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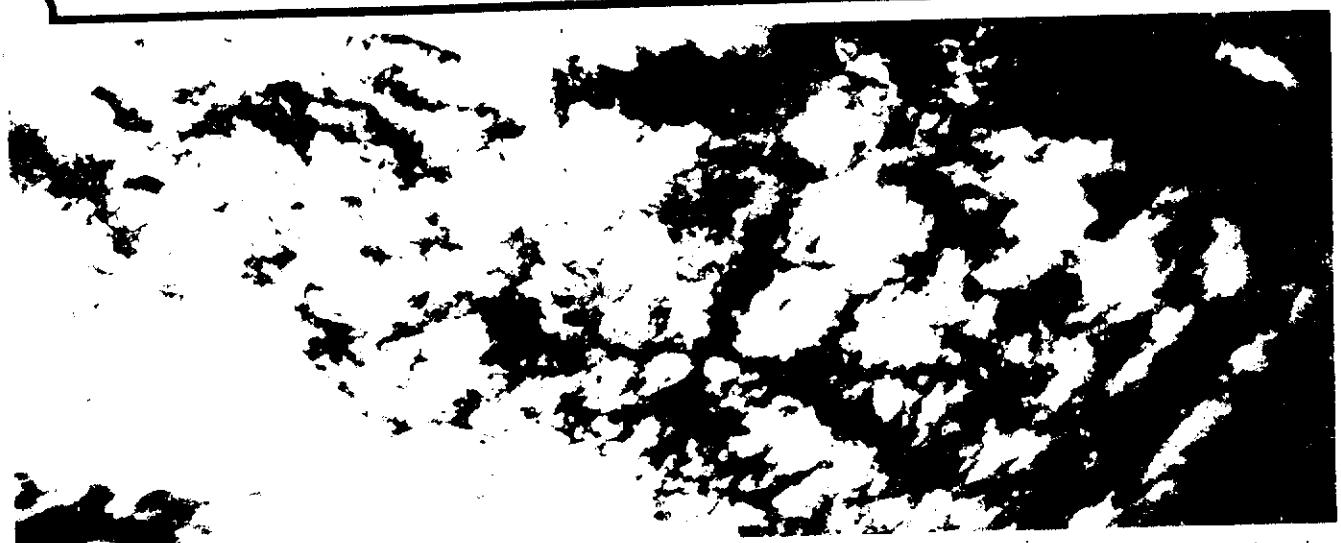

CHRIS WALTERS PHOTO

THE RAIN-MAKING MYTH

AN OVERVIEW BY TRI STATE NATURAL WEATHER ASSOCIATION

It is a popular belief that cloud seeding is synonymous with rain-making. Unfortunately, this belief has been the result of the myriad of articles and stories published in the news media throughout the country. The basis of these stories have been public relations efforts by the practitioners of cloud seeding to create a gracious and benevolent image for themselves. This can be expected because they are in a business that grosses hundreds of millions of dollars each year.

The real truth of cloud seeding is found in the scientific literature. A case illustration is *Operation Whitetop* which was a five year scientific project combining the efforts and resources of a federal government agency and a large midwestern university to test the hypothesis "that cloud seeding would significantly increase precipitation." After five years of research the hypothesis was rejected and the conclusion was that cloud seeding actually diminished precipitation by as much as 30% in the immediate target area, and that there were lesser amounts of precipitation than would have normally fallen for at least 125 miles downwind.

A basic law of the atmosphere is "precipitation must equal evaporation and transpiration." No one can make rain! The amount of precipitation can be altered by shifting and guiding storm systems from one area to another, or vice versa. Question the credibility of anyone who claims that he can produce rain by cloud seeding. Any fundamental text in meterology or physical geography will definitely state that precipitation cannot exceed evaporation plus transpiration.

WEATHER MODIFICATION

What is cloud seeding or weather modification? The discussion here will be limited to the chemical process which uses silver iodide as the nucleating agent. Of the many chemical agents used in cloud seeding, silver iodide is used by more than 95% of all commercial practitioners because of the simplicity in its technical applicability and because of its efficiency in altering local weather conditions. Anyone who has access to a twin-motored plane can set himself up in the cloud seeding business with an investment of as little as $3,000. Small metal racks to hold the pyrotechnic flares impregnated with silver iodide--and the flares—are the essential equipment to set up a practitioner in business. It is known that some cloud seeders do not even bother to install the visible incrimination evidence that are thrown from the plane's window.

To describe what silver iodide does in cloud seeding will, first, necessitate a brief description of the natural precipitation process. It can be generally stated that precipitation depends on falling temperatures, a sufficient moisture content of the air, and the presence of microscopic nuclei. These nuclei may be dust or ice particles, and their presence is essential in the rain-making process. A typical summer thunderstorm generates its own nuclei in the form of ice crystals near the top of the cumulo-nimbus cloud. The moisture in the cloud has an affinity for these ice crystals and therefore condenses on them. The process of condensation continues until each drop of rain sufficiently increases in size and then falls to the earth's surface by gravity.

Cloud seeding involves the introduction of additional artificial nuclei, silver iodide crystals, into the thunderstorm system. Silver iodide crystals and ice crystals have similar characteristics. As a result the moisture in the cloud will also condense on a silver iodide crystal

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as it does on an ice crystal. Silver iodide usually is introduced into the air by aircraft which flies sufficiently close to a thunderstorm, but not into it. Silver iodide from the burning flares is pulled into the storm system by the convectional air currents. Introduction of the silver iodide nuclei together with natural nuclei already present in the thunderstorm has the effect of stopping the cycle of the rain-making process. When too many nuclei are present, natural or artificial, the limited amount of moisture in the cloud is not sufficient in quantity to condense on all the nuclei to form sufficiently large rain drops that will fall to the earth. The rain-making process is stopped. Condensing moisture is re-evaporated and carried downwind where it will be taken into another storm system and fall in quantities sometimes sufficient to produce disasterous floods.

The incidence of many floods in the United States is obviously connected with cloud seeding in adjacent areas. It may be difficult to prove, but the fact remains that cloud seeding is often involved. Promoters and practitioners of cloud seeding always say "prove it!" On the other hand, they have yet to prove that cloud seeding does not cause floods. In the Senate Hearings of the 89th Congress, Bills S. 23 and S. 2916, a prominent practitioner of cloud seeding boasted that he carried very little liability insurance for possible damages because it would be very difficult for a plaintiff to prove in a court of law that cloud seeding had caused damage. This demonstrates why cloud seeders can act with such arrogance.

Throughout the years since 1957, there have been continous summer droughts in the Potomac Basin, but, there have been torrential downpours and flooding only 75 or 100 miles downwind in eastern Pennsylvania, Maryland and New Jersey. Another example of a flood is the Rapid City disaster of 1972. It is a documented fact that a cloud seeding run had been made less than one hour before the torrential downpour in the Black Hills.

More and more law suits are being brought before the courts seeking flood damages in areas downwind from cloud seeding activities. As recently as January 1975, *Farm Journal* listed court action seeking flood damages in Michigan and Oklahoma all the result of cloud seeding in adjacent areas. In both states the suits were brought against Irving P. Krick of Palm Springs, California, who is a practitioner of cloud seeding and whose lucrative operations extend beyond the boundaries of the United States.

AN ECOLOGICAL MASSACRE

Cloud seeding is a science—a science of doom, devastation and desecration. The specter of cloud seeding indicates destructive floods, unprecedented droughts and the key to many pollution problems in the United States. This ecological problem has evolved because pseudo-scientists are dumping lethal doses of poisonous materials into the atmosphere to change it for their own purposes.

Seldom in history has a scientific blunder been conducted with such total fraud and deceit, according to the Tri-State Natural Weather Association. The generalized procedure of the cloud seeder is to make exaggerated claims of rain making when drought is the desire. Federal bureaucrats conduct experiments to create more drought but tell legislators they increased rainfall and need more money. Probably the greatest boondoggle ever was the specially created five year drought in the northeast, the result of irresponsible cloud seeding. Cloud seeding is being conducted extensively and intensively over the entire nation. The build-up of pollutants used during the past decade are frightening. Whenever clouds are seeded, thermal air inversions occur. These inversions trap air pollution next to the earth's surface and create a "sewer for the sky" effect. Man is not emotionally stable under this biological situation created by heavy cloud seeding. He will riot, murder, rape, steal, commit suicide, and in general fail to live compatibly. Natural weather is the only way mankind can live happily and in biological compatibility with his environment.

NATURAL WEATHER IMPORTANT

First it should be explained in more detail why our weather is so important in its natural state. To begin with, it brings us the rains so essential for food production and industrial growth. It is only by the natural weather patterns that fresh air is available to sustain life. Man's pollutants are washed out of the atmosphere by rainfall. Thunderstorms with their updrafts and concurring downdrafts, mix the air and dilute the poisonous wastes. Lightning, a product of thunderstorms, is the world's greatest producer of nitrogen. Without it there would be no life on this earth. Even the most destructive storms have a purpose. It is the release of excess energy, and if not occurring regularly would be utterly catastrophic. Tampering with these storm systems by cloud seeding can do nothing more than upset the delicate balance of nature. Storm systems are, in reality, nature's giant washing machines.

RAIN-MAKING IS A MYTH

There is not one shred of evidence that cloud seeding ever produced one drop of additional rain. We are also told by scientists that there are rivers of water in the sky. Yet they admit that *the air around the globe cannot hold more than one inch of moisture at any given time.*

A summary of five cloud seeding experiments evaluated by Neyman and Scott of the University of Berkeley, with results presented at the Fifth Berkeley Symposium, had this to say:

The evidence that cloud seeding decreases rain comes from five American experiments. These five randomized experiments were conducted with unchallenged reliability over a number of consecutive years with considerable care and foresight—the results are a decrease in precipitation due to seeding and the estimated decrease amount to 53%.

Project *White Top* centered in Missouri presented nothing but bad news. Increases of rainfall were hoped for, but final results were most conclusive—with decreases of 21 to 23%. There are of course exceptions in any type of scientific endeavor. When cloud seeding takes place during extremely wet periods, floods are bound to occur. Probably the reason for this is the shortage of natural nuclei in the air necessary for water droplet formation. Whatever the circumstance, rain-making just sounds good.

Twenty years ago cloud seeding started making great and exaggerated claims of increased precipitation. It was soon found that the exact opposite occurred. It didn't take long for those with greedy intent to take advantage of this interesting discovery.

ACRES U.S.A. PHOTO

"...the air around the globe cannot hold more than one inch of moisture at any given time." This moisture falls somewhere. Attempts to regulate its fall prevent rain as often as they deliver it. Rainmaking is a dangerous plaything for the pseudo-scientific.

One can only guess as to the amount of money spent annually for cloud seeding. Some estimates place it at nearly $3 billion, which includes both governmental and private projects. This insidious tampering apparently has served its purpose. This country is now at its dryest in 8,000 years.

DROUGHT NOT MENTIONED

Almost to a man, the weather community has adopted the policy of emphasizing the positive approach, that of "making it rain," as it will be welcomed by the general public.

"Making rain" sounds good to congressional appropriation committees. Can one imagine a United States Senator voting for funds to make droughts? How would farmers, gardeners and townspeople whose reservoirs get low vote in the next election?

However, both scientists and federal scientific literature now speak casually and openly of lightning suppression, fog dispersal, hail suppression, snow suppression—all accomplished by drying up the clouds by over-seeding with dry ice or silver iodide.

Dr. Schaefer, a father of weather modification, told *This Week Magazine* in 1968 "We know that a certain amount of silver iodide introduced into a cloud can cause precipitation, but we also know that a very large amount suppresses rain by creating so many particles that they are often too small to fall, or if precipitation does develop, it is not normal rain but those tiny particles that look more like fog or mist."

DRY WEATHER?

The reasons for seeding are as varied as man's desires, but the liking for dry, clear weather seems more prevalent than the desire for rain. Clear weather is wanted for recreation, for airports, to prevent hail damage to fruit during the maturing months of June, July and August, to maintain a dry earth bed for pouring concrete for footings, roads and parking lots. Dry weather is devoutly to be wished for constructing high-powered electric plants and for pouring concrete for large apartment and office buildings.

The Insurance Federation claims that weather modification will save them $186,000,000 annually if the storms that bring the necessary rains are destroyed. The construction industry will save $500,000,000 annually if it is not delayed by the weather. Utility companies don't want damage to their power lines, and they don't like to pay overtime.

POLLUTION CLOUD SEEDING

Cloud seeding is responsible for 90% of all the air pollution problems in the United States. A statement of Dr. E. J. Workman helps point up this fact. Generalized seeding of immature cumulus clouds will result in a stabilization of the atmosphere that will prevent the development of mature clouds to produce rain. This sets the stage. Under this condition air pollution becomes a problem. There is no turbulence in the atmosphere to dilute man's poisonous pollutants, no rain to wash the filth out of the air. Thermal inversions occur and do not cease until weather patterns regather their momentum.

Silver iodide used for nearly all cloud seeding under these conditions is dangerous to man. For instance, what knowledge have the scientists on how cloud-seeding materials relate to other substances, and is that taken into consideration before dumping it on the clouds and ultimately on the people?

Silver iodide breaks down quickly, but the iodine atom appears to recombine with other substances such as resins from pine trees, which yield a terpene vapor which in turn produces an unintentional seeding material capable of continuing the drought in the area.

A tiny trace of iodine is needed to combine with the lead pouring from auto exhaust pipes to make another deadly poison. These materials fallout onto grass eaten by cows, then travel into all dairy products, then to man. Iodine concentrates in the thyroid gland. It can produce cancerous nodules years later.

The death rate in 1966—the year of heaviest seeding in southern Pennsylvania counties—from lung diseases reached the highest number since vital statistics were kept, according to the Pennsylvania Department of Health. Cases of emphysema and lung cancer rose alarmingly in the last decade.

Silver from silver iodide as it flows into the ecosystems will concentrate in various organisms and thence to man, causing a buildup in the human system to a toxic level. Silver iodide is a vicious corrosive and carcinogenic substance. Inhalation or ingestion of this material will lead to respiratory or gastric ailments and cancer.

An accepted principle in the use of dangerous materials is that anything that can go wrong will eventually go wrong if the materials are used often enough.

In operation, silver iodide is usually mixed with acetone and pyrogallic acid. These poisons are described in the U.S. Dispensatory, *Merck Manual*. Silver causes argyria, skin lesions; pyrogal attacks liver and kidneys; acetone, pulmonary congestion and death by ketoses. Idium salts are also used as tracers. They have a toxicity of five or six and symptoms include anorexis, paresis, spasmodic respiration, asphyxial convulsions, widespread inflammation and fatal hemorrhages in lungs, liver, kidney and heart. The organ most severely affected is the liver, and death may occur from hepatic necrosis.

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level for fresh fruits and vegetables. FDA set these tolerances on the basis of animal tests, using the old make-it-to-the-door system. ("If you make it to the door," the greasy spoon manager had it, "we didn't poison you.") As you know, PL 85/929 set up tolerances of residues of pesticides on crops—as though this could be policed or monitored.

In the Senate *Use of Pesticides* report, it was stated that research based on empirical knowledge was inadequate, and it was this report that charged the USDA and HEW to search the world for scientific principles that would surpass the empirical that had been found wanting. That search has still to start.

Studies have followed studies, but they seem to be pursued more to employ "experts" than to find answers. Scientists in the employ of Dow and other makers of phenoxy herbicides find it convenient to be skeptical about what we say or they pretend not to understand. Like the judgment of *Acres U.S.A.* that we need a new ethic, not new scientific breakthroughs. Preservation of capital investments by chemical companies can no longer dictate the level of science used by government to set public policy. Yet this is what we've heard today.

I would add a word for those who agree with some of what we said here but who beg the question with "Yes, but..." Yes, but we'll starve if we do not use these tools. Earl Butz—the rare exemplar of economic illiteracy—in fact said 50 million will starve if we proscribe [by] toxic genetic chemicals and attendent technologies in any form.

I will answer by stating the principles of eco-agriculture—which are also contained in the scientific literature.

1. Simplistically, P and K fertilization means malnutrition for plants, animals and men because either a shortage or marked imbalance of plant nutrients prevents balanced plant health, ergo human health.

2. Plants with balanced hormone and enzyme systems provide their own protection against insect and fungus attacks.

3. Insects and nature's predators are a disciplined crew. They are summoned when they are needed, and they are repelled when they are not needed.

4. Toxic rescue chemistry hopes to salvage crop production that is not fit to live so that man might eat it.

5. Weeds are an index of the character of the soil. It is therefore a mistake to rely on herbicides to eradicate them because this is dealing with effect, not cause.

6. Crop losses in dry weather and during mild cold snaps are not so much the result of drought and cold as nutrient deficiency.

7. Man-made molecules of toxic rescue chemistry have no safe level and they have no tolerance level.

8. NPK fertilizers as legislated (and enforced by state Department of Agriculture) mean malnutrition, crop loss in dry weather, and general loss of mental acuity—plus degenerative metabolic diseases among the population—all when people use this fertilized and protected food crops.

9. Therefore—the answer to pest crop destroyers is sound fertilization in terms of exchange capacity of pH modification, and scientific farming principles that USDA, Extension and Land Grant colleges have refused to teach ever since the great discovery was made that fossil fuel companies have great money.

These many facets of agriculture cannot be dealt with in isolated compartments. We need a lot less experts and just a few imperts (generalists) who know that everything is related to everything else, that everything has to go somewhere. Do you think long and hard about your day's business. It is not enough for the industry or government to face Mrs. Piatt and her daughters and their deformed horses*—not to mention cancer victims, the deformed, the mentally retarded—and say, "Oops."

*See transcription of Mrs. Piatt remarks which were presented at the same meeting.

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four-state area. The Corps of Engineers wanted to lace the Potomac with giant dams. How else could the citizens of the area be convinced that they needed dams, and wouldn't it be much easier to enforce giant land acquisition projects when the population is economically depressed? Cloud seeding has continued ever since on a year-around basis. Results have been devastating. Target areas have been experiencing ten-inch rainfall deficits annually. Certain areas of the five states have become virtual deserts. Air pollution has increased to extremely high levels. *As expected, cancer has grown by leaps and bounds.* Emphysema and chronic respiratory diseases have become a galloping epidemic. Cloud seeding chemicals have burnt the foliage on the trees and eventually killing them. It has poisoned domestic animals as they eat the cultivated crops. Air inversions prevent an influx of fresh air, creating an atmosphere biologically incompatible with all living matter.

ACCOMPLISHMENTS OF CLOUD SEEDING

1. Cloud seeding has been responsible for the great five-year drought in the northeast United States.

2. Isolated sections in the northeast have experienced 18 years of drought due to cloud seeding.

3. Weather disturbances in the south Atlantic have been eliminated and has reduced the east coast's rainfall by 30%—rain that is needed if agriculture is to be successful.

4. The average dairy farmer on the east coast, living in an area of cloud seeding, has averaged a net financial loss because of seeding.

5. Crop production losses in Franklin County, Pennsylvania, alone, have amounted to $50,000,000.

6. When effects of seeding wears off, cloudbursts occur, causing floods, destroying crops, building, and drowning people as well as livestock.

7. Seeding has been responsible for the serious air pollution problems.

8. Mental retardation and insanity are traceable to cloud seeding chemicals.

9. Poisoning of all living matter is directly related to cloud seeding.

10. Emphysema is three times higher in areas of heavy cloud seeding.

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11. Cancer is virulently out of proportion.

12. Financial losses to agriculture and related industries run into the billions.

13. Forest trees as well as cultivated orchards are dying from chemical reactions taking place in the air, due to the addition of cloud seeding agents.

14. The atmosphere has been rendered completely biologically incompatible with all living matter, which includes animals, plants and humans.

WHO IS IN FAVOR

Cloud seeding success is determined by its acceptance by the general public. Here is where we put the chips on the table. Under no circumstances has there been one report of anyone favoring this new activity without greed as a goal. Congressional hearing, private studies, newspaper articles, etc., all ask the same request: please stop cloud seeding. The reasoning is quite simple, because seeding is grand larceny and international robbery.

A problem analysis sponsored by U.S. Department of Interior, Bureau of Reclamation, Office of Atmospheric Resources, May 1969 can be quoted as follows: "Fog dispersal agents may have detrimental effects on plants and animals over a long period. As a matter of public policy, aerial distribution of unknown proprietary compounds should not be allowed on any but a strictly experimental basis, even if tests convince health agencies that the materials pose no immediate threat to human welfare. Full disclosure of the composition of any such material added to the environment is necessary in order that the scientific community as a whole may evaluate the possible long term effects."

HAVOC

Unless cloud seeding is brought under control, total disaster lies ahead. This is the statement of a distinguished scientist, Gordon J.F. MacDonald, writing in *How to Wreck the Environment: Geophysical Warfare*, in *Unless Peace Comes*. Massive and repeated attacks on natural weather coincide with a dislocation of the atmosphere so grievous that the world's weather is "going crazy." And this "crazy weather" has played a major role in food shortages.

In one specific instance, typical of the rest, "eight tons" of nucleating chemical—seeding agents—were seeded over the Punjab, India, July 16 to September 18, 1954. In this case, as in the Rapid City disaster, the hygroscopic, common salt, was used. Salt expands enormously in these experiments, more so than the poison commonly used, silver iodide. Salt and soapstone were the seeding agents used over the Indian sub-continent. Result? Disastrous floods.

BEER VS. FOOD

On March 5 and 6, 1973, hearings were held at Alamosa, Colorado, on the petition of Atmosperics, Inc., of California, to seed the San Luis Valley for Coors Brewing Company and Valley Growers, Inc. The purpose: suppress hail and "increase" rain. The evidence that the suppression of hail means suppression of rain as well, and therefore drought follows, was so clear that the petition was denied. Thus the 85% of area population who were on record as against seeding were given respite from a disastrous man-induced drought.

The testimony of Charles B. Moore, Professor of Atmospheric Physics, New Mexico School of Technology, Socorro, New Mexico, was crucial. Seeding is no way to modify the weather, he said. The amount of poisonous silver iodide used is "appalling" in its effects. If modification is desired, electrical charges should be used, following nature. Intense rainfall follows after lightning. Lightning is the best "rain-maker" there is.

The amount of seeding proposed for this valley would be a catastrophe, he said. Also, the "rainfall" shown on radar as tiny droplets would be recorded as precipitation. In fact, the dry air evaporates such drops, and none reach the ground. In addition, rain cannot be "made." Seeding decreases rainfall well beyond the target area. So, seeding the Tuscon, Arizona target area, results in an apparent 49% loss of rainfall. Down wind, in Walnut Gulch, there was also significant decrease in rainfall. Moore agreed with the distinguished hydrologist, Dr. H.B. Osborn, that seeding accounts for a 34% loss of rainfall. It can never, said Moore, be predicted that the seeding chemicals will remain in the target area. It also appeared in the testimony that whoever reads and reports the rain gauge record controls the data. Such a person's honesty controls the record.

A recent report from the San Luis Valley states that the Valley Growers, Inc., are growing more barley than ever are paid more for it, to not have to store it, and have not had to pay out $100,000, the fee for cloud seeding. Tom Henderson of Fresno, California, was applying for a permit to seed the Valley for the growers by demand from Coors! He fraudently applied on the basis of rain-making, although Coor's admitted, under oath, that drought was the desired result.

SCREWBALL WEATHER

The intricate complexities and unknown dangers, especially of irreversible changes involved in cloud seeding, demand carefully monitored local, small-scale operations. To date, this mandate remains unheeded.

That this is no idle threat is revealed by the fact that "silver iodide is toxic and must be handled with care." Yet tons of this poison are dumped over the country in a decade, as Charles Hosler, Penn State Meteorologist, admits in his pamphlet, *Why is it Dry?* The distinguished cloud seeder, Irving P. Krick notes that "The Government will be putting out thousands of pounds of seeding material, and we put out one-fifth of an ounce per hour. That shows how little you have to use . . . The Government thinks it can do more by using more." Krick calls such folly "screwball situations." In spite of dangers, known and unknown, "It is highly unlikely that seeding with silver iodide will be abandoned." Charles B. Moore, Professor of Atmospheric Physics, New Mexico School of Technology, says that no one really knows how long seeding chemicals stay around, and that the amount used is "appalling."

One of the worst droughts, that of the entire region of sub-Sahara, a catastrophe unprecedented, lasting seven years, coincides with intensive seeding in Kenya for the Tea Industry. Seeding chemicals are effective for many hours, and hundreds of miles; the trade winds, easterlies (flow east to

RAIN MAKING FRAUD

Cloud seeders say: "We increased rainfall by 14%." This sounds good until figures are analyzed. Cloud seeding takes place before the clouds begin to rain. In the process of dissipating, a few drops of rain fall. Since this precipitation drops after seeding, the cloud seeder tries to pawn his crime off as one of rain making. Had no seeding taken place, all of the available potential rain would have fallen. This represents 100% but only 14% fell. It can conclusively be stated that cloud seeding decreases rainfall by 86%.

SEEDING TECHNIQUES

Under-seeding may make cloud rain or snow, but at the expense of farms and towns downwind.

Over-seeding does several things, depending partly on the materials and the technique used, and the size of the cloud.

Over-seeding with silver iodide may cause the cloud to rain or snow slightly, then to break up and drift into mist within 10 to 30 minutes. Depending on the size of the cloud and the silver iodide dosage, it will not rain for 10 miles or 50 to 150 miles, but meanwhile the unexpected energy builds up and eventually the rain comes down as a cloudburst on a distant city.

Dry ice and silver iodide will make the clouds freeze up, that is, "glaciate" and hang motionless in the sky for a number of hours. Sometimes the clouds will build up enormously, but it will not rain.

THUNDERSTORMS

Nearly 4,000 thunderstorms have been lashing the earth 24 hours a day, year in and year out, through all of time since the world began.

Without these storms, there would be no life on earth. There would be no mixture of the air between layers. Pollution from dust, smoke and other foreign matter would increase to the point of causing death.

Lightning is the world's greatest producer of nitrogen compounds, the vital soil ingredient without which most plant life could not exist.

This is the only source of nitrogen for the forests which cannot grow without it. Notice that trees and plants in seeded areas look droopy, tired, and in many places entire kill is noted. Scarlet oak is one variety that died.

This nitrogen breaks down easily in soils and water and causes no problems.

Weather modification people have plunged into spraying and shooting the clouds to control lightning without once studying the contributions that lightning makes to the earth. Nowhere in all the pseudo-scientific literature is there a mention of the value of lightning strokes to man.

HURRICANES

Project *Storm Fury*, conducted by E.S.S.A. and the U.S. Navy, has kept hurricanes from coming up the eastern seaboard for nearly ten years. These massive storms are necessary for man's survival. They bring 30% of the moisture to this area—moisture that is so desperately necessary to grow food. Even more important, it is necessary for this type of system to disperse the high temperatures found near the equator. Hurricanes travel towards the north pole, and this eventually tends to equalize high temperature variation. If hurricanes are not allowed to go their full life cycle, nature will find some other way to maintain heat balance, and this new method undoubtedly will be more disastrous than the hurricane. These systems also help tremendously in eliminating air pollution problems that are so serious on the east coast, transverse the east coast was without question due to the blunderings of inept science. Inquiries indicate *Camille* was seeded over water, and factual visible evidence of seeding was indeed observed as she passed over land. What happened in this situation is a cloud seeding experiment getting out of hand. It represents a situation where reversible or cascading effects on atomospheric processes take place. The people who died from this hurricane were killed by scientific blunderers. Hurricanes must be allowed to run their natural course since they are the good fairy for the northeast, and are one of the great water wheels in nature's water cycle.

MYSTERIOUS PROGRAM

A massive program of cloud seeding —apparently entirely outside of the official federal programs on weather modification—funded from unknown federal sources, has been going on spasmodically since 1954, and steadily since 1962. This program has resulted in severe-to-extreme drought in virtually every area where conducted.

The Appalachian Mountains should guarantee the Atlantic costal plains a healthy quota of rain each summer. No drought showed in the weather statistics with the single exception of 1930, which emphasizes statiscally that present droughts are man-made.

Senatorial and departmental sources state that the U.S. Army was cloud seeding behind military secrecy in Pennsylvania counties in 1962-1966 and in Tennessee in 1964-1966.

Since the seeding in Pennsylvania took place during the months of growth of June, July and August, the principal effect was aimed at the farmer to drive him off the land. The areas of severe drought coincide exactly with the areas the federal government plans to devote to population and light industry. With a few, limited exceptions, the farmer is to be eliminated. The same plan applies on the Pacific coast.

Federal agencies with giant land-acquisition programs want farmers and rural people put into a depressed economic state so that they are willing to accept any price for their lands for parks and reservoirs. For verification, send for the Jury Trial Hearings, 1968, before the U.S. House of Representatives Public Works Committee, Washington, C.C. and read what happened in Tennessee.

POTOMAC RIVER BASIN

The Potomac River Basin or Mid-Potomac includes the states of Maryland, Virginia, West Virginia and South Central Pennsylvania. This area also encompasses a large fruit growing belt. A number of fruit producers of this section engineered their orchards for irrigation. Then with prodding from the Insurance Company of North America, they organized a Weather Modification Corporation, and hired a cloud seeding firm to destroy the rain storms. The desire of the fruit growers was to eliminate competition from the other growers who could not irrigate. The insurance company's interest was pocket padding by not having to pay storm damages that might occur.

A state of war finally developed in the four-state area between the fruit growers and the rest of the population. Finally the fruit growers formally deactivated, but merely took their seeding activities into underground organization. They continued to carry out cloud seeding more intensely than ever, trying to eliminate all agriculture in the area, and to retaliate against those who thought law and order was part of our democratic society.

The federal government, thinking the fruit growers would abide by their commitments, began their own pro-

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west), carried these agents of death over that fragile ecology. The drought killed countless thousands, and ruined the economy of the nations. The tea crop has never been better. Small wonder Maurice Strong, head of the U.N. Environmental Program, warns that theft of rain could lead to world battle. Time is running out.

It is fairly well known that midwest drought coincides with the annual and massive cloud seeding programs in the Rocky Mountain States. Not so well known is the fact that after any huge seeding program, or even a modest one, *the chemicals that are not used up will move clear around the globe and trigger effects that are completely unpredictable.* Flood and drought are the inevitable companions of weather modification. Severe droughts are causing not only severe global food shortages from crop failure. The slightest change of a degree or two in ocean temperature off the coast of Peru started a chain reaction that practically wiped out commercial fishing there.

SOUTH DAKOTA

The enclosed "Letter to the Editor," printed in a local newspaper in South Dakota, summarizes the rain-making in that state. Most areas were 7 to 8 inches short in rainfall during the growing season since cloud seeding started.

Being a farmer-rancher on the north Buffalo County line, I have watched weather modification for several years. We got more rain than they did under their modification program until the plane started to fly farther north. Many times I have seen what looked like a rain cloud coming, until the plane went through it, and then the cloud would promptly disappear. They also had several bad hailstorms go through Buffalo County during their modification program.

If modification would produce one-to-two- inches more rainfall, I suppose we might have a chance to win ten-to-one, but what if we lose one or two inches of rainfall or more? It looks to me like another smooth-talker has made suckers of us.

Last year we had the driest spell I've seen for a long time, from June 4 until August 18 we had about three-quarters of an inch of rain in small showers, not enough to help much. We had clouds that looked good but the rainmakers flew through and took care of them.

The rainmakers quit August 15, and on the 18th we got a half-inch of rain. About the 30th we had three inches and a rather wet fall from there on out. This, of course, could be coincidence or just plain South Dakota. But I think we should save millions of dollars a year to help the drought stricken, because even with the Chamber of Commerce, counties and state financing this modification program, under South Dakota's present economy agriculture will finance at least 50 % of it.

The Rapid City, South Dakota, disaster of June 9, 1972, was an unprecedented flood which cost 250 lives and destroyed $100 million worth of property. Intensive research by

clouds with salt apparently turned them into four huge rain generators held stationary over the victimized area for hours. So great was this man-induced deluge that the record shows *"more than ten times the flow of any previous flood or record"* for that area. The article suggests that the steadfast denials of responsibility by the seeders South Dakota School of Mines, Institute of Atmospheric Sciences, the federal Interior Department commercial seeders comes from their "determination to convert our skies into their own experimental laboratories." This results of course in "their self-serving twisting of facts and conclusions," which smacks "of nothing less than a meteorological Watergate." Thus the conclusion of Britain's leading meteorologist, Dr. Brian J. Mason—"The last 20 years of effort in cloud seeding have been a waste" (*Science News*, "Earth Sciences," volume 97)—is the understatement of the decade. The Stockholm Conference on the Ecology of 1973 concluded that the three greatest dangers to the survival of man are SST, the dredging of rivers, and at the top of the list: *weather modification.*

RECOMMENDATIONS

It is recognized the United States must continue with weather modification research to find out what should be controlled and what should be left to nature, and how to protect the country militarily. However, the cloud seeding community have been too indifferent of the people's welfare, both health and economic, and too careless of their responsibility to take scientific precautions to protect the people, the economy, the ecology, and the global atmosphere against adverse effects of weather modification.

Therefore, Congress should establish a federal regulatory body that regulates the traffic but does not manage the scientific activity. In fact, the Commission should be expressly forbidden to engage in any aspects of management. The chairman and half of the commission members should represent the public interest in view of the overwhelming concern, interest and investment in the geographical area as compared to the cloud seeder's slight financial and emotional interest.

An advisory body composed of scientists of every discipline should be maintained on a permanent status as a "watch-dog" over cloud seeding activities. They should be required to look for possible damage to the economy, the public health, the ecology, the global physics and to search for international methods and practical methods to insure against foreign control of the nation's weather.

This is a large federal employment project, but the damage is far more serious. To restore the citizens' confidence in the federal and state governments, every cloud seeder should be required to register with the Federal Commission and to pay the costs to the Federal Commission of advising the County Commissioners of every county affected, of the project, of its nature and its duration and of inserting a public notice in one newspaper in each county. Cloud seeding in any agricultural area should not be permitted more than one-fifth period of time of the total growing season, as the possibility of increasing rain appears dim at this time. An environmental impact statement with substance should be required.

The Tri-State Natural Weather Association has requested the President of the United States announce a ban on all cloud seeding on or over the Appalachian Mountains and the Atlantic Coastal Plain for three years or until a federal regulatory commission is

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The National Research Council - an arm of the National Academy of Science
They said in a recent report that while clouds across the globe have been seeded for 60 years to increase rainfall and reduce hail, there is no convincing evidence it works.

"The Rain Making Myth" is an overview by Tri State Natural Weather Association which were Maryland, Pennsylvania and New Jersey