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Legal Problems Raised by Artificial Rainmaking

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LEGAL PROBLEMS RAISED BY ARTIFICIAL RAINMAKING

The first reported decision involving the problem of the liability in law of the modern rainmaker has recently been rendered.[1] Though other disputes are reported to have arisen,[2] they have not been finally decided in any regularly reported case.

The case was before the Trial Division of the Supreme Court of New York, the dispute having arisen out of experiments artificially to induce rainfall conducted by the City of New York during the recent, much publicized water shortage in that city. Plaintiffs, who were owners of a vacation resort in upper New York State, sought to enjoin these experiments on the grounds that they would result in floods which would damage riparian owners, and cause rainfall that would be harmful to the resort business. In denying the injunction the court said: "Apart from the legal defects in plaintiffs' suit (since they clearly have no vested property rights in the clouds or the moisture therein), the factual situation fails to demonstrate any possible irreparable injury to plaintiffs."[3]

The legal question involved in this new science of weather control, and artificially induced precipitation, are many and varied. In view of the recent scientific advances in this field,[4] many problems involving rights to receive precipitation upon one's land, as well as the right to be free from artificially induced precipitation, are certain to arise in the near future.

One of the major difficulties in any action arising out of this activity will be the matter of proof and the showing of causal relationship.[5] Every plaintiff who claims that he has suffered injury as a result of the rainmaking activities must first prove that these activities caused the rain. He must prove not only that rainmaking is possible, but also that this defendant caused the particular rainfall which injured him, or deprived him of rainfall which he otherwise would have received. Although this would be very difficult today, present and future experimentation should yield

1. Slutsky v. City of New York, 197 Misc. 730, 97 N.Y.S.2d 238 (Sup. Ct. 1950). The term "rainmaker" is used herein to denote one who engages in artificially inducing precipitation of any kind. Similarly, the terms "precipitation" and "rainfall" are used interchangeably to denote any and all forms of precipitation.

2. Ball, *Shaping the Law of Weather Control,* 58 YALE L.J. 213, 225, text and nn. 59, 60 (1949); Note, *The Legal Aspects of Rainmaking,* 37 CALIF. L. REV. 114, 115 n.7 (1949); N.Y. Times, Jan. 18, 1948, § IV, p. 8, col. 2.

3. 97 N.Y.S.2d at 239.

4. See, *e.g.,* Ball, *Shaping the Law of Weather Control,* 58 YALE L.J. 213, 215 (1949); Kraus and Squires, *Experiments on the Stimulation of Clouds to Produce Rain,* 159 NATURE 489 (1947); Leopold and Halstead, *First Trials of the Schaefer-Langmuir Dry-Ice Cloud Seeding Technique in Hawaii,* 29 BULL. AMER. MET. Soc. 525 (1948); Schaefer, *The Production of Ice Crystals in a Cloud of Supercooled Water Droplets,* 104 SCIENCE 457 (1946); *Weather Under Control,* Fortune, Feb. 1948, p. 106.

5. Ball, *Shaping the Law of Weather Control,* 58 YALE L.J. 213, 230 (1949); Note, *Who Owns the Clouds?* 1 STAN. L. REV. 43, 60 (1948).

more knowledge as to the processes and effectiveness of artificially induced rainfall, which should in turn make it easier to prove that a particular attempt produced the rain in question.[6] However, the fact that any precipitation extends over a relatively large area, and that artificially induced precipitation may coincide with natural rainfall in an adjoining sector, will make it difficult to prove that any particular injury proximately resulted from rainmaking activities.

The problems of substantive law which this modern activity presents may be divided into two major groups: (1) those involving the right of a landowner to receive the precipitation which normally falls upon his land,[7] and (2) those involving the right to be free from artificially induced precipitation.[8]

(1) It is obvious that the amount of moisture in the air is limited, and that any successful attempt artificially to induce rainfall in a particular place will decrease the amount that would have fallen in some other place. Does the landowner, upon whose lands the precipitation would have fallen naturally, have any legally protected right to receive that precipitation? Such a right could not be based upon prescription, since there is no element of adverseness present.[9] Nor could a right be asserted under the appropriation doctrine of some western states, since there has been no act upon the part of the injured landowner which would constitute a prior appropriation.[10]

A landowner may, however, claim a right to the continued normal rainfall based upon the doctrine of "natural rights." Every landowner has a right to use and enjoy his land in substantially its natural condition free from the interference of others.[11] This natural right, "though in effect restrictive of the use of another's land, [is a right] not in such other's land, but as to one's own land."[12] The injured landowner may well argue that the rainmaker's acts have deprived him of the normal use and enjoyment of his land and have infringed upon his nautral right. If this right is established, any unreasonable invasion thereof would constitute a private nuisance for which damages, or an injunction, or both, could be obtained.[13]

6. See authorities *supra* note 4.

7. Notes, 37 CALIF. L. REV. 114 (1949), 1 STAN. L. REV. 43 (1948).

8. Note, *Artificial Rainmaking,* 1 STAN. L. REV. 508, 531 (1949).

9. Before a use can ripen into a prescriptive title "it must be an invasion of the rights of the party against whom it is set up, of such a character as to afford him grounds of action. . . ." 56 AM. JUR., *Waters* § 327 (1947).

10. Clough v. Wing, 2 Ariz. 371, 17 Pac. 453 (1888); Comstock v. Reservoir Co., 58 Colo. 186, 145 Pac. 700 (1914). *But cf.* Empire Water & Power Co. v. Cascade Town Co., 205 Fed. 123 (8th Cir. 1913).

11. 3 TIFFANY, REAL PROPERTY § 714 (3d ed. 1939).

12. *Ibid.*

13. RESTATEMENT, TORTS § 822, comment *b* (1939). *Quaere,* Must one prove a right to receive the precipitation to sustain an action of nuisance, or is the right to the use and enjoyment of one's land sufficient *per se*?

An analogy might well be drawn to the law of riparian streams. A person has no right to pollute the waters of a stream so as to cause injury to a lower riparian owner.[14] Neither has one any right to divert the waters of a stream so as to injure a lower owner.[15] Similarly, the law is well established that a person cannot pollute the air so as to injure a leeward landowner.[16] Does it follow that he has no right to remove anything from the air where such removal injures a leeward landowner?

In defense of this action, the rainmaker, assuming that he conducted these activities over land which he owned, might assert ownership of the moisture in the air above his land either on the basis of the *ad coelum* doctrine,[17] or upon the theory that he was the first to assert dominion and gain possession of this moisture.[18] It is doubtful that any court would recognize a right in a landowner to moisture in the air above his land based upon the *ad coelum* theory.[19] As for the prior appropriation and possession argument, even if it is held that the rainmaker gained a title or right in the water by his acts, this does not mean that the acts themselves were lawful and not actionable. One example of this may be found in the common law relating to riparian streams. In the case of riparian streams, an upper owner who bottles the water for commercial use gains legal title to it,[20] but he is still liable to a lower owner who is injured by this diversion.[21] In the case of artificially induced precipitation, assuming that the rainmaker gained legal title to the water which fell on his land, he might still be liable if his acts were held to be an "unreasonable interference" with the use and enjoyment of the land of another, thus constituting a private nuisance.[22]

(2) The second major category into which the problems embodied in this new science may be divided is comprised of problems involving the

14. Whalen v. Union Bag & Paper Co., 208 N.Y. 1, 101 N.E. 805 (1913).

15. Robertson v. Arnold, 182 Ga. 664, 186 S.E. 806, 106 A.L.R. 681 (1936); McEvoy v. Gallagher, 107 Wis. 331, 83 N.W. 633 (1900); 3 TIFFANY, REAL PROPERTY § 729 (3d ed. 1939).

16. Salt River Water Users Ass'n v. Arthur, 51 Ariz. 101, 74 P.2d 582 (1937); California Orange Co. v. Riverside Portland Cement Co., 50 Cal. App. 522, 195 Pac. 694 (1920); Rudd v. Kittinger, 309 Ky. 315, 217 S.W.2d 651 (1949).

17. *Cujus est solum ejus est usque ad coelum.*

18. TIFFANY, REAL PROPERTY § 721 (3d ed. 1939). A rule somewhat analogous to this position was adopted with respect to oil and gas in the early years of oil prospecting. *Cf.* Hague v. Wheeler, 157 Pa. St. 324, 27 Atl. 714 (1893); Westmoreland & Cambria Nat. Gas Co. v. DeWitt, 130 Pa. St. 235, 18 Atl. 724 (1889).

19. For discussions of the present status of the *ad coelum* doctrine in American law see PROSSER, TORTS 84-89 (1941); Bouvé, *Private Ownership of Airspace*, 1 AIR L. REV. 232, 376 (1930); Niles, *Present Status of the Ownership of Airspace*, 5 AIR L. REV. 132 (1934). However, the Uniform Aeronautics Act expressly recognizes title to superadjacent airspace in the owner of the land, subject only to a right of flight. UNIFORM AERONAUTICS ACT § 3, 11 U.L.A. 160 (1938). This act has been adopted in 21 states. 11 U.L.A. 11 (Supp. 1949). It is doubtful that these statutes will be construed to vest title in a landowner to the moisture in the air over his land.

20. 3 TIFFANY, REAL PROPERTY § 721 (3d ed. 1939).

21. *Id.* § 722; PROSSER, TORTS 564 (1941).

22. As to what constitutes an "unreasonable interference" with the use and enjoyment of another's land, see RESTATEMENT, TORTS §§ 825-31 (1939).

right to be free from artificially induced precipitation. The possible injurious effects of an artificially induced rain or snow storm are numerous—*e.g.,* crops destroyed by excess or inopportune rain, automobile accidents due to slippery highways, ruined clothing, serious delays and interruptions of outdoor businesses, illnesses or deaths due to exposure and obstructed highways and streets.

Where the acts of the rainmaker have caused rain to fall on the land of another there may possibly be a cause of action based upon trespass *quare clausum fregit.* At common law the landowner could recover in trespass *q.c.f.* regardless of whether the trespasser was at fault.[23] But in most jurisdictions today there must be some element of fault to support an action for trespass to land.[24] Either negligence or an intentional trespass must be proved. This should not be too difficult, since the doing of the act with the knowledge that the rain was substantially certain to fall on the land of another would constitute an intentional trespass.[25] All damages, including damages to personalty, are recoverable once a trespass is established, since these are treated merely as a matter of aggravation.[26] However the courts may adopt a view toward artificially induced precipitation similar to that held with regard to surface waters resulting from rain or snow. The cases are sharply divided as to whether a person is liable for damage to an adjoining landowner for rainwaters precipitated upon his land.[27] Those recognizing liability usually do so upon grounds of nuisance.[28] Those denying liability adhere to the general rule that an upper owner has an easement for the drainage of surface waters upon lower land.[29] In these latter jurisdictions, an owner is liable only if he has been negligent in some manner which has increased the damage the lower owner would have suffered naturally.

If the rainmaker has been negligent, he is of course liable to the same extent as every person who acts negligently. Artificially inducing precipitation is not like turning on the kitchen faucet. Though it is now possible to "turn on" rainfall under certain circumstances, it cannot be "turned off" at will, nor can the rainfall be limited to a specified area. Taking these facts into consideration, what is necessary to establish negligence on the part of the rainmaker? Negligence has been defined as "conduct which involves an unreasonably great risk of causing damage,"[30] and embodies a weighing

23. Bohlen, *The Rule in Rylands v. Fletcher,* 59 U. OF. PA. L. REV. 298, 310 (1911).
24. Smith, *Tort and Absolute Liability—Suggested Changes in Classification,* 30 HARV. L. REV. 241, 319 & 409, at 321 (1917).
25. RESTATEMENT, TORTS § 825 (1939); PROSSER, TORTS 40-42 (1941).
26. 4 SUTHERLAND, DAMAGES § 1010 (3d ed. Berryman, 1904).
27. Note, 48 A.L.R. 1248 (1927).
28. Melin v. Richman, 96 Conn. 686, 115 Atl. 426 (1921); Friedman v. Andreson, 257 Mass. 107, 153 N.E. 337 (1926).
29. Gott v. Franklin, 307 Ky. 466, 211 S.W.2d 680 (1948); Jorgenson v. Stephens, 143 Neb. 528, 10 N.W.2d 337 (1943).
30. Terry, *Negligence,* 29 HARV. L. REV. 40 (1915).

of the social utility of the defendant's acts against the gravity of possible resulting harm.[31] This balancing of social interests must await judicial decision, but, as indicated in the instant case, where a community is in dire need of water, great latitude may well be allowed the rainmaker.[32] However, where the suit is between private individuals, it is doubtful that the rainmaker will be looked upon with equal leniency by the courts.

The multitude of other effects of artificially induced precipitation will present some interesting problems to the courts. However, it is likely that these consequences will be treated as remote, and that the courts will use the "proximate cause" doctrine to cut off liability therefor.

There is a possibility that the rainmaker may be held to strict liability or liability without fault.[33] Lord Cairn's explanation of the doctrine of strict liability in the decision before the House of Lords of *Rylands v. Fletcher*[34] was that such liability is imposed for "non-natural use" of the land. Under this test it is hard to determine whether the user is natural because it is rainfall, or nonnatural because it is artificially induced. But the usual test applied for determining strict liability today is whether the activity is "ultra-hazardous."[35] This involves two ideas: (1) that the injury involved is apt to be serious, and (2) that the risk of this injury cannot be eliminated from the activity.[36] It would be possible to hold that rainmaking comes within this category. The risk involved cannot be eliminated, but there is real doubt whether the injury involved is so serious that it is not completely outweighed by the social advantages of the activity.

A possible position which might be adopted by the courts is that the rainmaker is not liable in any respect, if he has done no more than duplicate the feats of nature.[37] The rainmaker may argue that the normal effects of rainfall should be considered *damnum absque injuria.* This raises a preliminary question which must be decided in all tort cases—*i.e.,* is a legally

31. *Ibid.;* RESTATEMENT, TORTS §§ 291-93 (1939).

32. "This court must balance the conflicting interests between a remote possibility of inconvenience to plaintiffs' resort and its guests with the problem of maintaining and supplying the inhabitants of the City of New York and surrounding areas, with a population of about 10 million inhabitants, with an adequate supply of pure and wholesome water." Instant case, 97 N.Y.S.2d at 240.

33. At the present time, precipitation may be artificially induced either by the use of silver iodide particles sent up from ground generators, or by "seeding" clouds with either dry ice or water from an airplane. Would the liability of the rainmaker depend upon the method used? "The owner of every aircraft which is operated over the lands or waters of this state is absolutely liable for injuries to persons or property on the land or water beneath, caused by . . . the dropping or falling of any object therefrom, whether such owner was negligent or not. . . . TENN. CODE ANN. § 2720 (Williams, 1942). *Cf.* 14 CODE FED. REGS. § 43.408 (Supp. 1945); ARIZ. CODE ANN. § 48-115 (1939); UNIFORM AERONAUTICS ACT § 9, 11 U.L.A. 164 (1938).

34. L.R. 3 H.L. 330 (1868), *affirming* L.R. 1 Ex. 265 (1866).

35. RESTATEMENT, TORTS §§ 519, 520 (1938); see Prosser, *Nuisance Without Fault,* 20 TEXAS L. REV. 399 (1942).

36. RESTATEMENT, TORTS § 520, comment *g* (1938).

37. Note, 1 STAN. L. REV. 508, 536 (1949).

protected interest involved? Every person may have an interest in being free from artificially induced rainfall.[38] But is this such an interest as will be protected by law, and thus given the status of a right? By a process of growth and expansion, the law continues to add new interests to the long list of legally protected rights.[39] However, there are many interests for which the law affords no protection.[40] Whether a person's interest in keeping himself and his property free from man-made rainfall will be accorded protection by the courts cannot yet be predicted. If the rainmaker prevails in this argument, he might possibly still be liable if he produced a storm of unusual proportions resulting in substantial damage not usually incident to rain storms.

There are many things which the courts must take into consideration in determining what is to be the extent of the rainmaker's liability. His activities, besides holding great promise for many areas hitherto regarded as arid wastes, present possibilities of controlling to a great extent man's greatest enemy. Weather control activities in the near future are reasonably certain to result in successful storm abatement or modification and save hundreds of lives and millions of dollars worth of property damage annually; hail and lightning could be reduced greatly; snowstorms could be prevented, especially in large cities where extensive damage results and costs of removal from streets amount to millions of dollars annually; hurricanes and tornadoes which annually kill hundreds and destroy over one hundred million dollars worth of property annually could be diverted and dissipated.[41]

On the other hand, property interests and individual rights must be protected against unwarranted invasions by the negligent or capricious rainmaker. The only feasible solution appears to be some form of governmental regulation.[42] It is doubtful that completely successful controls could be imposed at the state level, since interstate problems are certain to arise whenever weather control is attempted on any substantial scale. All of the problems which exist, especially the property aspect, will be duplicated at both interstate and international levels. The effects of an artificially induced rainstorm cannot be confined to political boundaries. It therefore appears

38. RESTATEMENT, TORTS § 1 (1934).

39. GREEN, RATIONALE OF PROXIMATE CAUSE 10, 11 (1927); RESTATEMENT, TORTS § 1, comment *e* (1934); *cf.* Note, *Tort Action for Injuries to Unborn Infants,* 3 VAND. L. REV. 282 (1950).

40. GREEN, RATIONALE OF PROXIMATE CAUSE 5-11 (1927); RESTATEMENT, TORTS § 1, comment *c* (1934).

41. Ball, *Shaping the Law of Weather Control,* 58 YALE L.J. 213, 218-25 (1949).

42. For discussion of the possibilities, as well as the advisability of government control of this activity at both state and federal levels see Ball, *Shaping the Law of Weather Control,* 58 YALE L.J. 213, 237 (1949). Note, 1 STAN. L. REV. 508 (1949). Senator Anderson of New Mexico recently introduced a bill in the United States Senate which would provide for federal regulation of rainmaking. S. 4236 81st Cong., 2d Sess. (1950). For an interesting analysis of this bill, see Note, *Illegitimate Rain Creates Legitimate Problems,* 1951 INS. L.J. [No. 336] 2.