when referring to white smoke, or colored smoke any other than black, to

79. *Id.* § 24242(b).

state the opacity in terms of percentage and omit reference to the Ringelmann Chart."⁸⁰

Inspectors of the Air Pollution Control District of Los Angeles County are required to attend "smog school" where they learn to "read" smoke and other pollutants not only in reference to the Ringelmann Chart, but also in connection with the use of a standard light source and a photoelectric cell so that they can testify as experts to the comparative readings of opacity, density and obscurity of any given emission.⁸¹

Discharge of any air contaminants which would constitute a common law public nuisance is forbidden, and the usual definition of a public nuisance is adopted.⁸² Certain activities are specifically excepted from these prohibitions, including fires set by or permitted by any public officer for the purpose of weed abatement, prevention of a fire hazard or the instruction of public employees in the methods of fire fighting. Agricultural operations are exempted from the standards of shade and opacity of emissions.⁸³

Under the authority of the Air Pollution Control Act the Air Pollution Control District of Los Angeles County has enacted simple and objective standards to limit the emission of many kinds of air contaminants for which no limits were specifically provided in the state act. These include rules limiting the discharge of particulate matter, sulphur compounds, combustion contaminants, dust and fumes. A rule has been enacted regarding scavenger or recovery plants, and another prohibiting the storage of gasoline and certain other petroleum distillates unless the tank in which such products are stored is so constructed or equipped as to prevent vapor loss to the atmosphere.

At the present time consideration is being given to the enactment of new rules aimed at prohibiting the burning of combustible rubbish, the prohibition of the use of fuel oils containing more than a designated percentage of sulphur, the control of vapor losses during loading of petroleum products at bulk stations and into tanks, cars, trucks and ships and for controlling filling losses at gasoline stations.

As technology advances and means are developed for controlling other sources of air contaminants which are now uncontrolled and the presently known means of control are improved, there will be a need for new rules, such as a rule for the control of automobile exhausts, and for a tightening of the standards of the statute and rules to a degree which would have been considered unreasonable at the time of their

80. 47 Op. C.C. 132 (Los Angeles County, 1948).

81. *People v. International Steel Corp.*, 102 Cal. App. 2d 935, 226 P.2d 587 (1951).

82. CAL. HEALTH & SAFETY CODE § 24242(c) (1952).

83. *Id.* § 24265.

original enactment in the light of the scientific knowledge then available.

An amendment was added to the Air Pollution Control Act in 1949, providing for the creation of unified air pollution control districts by merger of the districts of two or more contiguous counties into one district.⁸⁴

The Problem in Los Angeles County

The problem in the Los Angeles region remains the same, only some causes have been discovered and possible solutions have been tried. Six thousand tons of rubbish are burned daily in backyard-type incinerators or open fires. Most residents drive to and from work, using four and a half million gallons of gasoline daily.

The Air Pollution Control District of Los Angeles County has granted 13,350 permits for \$179,868,700.00 of basic equipment (from April 12, 1948 to February 28, 1955). During the same period \$29,621,800.00 has been spent for air pollution control equipment. The County has allotted a total of \$540,268.00 for research from 1948 through June, 1955. Industry has absorbed increased labor costs for more careful control and for hauling combustible rubbish rather than burning it. Air pollution control equipment in use now prevents the emission of 1070 tons of air pollutants daily. But there is still smog when atmospheric conditions are favorable for creating a temperature inversion.

Black smoke and soot have been almost entirely eliminated. However, black smoke never was the real problem in this area. Removing it makes it more apparent that there is a serious air pollution menace from other sources and particularly from invisible gasoline vapors (which are emitted unburned from auto exhausts at the rate of 1200 tons daily. It is now believed that eye irritation and crop damage are caused by oxidation of gasoline vapors under certain conditions of humidity, sunlight, temperature inversion and wind speed. Oxidizing agents are free oxygen molecules or atoms from ozone, oxygen and oxides of nitrogen that unite with gasoline vapors to transform gasoline vapors to irritating substances. Incomplete combustion is *modus operandi* for every automobile. This results in further emissions of aldehydes, ozone, nitrogen oxides and traces of other combinations.

A temperature inversion still blankets the area at times, concentrating pollutants which would otherwise become diffused in the upper atmosphere. California's warm sunshine helps oxidize invisible gasoline vapors into irritants. Apparently nothing can be done about the temperature inversion. At the present time, all that can be done is to reduce the pollution to such a level that it will not be objectionable

84. *Id.* §§ 24330-24341.

even during the most severe temperature inversions. The same amount of pollution is emitted each day, but it becomes objectionable only when a temperature inversion exists.

The present program of the Air Pollution Control District calls for five things:

1. The elimination of the emission into the atmosphere of gasoline vapors (hydrocarbons) from industrial sources;
2. The control of automobile exhausts, the largest source of hydrocarbons;
3. The pickup of all combustible rubbish and its disposal by cut and cover or in correctly designed and operated public incinerators;
4. A program of zoning so as to put objectionable industries where they will do the least harm, for instance, on the leeward side of the residential areas; and
5. Reduction of all other industrial pollution through more stringent standards governing permissible emissions.

CONCLUSION

The Air Pollution Control Law and rules alone will not be sufficient to solve the air pollution problem unless they are backed up by continued research and a policy of strict enforcement, such as is in effect in Los Angeles County. Given strict enforcement, a will to do the job and the latest scientific aids, there is ample legal authority to abate all known sources of air contaminants. The preservation of the public health and the protection of the lives and safety of the inhabitants are the chief purposes of government. The police power of the state is not limited constitutionally by the fact that the control of air pollution may require the expenditure of large sums of money or even the discontinuance of the use of property or the closing of an otherwise lawful business.

As the Los Angeles County Air Pollution Control District goes into its eighth year of pioneering experience in the field of air pollution control, and having in mind that it has probably led the nation in the emphasis placed upon an air pollution abatement program, an observation may be in order. It is probably not an exaggeration to say that from a legal standpoint the 1947 Air Pollution Control Act, together with the more than one hundred rules adopted by the air pollution control district which have the force and effect of law, is adequate or can be made adequate to deal with the difficult and involved problem. Even the severest critics of the air pollution control district have not claimed that the parent act, together with the rules, has failed to furnish sufficient legal tools with which to work.

As was said by the Supreme Court of the United States almost forty years ago:

“So far as the Federal Constitution is concerned, we have no doubt the state may by itself, or through authorized municipalities, declare the emission of dense smoke in cities or populous neighborhoods a nuisance and subject to restraint as such; and that the harshness of such legislation, or its effect upon business interests, short of a merely arbitrary enactment, are not valid constitutional objections. Nor is there any valid Federal constitutional objection in the fact that the regulation may require the discontinuance of the use of property, or subject the occupant to large expense in complying with the terms of the law or ordinance.⁸⁵

85. *Northwestern Laundry v. Des Moines*, 239 U.S. 486 (1916).