LEGAL REMEDIES FOR "CLOUD-SEEDING" ACTIVITIES: NUISANCE OR TRESPASS?

THE IMPORTANT QUESTION of liability for "cloud-seeding" has been decided at the appellate-court level for the first time.[1] The decision, *Southwest Weather Research, Inc. v. Duncan*,[2] attains added significance in that it delineates the landowner's rights in the rain clouds above his land and circumscribes the applicable remedy.

In this case the defendants[3] "seeded" clouds[4] over and in the vicinity of the plaintiffs' property to prevent hail storms. The plaintiffs filed a bill to enjoin this activity, alleging that it resulted in decreased rainfall over their land. The trial court, after hearing witnesses[5] testify that they had observed the dissipation of rain clouds following the "seeding," temporarily enjoined the activity in the vicinity of plaintiffs' property. The appellate court affirmed the decision,[6] but modified the injunction to prohibit weather modification only in the area directly above plaintiffs' land.[7]

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[1] There have been five previous cases involving weather modification: Reeve v. O'Dwyer, 199 Misc. 123, 98 N.Y.S.2d 452 (Sup. Ct. 1950); Slutsky v. City of New York, 197 Misc. 730, 97 N.Y.S.2d 238 (Sup. Ct. 1950); Samples v. Irving P. Krick, Inc., Civil Nos. 6212, 6223, 6224 (W.D. Okla. 1954); Auvil Orchards v. Weather Modification, Inc., No. 40544 (Super. Ct. Wash. 1956). These cases were disposed of in the trial courts, while Avery v. O'Dwyer, 305 N.Y. 658, 112 N.E.2d 428 (1953), the only one to reach an appellate court, turned on a procedural point. It is now back on the court docket.

[2] 319 S.W.2d 940 (Tex. Civ. App. 1958), *aff'd*, 327 S.W.2d 417 (Tex. 1959). This case was heard jointly with *Southwest Weather Research, Inc. v. Jones* by the Texas Supreme Court, which held that the trial court had not abused its discretion in either case by granting the temporary injunctions. The opinion pertained principally to questions of jurisdiction and procedure. The cases had been heard jointly at the trial level and were appealed separately to the Court of Civil Appeals. The *Jones* case was know in the two lower courts as *Southwest Weather Research, Inc. v. Rounsaville.*

[3] The defendants in this case included farmers whose lands lay east of the seeding activities and the parties they hired to "seed" the clouds.

[4] The method used by the defendants is commonly known as "over-seeding," and involves the use of silver iodide and salt brine. The effect can be to form so many ice crystals that the droplets of moisture in the clouds never attain a size large enough to fall out and cause rain.

[5] Besides eyewitnesses, both sides presented expert witnesses to support or contradict the proposition that the "over-seeding" would decrease precipitation.

[6] The court held that there was ample evidence on which to base the finding that the defendants' activities dissipated potential rain clouds.

[7] Because the plaintiffs sought only injunctive relief, the perplexing problem of

The court's holding that the plaintiffs have rights in the water in the clouds is based on the common-law doctrine of natural rights.[8] The landowner is said to have the right to the reasonable use and enjoyment of his land in its natural condition, free from the interference of others. The activities of the defendants, in depriving[9] the plaintiffs of the natural amount of rainfall, violated one of their natural rights and gave them a right of action in equity.[10]

Legal writers,[11] speculating on the problem of liability for "cloud-seeding," have analogized the problem to the doctrine of riparian rights, which holds that no one has the right so to divert the waters of a stream as to interfere unreasonably with its use by lower riparian landowners.[12]

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damages was not encountered. This problem would be even more difficult in an action for damages due to increased precipitation. It would then be necessary to determine what part of the excessive precipation was caused by the cloud-seeding.

[8] United States v. Causby, 328 U.S. 256 (1946); Hinman v. Pacific Air Transp., 84 F.2d 755 (9th Cir. 1936); Swetland v. Curtiss Airports Corp., 55 F.2d 201 (6th Cir. 1932); Anderson v. Souza, 38 Cal. 2d 825, 243 P.2d 497 (1952); City of St. Louis v. Hill, 116 Mo. 527, 22 S.W. 861 (1893); Lower Colo. R. Authority v. Camp Warnecke, Inc., 267 S.W.2d 840 (Tex. Civ. App. 1954). "The principal natural rights are (1) riparian rights; (2) the right to support of land, both lateral and subadjacent; (3) the right to natural diffusion of the air, reasonably free from dust, smoke, or other pollution; (4) the right to natural drainage of the land; and (5) the right to use the land for any reasonable purpose . . . ." Comment, 1 STAN. L. REV. 43, 52 (1948).

[9] Anything which interferes with such use and enjoyment in turn destroys the property itself. See Lakeside Irr. Co. v. Markham Irr. Co., 116 Tex. 65, 285 S.W. 593 (1926); Spann v. City of Dallas, 111 Tex. 350, 235 S.W. 513 (1921).

[10] The doctrine of strict liability, based possibly on the theory of ultrahazardous activity, as advocated in Comment, 34 MARQ. L. REV. 262 (1951), was not applied by the court.

[11] This problem has been the subject of speculation in numerous articles. See Ball, *Shaping the Law of Weather Control*, 58 YALE L.J. 213 (1949); Grauer & Erickson, *The Weathermaker and the Law*, 1 S.D.L. REV. 105 (1956); Oppenheimer, *The Legal Aspects of Weather Modification*, 1958 INS. L. J. 314; Stark, *Weather Modification: Water—Three Cents Per Acre-Foot?*, 45 CALIF. L. REV. 698 (1957); Weibel, *Problems of Federalism in the Air Age—Part I*, 24 J. AIR L. & COM. 127 (1957); Comments, 37 CALIF. L. REV. 114 (1949); 1 CATH. U.L. REV. 122 (1951); 34 MARQ. L. REV. 262 (1951); 1 STAN. L. REV. 43 (1948); 1 STAN. L. REV. 508 (1949); Notes, 29 CHI.-KENT L. REV. 150 (1951); 39 GEO. L.J. 466 (1951); 4 VAND. L. REV. 332 (1951).

[12] See Robertson v. Arnold, 182 Ga. 664, 186 S.E. 806 (1936); McEvoy v. Gallagher, 107 Wis. 331, 83 N.W. 633 (1900); See also, Indianapolis Water Co. v. American Strawboard Co., 57 Fed. 1000 (D. Ind. 1893); Mayor of Paterson v. East Jersey Water Co., 74 N.J. Eq. 49, 70 Atl. 472 (Ch. 1908); Weiss v. Oregon Iron & Steel Co., 13 Ore. 496, 1 Pac. 255 (1886); Lower Colo. R. Authority v. Camp Warnecke, Inc., 267 S.W.2d 840 (Tex. Civ. App. 1954); Chasemore v. Richards, 11 Eng. Rep. 140 (Ex. 1859).

Conceivably, this may become the basis for rights to rainwater in those states which recognize riparian rights.[13] It is interesting to note, however, that the Texas court did not resort to any such analogy, but chose to base its decision on the general doctrine of natural rights.

While the opinion does not discuss trespass and nuisance as bases for relief, it is believed that other courts, when faced with a problem of this type, will find it necessary to determine whether the invasion constitutes trespass or nuisance, or both. The knotty problem of ownership of the airspace becomes important here if a court limits relief to that of an action for trespass. This issue is far from settled. One theory, accepted by the *Restatement of Torts*,[14] holds that the landowner owns the entire airspace above his land, subject to the privileged entry of aircraft. According to this concept, an unreasonable entry is a trespass.[15] It is believed that this theory is patently absurd.[16] To base future decisions pertaining to weather modification on a legal fiction adopted in the sixteenth century is inviting chaos. Unfortunately, many courts, when initially confronted with a case of this type, may fall into the trespass abyss.[17]

A second line of authority, which commands substantial support,

[13] In the nine Western states which repudiate riparian water rights, however, the outcome on a question concerning rain water might be analogously unfavorable to a landowner. The states are Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Wyoming. Riparian rights are recognized as to private land, but appropriation rights apply to public lands in California, Kansas, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, and Washington. See Comment, 1 STAN. L. REV. 43 (1948).

[14] "An entry above the surface of the earth, in the air space in the possession of another, by a person who is traveling in an aircraft, is privileged if the flight is conducted (a) for the purpose of travel through the air space or for any other legitimate purpose, (b) in a reasonable manner, (c) at such a height as not to interfere unreasonably with the possessor's enjoyment of the surface of the earth and the air space above it, and (d) in conformity with such regulations of the State and federal aeronautical authorities as are in force in the particular State." RESTATEMENT, TORTS § 194 (1934).

[15] Guith v. Consumers' Power Co., 36 F. Supp. 21 (E.D. Mich. 1940); United States v. One Pitcairn Biplane, 11 F. Supp. 24 (W.D. N.Y. 1935); Amphitheaters, Inc. v. Portland Meadows, 184 Ore. 336, 198 P.2d 847 (1948); Crew v. Gallagher, 358 Pa. 541, 58 A.2d 179 (1948).

[16] The compromise solution of granting a privilege of reasonable entry does little to eradicate the inherent absurdity of this theory, and only builds on an already faulty structure.

[17] This may be especially true in those states which have adopted the position of the *Restatement* on airspace ownership: Arizona, Arkansas, California, Colorado, Delaware, Georgia, Idaho, Indiana, Maryland, Michigan, Minnesota, Missouri, Nevada, New Jersey, North Carolina, North Dakota, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, Wisconsin, and Wyoming.

holds that the landowner owns up to a limited height[18] and that the upper atmosphere is public domain.[19] In some of these jurisdictions an unwarranted entry in the lower atmosphere constitutes a trespass,[20] while in others it is a nuisance.[21] When the entry occurs in the upper atmosphere, an action for nuisance is the only possible remedy.[22]

In application[23] the label attached to the wrong may be of vital consequence. A trespass action is limited, by definition, to wrongful entry in the area above the plaintiff's land, while an action based on

[18] In the cases accepting the limited-ownership doctrine, "how far up" varies from case to case and state to state. It may be broadly based upon the amount of airspace essential to the reasonable use and enjoyment of the land, or only to the extent of *actual* occupancy, or, more specifically, at an established minimum height (often that of the Civil Aeronautics Board). The nuisance theory, which is finding considerable support, circumvents this problem by restricting all such actions to that of nuisance. At present, however, none of these theories are prevailing, and the courts often fail to distinguish between them.

[19] For cases holdiug that the upper atmosphere is public domain, see United States v. Causby, 328 U.S. 256 (1946); Swetland v. Curtiss Airports Corp., 41 F.2d 929 (N.D. Ohio 1930); City of Newark v. Eastern Airlines, Inc., 159 F. Supp. 750 (D.N.J. 1958); Freeman v. United States, 167 F. Supp. 541 (W.D. Okla. 1958); Scott v. Dudley, 214 Ga. 565, 105 S.E.2d 752 (1958); Delta Air Corp. v. Kersey, 193 Ga. 862, 20 S.E.2d 245 (1942); Burnham v. Beverly Airways, 311 Mass. 628, 42 N.E.2d 575 (1942); Antonik v. Chamberlain, 81 Ohio App. 465, 78 N.E.2d 752 (1947); Yoffee v. Pennsylvania Power & Light Co., 385 Pa. 520, 123 A.2d 636 (1956); Maitland v. Twin City Av. Corp., 254 Wis. 541, 37 N.W.2d 74 (1949).

[20] United States v. Causby, *supra* note 19; Cory v. Physical Culture Hotel, 14 F. Supp. 977 (W.D.N.Y. 1936); Burnham v. Beverly Airways, *supra* note 19; Smith v. New England Aircraft Co., 270 Mass. 511, 170 N.E. 385 (1930). Trespass here is actionable upon an intentional, negligent, or ultrahazardous entry and does not have the further qualification of having to be an "unreasonable interference" as does the *Restatement* concerning entry through the airspace. See note 14 *supra*.

[21] Braudes v. Mitterling, 67 Ariz. 349, 196 P.2d 464 (1948); Anderson v. Souza, 38 Cal. 2d 825, 243 P.2d 497 (1952); Delta Air Corp. v. Kersey, 193 Ga. 862, 20 S.E.2d 245 (1942); Thrasher v. City of Atlanta, 178 Ga. 514, 173 S.E. 817 (1934); Warren Township Sch. Dist. v. City of Detroit, 308 Mich. 460, 14 N.W.2d 134 (1944); Hyde v. Somerset Air Serv., 1 N.J. Super. 346, 61 A.2d 645 (Ch. 1948).

[22] "The actor is liable in an action for damages for a nontrespassory invasiou of another's interest in the private use and enjoyment of land if, (a) the other has property rights and privileges in respect to the use or enjoyment interfered with; and (b) the invasion is substantial; and (c) the actor's conduct is a legal cause of the invasion; and (d) the invason is either (i) intentional and unreasonable; or (ii) unintentional and otherwise actionable under the rules governiug liability for negligent, reckless or ultrahazardous conduct." RESTATEMENT, TORTS § 822 (1939).

[23] The difference in theory between relief based upon trespass and nuisance is not substantial, as the unlimited-ownership theory allows relief for an entry that constitutes "unreasonable interference," while the position of the *Restatement* on nuisance permits recovery when there is a "substantial invasion." To distinguish between the two phrases seems somewhat difficult.

nuisance is not so restricted[24] and affords more complete protection. Though there is no reason why a court might not provide relief under both the trespass and nuisance actions, it is feared that a court adopting the *Restatement's* theory of unlimited ownership would tend to restrict itself to relief based on trespass. The opinion in the *Duncan* case briefly reviews the question of airspace ownership without reaching any definitive conclusions on the issue. While the court seems to suggest that relief may be given irrespective of the ultimate answer to this somewhat theoretical problem,[25] yet, in modifying the injunction to prohibit "cloud-seeding" only in the area directly above the plaintiffs' property, the court in fact limited itself to the trespass theory. The court failed to give the plaintiffs the full protection to which they were entitled.[26]

While the intermediate court seems to limit relief to that based on trespass, the Texas Supreme Court, in affirming, indicates that the modification was necessary under the circumstances.[27] It is believed that the problem of proof of causal relationship, coupled with the unique nature of the action, played a significant role in the final outcome of the case. Further proceedings in this case and subsequent actions involving weather modification must provide answers to many issues left unsettled by this decision. In any event, this court has established sound precedent by holding that landowners are entitled to legal protection from "cloud-seeding" which constitutes an unreasonable interference with their right to natural precipitation.

[24] Aside from this, the difficulty of proving the actual trespass (*i.e.*, the plane's being directly above the plaintiff's land) could prevent relief though substantial injury was shown.

[25] Writers have attempted to classify the cases dealing with the ownership of airspace. See 1 HARPER & JAMES, TORTS 45 (1956); PROSSER, TORTS 59-61 (2d ed. 1955); Weibel, *supra* note 11.

[26] According to the Supreme Court of Texas, such injunctions are issued to protect the status quo. Unfortunately, such a limited injunction does not fully protect the status quo because the plaintiff's right to the natural amount of rainfall might still be thwarted by "seeding" clouds over nearby land.

[27] Southwest Weather Research, Inc. v. Jones, 327 S.W.2d 417, 421-22 (Tex. 1959).