LEGAL ASPECTS OF WEATHER MODIFICATION

By

Jack C. Oppenheimer1/

Why be Concerned with the Law of Weather Modification

Why should a conference concerned with water resources be additionally concerned with the legal aspects of a possible new source of water through weather modification? Why consider the development of the law before the science and technology have been developed?

The character of the knowledge to be gained through research demands the use of outdoor, relatively large-scale laboratories. Man's experimental interventions in nature's atmospheric processes have as their consequences interventions into his socio-economic, political and legal processes. Tampering with the atmospheric envelope around our physical environment produces repercussions within our social environment.

Here in the Western arid and semi-arid portion of our country we have seen and are still experiencing human conflict over man-made interventions for the conservation, development and use of natural water supplies. Men continue to battle over the diversion and redistribution of naturally occurring waters by means of flood control and storage dams and irrigation and hydropower systems. However, at present these struggles are usually resolved in the workings of the market place, in the courts, and in our legislative halls without resort to physical violence.

Similar social reactions to man's efforts to artificially increase water supplies or to otherwise modify natural weather processes have been seen over the last 15 years. There have been and still are substantial commercial as well as experimental activities in response to the interest of farmers, businessmen, public utilities, and the local, State and Federal Governments in the possible benefits of cloud seeding. Since the early 1950's there have been laws passed by 22 states specifically regulating or otherwise dealing with weather modification. In almost a decade and a half there have been a number of threatened and recorded law suits and 5 court decisions which already have had a significant impact upon research activities and commercial operations.

The sensitivity of various agricultural and industrial groups with diversified interests to real or fancied changes in the weather has resulted in laws, regulations and court decisions governing weather modification activities. As evidenced by current litigation and proposed State legislation, some farmers and ranchers have threatened or committed actual violence before resorting to legal processes. Thus, the consideration of the law cannot await development of the science and technology because, in fact, a partially controlling legal regime has already developed and is evolving apace in response to current events. And, the science and technology of weather modification cannot advance unless there is the degree of social acceptance expressed by a compatible legal as well as economic and political environment. After all it wasn't much more than a half century ago that we began, in the name of progress and public convenience and necessity, to accept the risks to life and limb and rely upon safety, traffic and insurance laws instead of requirements for persons with lanterns to preceed on foot every new fangled automobile.

It is realized then that the job of the lawyer working with the scientists and engineers in an emerging field such as weather modification is to help to identify and accommodate the complex and interrelated scientific and public interests. This means that we must try to create and evolve an environment of law suitable for the development of the science and technology and for the protection of the varied and conflicting public interests. As will be seen by the following discussion of existing state laws, law suits,

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1/ Executive Secretary, Special Commission on Weather Modification, National Science Foundation.

Court decisions and Federal liability statutes dealing with or applicable to weather modification activities, the law is having difficulty with identifying and accommodating the various scientific and public interests.

The Present Law of Weather Modification -- State Statutes

The existing state regulatory laws require, in general, licensing or registration of cloud seeding operations; prior notice of operations to local governmental authorities or the public in the areas to be seeded; reports by the operators to state authorities; evaluation by State authorities and universities; certain technical qualifications to operate; and financial responsibility. One State has just this last month prohibited weather modification activities for a period of two years. Another State, instead of enacting proposed prohibitory legislation, by Resolution of the Legislature, requested Congress to investigate artificial nucleation experimentation or interference with natural precipitation or water in the atmosphere. Regulatory statutes partially or fully prohibiting weather modification activities may result from currently proposed legislation in at least one other State.

Six State laws assert sovereign rights to the moisture in the clouds or atmosphere within their respective state boundaries. The laws of four States explicitly absolve themselves or their instrumentalities from liability for the weather modification activities of any private person or group. Half a dozen of the States statutes authorize research and experimentation by state agencies or universities. It appears that some of the States authorize their political subdivisions to conduct weather modification operations and to issue regulations. Nine of the States seem to regulate the methods or conditions of operation. One State regulates the manufacture, sale, lease, and advertisement of weather modification equipment. Many of the State statutes express in one form or another the requirement or desirability of cooperating with the Federal Government and other States in weather modification activities. Six States expressly authorize local governmental entities or specially created districts to spend general funds or revenues raised by special taxes for weather modification operations or research.

The Present Law of Weather Modification -- Law Suites and Court Decisions*

There have been so far eight lawsuits involving cloud seeders. One of these was abandoned before a Court decision on the merits was reached. Two of them have only recently been instituted, and there has not yet been time for a Court decision. Of the remaining five, four have gone in favor of the defendant weather modifiers and one in favor of persons desiring to enjoin commercial weather modification activities. Of the four cases which have gone in favor of the defendant weather modifiers however, three were decided on the basis that any damage done was not attributable to the attempted cloud seeding. In only one case did the Court hold that attempts to modify the weather could be made even if in fact the objecting party would be injured thereby.

The first group of cases constitutes those which were decided in favor of the weather modifiers on the basis that the activities in question did not injure the plaintiff in the particular case:

(1) Samples v. Irving P. Krick, Inc. (Civil Nos. 6212, 6223, and 6224, Federal District Court for the Western District of Oklahoma 1954) arose out of a cloud-seeding operation sponsored by Oklahoma City in 1953 on its North Canadian River watershed. The plaintiff landowner sued for property damages incurred by a cloudburst and flood near El Reno, Oklahoma, coincident with the defendant's cloud-seeding operations. The plaintiff's theory was that the defendant had been guilty of negligence in seeding clouds under the existing weather circumstances and that if such carelessness caused or contributed to the flood, the defendant would be liable. The judge based his charge to the jury on the same theory. The plaintiff did not prove his case to the satisfaction of the jury, and the verdict was for the defendant. Parenthetically, it might be added that so little is known about weather modification that it might seem to some persons unreasonable to expect a jury to decide whether a cloud seeder was "negligent" or "careful" in particular weather situations.

* This section was prepared by Mr. Joseph R. Schurman, Attorney, National Science Foundation, in collaboration with the author.

(2) Auvil Orchard Co. Inc., et al. v. Weather Modification, Inc. et al. (Cause No. 19268, Superior Court, Chelan County, Washington (1956)) involved cloud seeding for the prevention of hail. Flash floods occurred on farms adjacent to the hail prevention target area. The Court granted a temporary order banning further hail suppression attempts but refused to make it permanent however, after hearing expert meteorological testimony. It based this refusal on the ground that the cloud seeding had not brought about the exceptional rainfall which caused the floods.

(3) Adams et al. v. The State of California et al. (Docket No. 10112, Sutter County Superior Court) was decided April 6, 1964. It was claimed that Pacific Gas and Electric Company had operated artificial rain making stations near Lake Almanor in the headwaters of the Feather River. A damaging flood occurred in the Feather River in December 1955 and owners of property damaged thereby sued to recover their losses, claiming that the flood was caused, at least in part, by operation of the artificial rain making stations. The Court found that Lake Almanor never spilled at any time before or during the flood. Accordingly, any increase produced by cloud seeding was successfully impounded in the lake, and damages caused by the Feather River flood could not be charged to weather modification activities.

So much for the cases in which the plaintiff failed to prove that cloud seeding caused injury to the persons suing for redress. In this connection it should be emphasized that even though proof of injury might not be made, a temporary restraining order can effectively stop an entire season's weather modification activities. This happened in the Auvil Orchards case.

(4) The one case in which cloud seeding was held to be permissible even though the plaintiff might be injured thereby was Slutsky v. City of New York, 97 N.Y.S. 2d 238 (1950). The plaintiff, a resort owner in the watershed area being seeded, sought in 1950 to enjoin the City of New York from continuing its attempts to increase precipitation during a period of drought by seeding clouds. In denying the resort owner's petition, the Court in pertinent part said:

> "This Court must balance the conflicting interests between a remote possibility of inconvenience to the plaintiff's 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 10 million inhabitants, with an adequate supply of pure and wholesome water. The relief which the plaintiffs ask is opposed to the general welfare and public good; and the dangers which plaintiffs apprehend are purely speculative. This Court will not prevent a possible private injury at the expense of a positive public advantage."

The Court opinion in the Slutsky case also stated, without further discussion or citation of legal authority, that the plaintiff clearly had no vested property rights in the clouds or the moisture therein. However, this decision was based not upon rules about property and water rights but rather upon principles of equity and public policy ideas concerning the general welfare and public good. This is the first reported case on weather modification. It conceivably might have been decided differently if the resort owner had asked for monetary relief instead of seeking to bar the City of New York from attempting to augment water supplies for its inhabitants. If the city injured the plaintiff or took his property for such a purpose, then it would be liable to pay for such injury or such taking.

(5) Under similar circumstances, the Supreme Court of Texas did bar cloud seeding undertaken by a group of private farmers. The case involved is Southwest Weather Research, Inc. v. Jones (327 S.W. 2d 417 (1959)) decided in 1959. The cloud seeding was begun in order to disperse gathering hail storms which might injure certain crops. Ranchers in the area desired moisture in any form, including hail, and sued to stop cloud seeding which might interfere with gathering storms. Conflicting expert and lay testimony was presented by the parties, but the trial court reached the conclusion that the cloud seeding attempts were effective and deprived the ranchers of moisture in the form of hail. The Texas Supreme Court found that it was proper for the trial court to issue an order in these circumstances, banning further cloud seeding until additional evidence of precipitation on showing that hail prevention activities would not reduce the amount of precipitation on

the ranchers' lands. The farmer-weather-modifiers, as far as is known, produced no additional evidence, and the injunctions are still in effect.

It is interesting to note that only one of these cases, the California case of Adams v. California, concerned weather modification activity, which took place in a state which had already enacted a regulatory law on the subject.

Two other cases are presently pending in Pennsylvania. One of these is criminal in nature, Township of Ayr v. Fulk (No. 53 at the September 1964 Term of the Fulton County Court of Common Pleas). The Township of Ayr passed an ordinance prohibiting the operation within the Township of mechanical or chemical devices for the purpose of controlling and/or eliminating rainfall. Mr. Fulk set up a silver iodide generator and was convicted of violating the ordinance by a Justice of the Peace. He appealed to a higher Court, where expert testimony is currently being taken. Fulk claims that he was not attempting to modify the weather in Ayr Township but only in the nearby State of Maryland. He hopes that the expert testimony will establish that his activity could have had no effect on the weather in the Township, that the effect he had on the weather outside the Township was not harmful to anybody, and that the ordinance, therefore, is arbitrary and void.

The other pending Pennsylvania case is Pennsylvania Natural Weather Association v. Blue Ridge Weather Modification Association, et al. It is No. 3 at the January 1965 Term of the Court of Common Pleas of Fulton County, Pennsylvania. It is not based on the ordinance but asks that the defendants be enjoined from engaging in weather modification activities in the area within jurisdiction of the Court. It is claimed that the activities of the Blue Ridge Weather Modification Association are wrongful in seven particulars:

1. They have released chemicals in the air dangerous to the health and welfare of the people;

2. They have interfered with the rights of landowners to receive upon their land rain, snow, hail and fog in their undisturbed character;

3. They have interfered with the right of landowners to be secure in their right to use their land in its natural state;

4. They have created a nuisance;

5. They have trespassed upon the land by invading the airspace above the land;

6. They have made an unreasonable use of a natural resource, precipitation, in the clouds over and near the land of the plaintiffs; and

7. They have carried out weather modification activities recklessly without warning to those affected.

This case involves the same weather modification operation as Township of Ayr v. Fulk.

Several intersting observations occur to one who reads these cases:

1. None of them involve weather modification research, as such. The achievement of a specific weather modification objective was involved in each one.
2. Each court assumed that cloud seeding can modify the weather. There is disagreement on this point within the scientific community.

Very few cases have actually been brought to a point of decision. There are not only unknown factors in the science but also in the law. One of the theories upon which liability for weather modification might be predicated is the liability of a person who wrongfully injures or takes the property of another. That such a liability may exist is hinted in the Texas case because it indicates that a person who attempts to modify the weather over the lands of another is liable for any damage he may cause. However, the Courts have not explicitly discussed this theory.

A problem similar in some respects to the weather modification cases has been presented

by the construction of airports close to private residences. The Courts have long held that airplanes can fly over land without getting the permission of every property owner. However, in certain cases airports have been laid out with approach and take-off patterns which bring aircraft in only a few feet over residences. The U. S. Supreme Court in Griggs v. County of Allegheny, Pennsylvania (369 U. S. 84 (1962)) held that the invasion of the superadjacent airspace by aircraft, though within the Federal airway, so affected the use of the land as to constitute a taking. It is permissible for a governmental body to "take" property rights in this manner, but payment must be made to the property owner affected. Similarly, some Court in the future may decide that it is permissible for governmental bodies to modify the weather, but that they must compensate landowners whose property is taken or is injured by such modification.

If weather modification were carried on directly by the Federal Government, there would probably be no legal redress available to persons injured thereby, at least under the present law. In many cases, a citizen who is damaged as the result of Federal activities can sue for damages under the Federal Tort Claims Act. This is not true, however, if the damage is caused as the result of the exercise of one of the Government's "discretionary functions." Courts have held the following to be discretionary functions: weather forecasting, dissemination of pesticides, and changing of the course of a river. In line with these decisions, it is arguable that the Courts will consider modification of the weather by the Federal Government to be a discretionary function also.

Under certain circumstances the Federal Government has relieved contractors of liability for claims against them by third parties injured by work they undertake. The Atomic Energy Commission, for example, is authorized to relieve a licensee from public liability arising from nuclear incidents by assuming that liability itself in a particular instance. The Veterans Administration and the Public Health Service have authority to indemnify contractors where particularly hazardous conditions are involved, and the Department of Defense has similar authority. If the Government agencies which are authorized to support weather modification were authorized to indemnify the contractors they support, this might have the effect of encouraging such activity.

Law -- Science -- Public Policy

Many observers believe that this welter of statutory and court law has resulted in multiple and confusing legal rules based upon differing legal principles. It is said that these various legal rules have created uncertainty as to the law which will be applied in a given instance within a given State. Observations are made that the law in some States limits, inhibits or prohibits weather modification activities. Some observers think that the deficiencies in the statutory and court law lie in the lack of specified qualifications for cloud seeders. Others believe that doubt and fear rather than public assurance and confidence are generated by the requirements for prior notices of cloud seeding operations. The inadequacy of the reports by operators and evaluations by State authorities and university experts required by the statutes raise questions in the minds of many observers. The unavailability or difficulty in obtaining required public liability insurance has been noted. Some observers believe that in the face of the present law special legal and financial incentives are needed to encourage scientists to perform outdoor research and to motivate commercial operators and their clients to undertake cloud seeding activities.

All of the suggested solutions appear to fall short in one or more respects. For example: The legislative prohibition of all cloud seeding activities or the application of the principle of liability without fault to these activities in order to protect the public interest. The legislative immunization of all operations from lawsuit to advance the development of the science. The immunization to lawsuit of scienific research activities as distinguished from commercial operations to enhance science and national defense and receive public support. The establishment of a uniform State or Federal insurance system under which persons who are able to prove damages resulting from weather modification research or commercial activities would obtain compensation in order to lessen the inhibiting effect upon weather modification activities of the fear of Court injunctions restraining such activities. Authorization to State and Federal Governments to indemnify or reimburse their contractors for legal liability for damages which may result from research or operational activities on weather modification. The enactment of State uniform laws or a Federal statute requiring specified and precise technical qualifications for cloud seeders in order to make weather modification activities less vulnerable to law suits based upon negligence. The enactment of Federal regulatory legislation to lessen the possibility of suits in both State and Federal courts for injunctions or

damages because of the Federal recognition of the legitimacy of the field of weather modification activities.

It should be stated that the authors of this paper also do not have any technically perfect and generally acceptable solutions to the problems generated by the emerging science and the evolving law of weather modification. Nor do our respective positions with the Special Commission on Weather Modification and the National Science Foundation permit our speculation or suggestion as to the best possible solutions. However, in this connection, it may be of interest to know that the Special Commission is seeking the experience and views of the States and the weather modification researchers and operators to help it formulate policy and legislative recommendations to the National Science Board and the Federal Council for Science and Technology.

At this very moment we are compiling, studying, analyzing, interpreting and summarizing the responses to the Commission's letter questionnaires to the 50 State governments and the 60 persons or organization who have conducted weather modification research activities or commercial operations. The Commission desires, by this means, to ascertain the effect of present State law upon weather modification research and commercial activities and upon the twin problems of safeguarding scientific conditions and protecting the public interest. These questionnaires seek answers to 17 categories of questions and the recommendations of the States and weather modification researchers or operators on these matters. The questions cover the following subjects: the scope of the State regulatory statutes and other applicable laws; licensing and registration standards; interstate relationships; uniform State statutes, Federal-State cooperation or Federal regulatory legislation; possible interference with or contamination of weather modification activities; liability immunity, indemnification and insurance with regard to damages which may result from weather modification activities; and the magnitude of State and private research and commercial operations.