

WEATHER MODIFICATION VIEWS OF USER-PAYERS IN NORTH DAKOTA *

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Mr. Chairman, it is both flattering and humbling to be invited by these two prestigious organizations, one concerned with the ADVANCEMENT of SCIENCE and the other with JUSTICE and PEOPLE'S RIGHTS, to present some views of thousands of believing USER-PAYERS in North Dakota, as well as countless numbers in other parts of the country and the world, on the subject of "Criteria for Development of the Technology".

I sincerely hope these views, though not a complete list, will contribute to the Advancement of Weather Modification Technology.

Let's start by discussing what we mean by "Weather Modification". Many of us believe it carries a connotation far beyond any foreseeable attainment and has engendered wide misinterpretation, resulting in much unwarranted opposition.

We believe "Cloud Seeding" is a more realistic term.

"Technology" in my dictionary is defined as: "The totality of the means employed to provide objects necessary for human sustenance and comfort".

To the best of our knowledge, present technology has been able to deliberately affect performance of only a few kinds of individual clouds - sometimes - very briefly - over a small area. Neither you, nor we, know for sure why it doesn't work every time.

Be that as it may, in our part of the country indications are that it is possible to increase natural rainfall in a range of 5% - 20% and reduce damage from hail 25% to 50%.

No, we can't prove that it works; but neither can it be proved that it doesn't. "Scientific proof" is not needed by the North Dakota farmer who loses part of his crop to a hailstorm but saves the balance because "Cloud Seeding" made slush of some of the hail!

"CONTROVERSIAL". Throw this word out of your vocabulary. It carries a connotation of aggressive, physical antagonism.

Substitute "extensive differences of opinion". This is more realistic.

Like every other scientific technology, Weather Modification has its Believers and its Non-believers. It's Optimists and Pessimists. But, can you tell me a single instance in Man's development over the thousands of years brought about by a Pessimist?

Again, "Technology" - the totality of the means employed for human

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sustenance and comfort". This implies, in my view, IMAGINATION, INGENUITY, ENTHUSIASM, EFFORT, and a sense of URGENCY. ALL are needed for DEVELOPMENT!

Recently several large corporations have been using slogans in their TV ads. ITT says: "The best ideas are the ideas that help people"; Rockwell claims it is a company "Where Science gets down to Business"; and Alcoa exclaims: "We Can't Wait for Tomorrow". The tone of all three is a sense of URGENCY. How often have you heard, "Time waits for no man"?

It took almost 50 years after 1900 for United States population to double, yet less than 30 more to triple! In our world today there are 210,000 more people for breakfast every DAY! Don't these figures give you a sense of URGENCY too?

Most of us USER-PAYERS are family-type farmers and small town businessmen. We create new wealth by producing food and fiber. We spend most of our income for the products of industry.

There is a major difference in how you, as Scientists and Lawyers, and we, as User-Payers, look at the subject of Cloud Seeding.

You look at it Objectively. We look at it Subjectively.

We Pay. You get paid. We take the dollarrisks!

How well it works has little effect on whether or not you can pay your bills. With us, it can mean whether or not we can stay in business for another year.

Of course, we're both hurt in the event of a major drought, as we now have over a large area, - but that pre-supposes a "Weather Modification" capability unlikely for many years - if ever.

One of the things that bothers us are newspaper and magazine stories,

Feb. 16 - Bismarck Tribune: 3-column head "State Prepared to Fight for Cloud Water Rights" - "Some Washington officials were asking the State to try a cloud seeding program over the almost snowless Cascades.

The Idaho Atty. Gen. warned his state will go to court to prevent rain rustling and a UI geographer predicted northern Idaho and western Montana could lose 10% of expected moisture if Washington grabs the moisture first. AG Kidwell is quoted: "there is sufficient evidence to indicate a good possibility that what would be good for Washington's potential drought could be even more detrimental to Idaho's pending crisis situation".

Feb. 19 - Bismarck Tribune: 3-column heat "Emergency Water Talks Set In Denver Sunday" announced Western Governors Interior Secretary meeting. Last paragraph said, "On Friday (2/18), 3 weather experts said cloud seeding programs would not rob Idaho or western Montana of rain. If anything, seeding clouds to create rain would increase rainfall to the east, said a Wash. U. professor of atmospheric sciences."

TV and radio interviews, by a few members of the scientific community and government whose familiarity with Cloud Seeding is from the fringe, possibly even a quick "in-and-out" contact with an operational program being conducted for the economic and social benefit of us User-Payers.

These people indicate they are writing - or talking - about the subject from a position of extensive experience and unquestionable authority. It is my argument that few, if any, are as qualifeid as they imply. A case in point was an AP release datelined Olympia, Washington, on Febraury 16th involving a University of Idaho geographer and that state's Attorney General. (see footnote - previous page)

However, all other fields of scientific technology suffer from the same handicap, which regards development.

No skill is required to destroy. To BUILD, CREATE, AND IMPROVE, utilizes Man's skill to the utmost.

We are encouraged by your interest in the ADVANCEMENT of Science.

Another thing that bothers us USER-PAYERS is that we have generally been excluded or ignored in consideration of planning and decision-making for future actions concerning Cloud Seeding operations, evaluations and research. This oversight by science and government alike, is easily remedied. We, too, have some talent among our thousands.

IGNORANCE, defined as being destitute of knowledge or education, is the greatest obstacle of all. The remedy will require our combined, abilities... to the utmost. Dissemination of understandable, credible, positive information - creating a desire to learn - removing suspicious and "I don't give a damn" attitudes. It isn't possible to reason with those using religious or "don't interfere with nature" objections. While these same people wear glasses - drill wells - cultivate the soil - drive automobiles on paved roads - use electricity and telephones - they are really saying we haven't given them any understandable information. It is not a matter of what you understand, but what they can understand.

URBAN dwellers are probably the least interested because most of their benefits are indirect. However, in early November we arrived in Sydney, Australia the day after a hailstorm caused a reported \$20 million dollar damage to that urban area alone - almost a third of it to automobiles!

In North Dakota we have calculated that IF a cloud seeding operation to reduce hail damage could eliminate damage to an urban area from only one of the hailstorms that occur in a 15 to 20 year period, it would more than pay the cost of a program for the entire period!

Now, what can we USER-PAYER look forward to?

First, let me assure you that operational cloud seeding programs will continue, financed wholly by local people if necessary.

North Dakota has the second oldest continuous project in the country; only the King's River project in California is older. Our contractor is also a farmer in the area, subject to the same uncertainties of performance as well the others, but his neighbors have confidence in his effectiveness and fairness - 16 years of it. Maybe some of you should look at it. Some lesson could be learned by the right person.

Second, the Primary color of Cloud Seeding is GREEN! - Crops and Dollars. It is not the gray of reports on the shelf.

Third, as USER-PAYERS we do not have the resources for adequate evaluation and research. These are properly federal, state, or a combination function. After all, benefits accrue to both the state and the nation.

Fourth, Cloud Seeding to increase natural precipitation and reduce damage from hail in the High Plains enhances Environment, reducing hazards of wind and water erosion to our soils, as well as assuring additional food and cover for wildlife and water in our streams.

Fifth, we are willing to pay more for Cloud Seeding benefits when the performance can be improved, hopefully by Development of Technology.

There is an axiom: "The right to criticize involves responsibility to offer a constructive alternative". But maybe we're not that far apart!

The November, 1976 AMS Bulletin carried a report on the 17th Annual Interagency Conference on Weather Modification by Hugh Albers, Executive Secretary of ICAS. He reported the conclusions of the workshop chaired by Currie Downie on "Problems Associated with the Transfer of Technology" in Weather Modification" as follows:

1) The federal government has a responsibility to transfer appropriate technology.

2) To be successfully transferred, a given technology must be adaptable to the needs of its potential users and must also be meteorologically and geographically tailored to the location in which it is to be employed.

3) Technology transfer will be most effective when the potential users are involved in both planning and conducting the experiments.

4) There must be good communication and mutual trust between those doing research to produce technology and those who are expected to use it.

WONDERFUL! Our sentiments exactly! The national USER-PAYER key man is Dr. Conrad Keyes, Jr., Box 3CE, NMSU, Las Cruces, New Mexico 88003. He is Executive Secretary, North American Interstate Weather Modification Council.

Get your organization to designate someone really interested in the ADVANCEMENT of Science as your coordinator. We'll invite them to meet with us and, TOGETHER, work out a program to help everybody!

Yes, TOGETHER, we can make things move straighter and faster.

Having worked rather closely with scientists in agriculturally related fields for many years I have noticed that most research scientists generally face two great problems!

1) Awareness of the need for their proposed research and what it may contribute, is known by only a few others, generally scientists in that field.

2) Because of this lack of awareness, they experience considerable difficulty in obtaining adequate funding to do what is needed.

It is also my observation that Associations of people interested in any given field, unhampered by governmental or university restrictions, have been able to obtain the political decisions necessary to alleviate or remove these problems WHEN and IF the scientists let them know what they propose to do.

Experience has taught me that this COMBINED approach produces a SYNERGISTIC effect many powers greater than the sum of the members.

My friends, hundreds of people have given freely of their time, talents and dollars, because of their FAITH in Cloud Seeding and belief in YOUR abilities and efforts to ADVANCE the Technology. Personally, I'm happy Wilbur Brewer's boys were successful in seeding a hailstorm last summer that let us harvest a crop to provide the dollars for my expenses to be here with you. It took more than 100 bushels of wheat.

I hope these expressed views have helped you to better understand us USER-PAYERS, and how we tick.

Each of us has a choice in Life - to ACT - POSITIVELY: or to REACT-NEGATIVELY.

Only by POSITIVE action can we achieve ADVANCEMENT.

To borrow from a famous admiral we too say:

"Damn the torpedoes! Full speed ahead!"