

THE SPIRITUAL SCIENTIST

An Ezine for Those Who Think

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ARTIFICIAL RAINS - IMAGINARY GAINS AND REAL PAINS



'Artificial rains soothe Maharashtra.' Headlines like these have been a frequent sight in recent newspapers. The image of a political leader and a scientist flying in an airplane, shooting a chemical spray into the clouds and rains showering down is certainly mind-grabbing. For people tormented by prolonged water scarcity, artificial rainfall seems to be a graphic demonstration of the power of technology to counter human suffering caused by the vagaries of nature



"SUITABLE" CLOUDS

A serious examination of the subject, however, reveals a picture quite different from what is made out by the hype. Firstly the extent to which the so-called artificial rains are caused by forces other than the natural is open to question. The name 'artificial rains' is misleading as the entire mechanism involved in producing rains is not replicated artificially; all that is done is the rainfall from the naturally formed clouds is stimulated by artificial means. Sometimes, due to super-cooling, clouds, though present in the sky for a long time, do not produce rains. By cloud seeding - releasing certain hygroscopic chemicals like silver iodide into the clouds, the precipitation and hence rainfall is said to be enhanced and accelerated. Contrary to the hype, cloud seeding can therefore offer no relief to drought-affected areas as there are generally no clouds in those areas. Also ordinary cumulus clouds - the kind of clouds most often found in the sky - are too small to produce any worthwhile rains by seeding. Cloud seeding requires the presence of a "suitable" cloud. The definition of "suitable" is such that the cloud might well go on to produce precipitation even if it is not seeded at all! This is evident from the following table associated with the large-scale vertical motion of air, assuming that the potential for cloud formation (moisture and temperature distribution with height) is otherwise favorable.

Strong descent	No clouds – nothing to seed (typical drought conditions)
Strong ascent	Lots of clouds - seeding isn't needed, as natural precipitation is virtually inevitable and substantial rainfalls are likely
Weak ascent	Isolated clouds - considered poor targets for seeding since seeded clouds usually die out and new clouds may not form at all
Moderate ascent	Best chance for seeding gains, but proper seeding strategy is needed and the chances for large total rainfall (natural + effect of seeding) are only marginal

Secondly, due to unpredictable wind motions, the area where cloud seeding will cause rains cannot be controlled. American meteorologist Chuck Doswell has explained that the rain at

the ground from a seeder's typical target cloud – a fairly large cloud 10 km tall and 10 km in diameter - would be on the order of 1/100th of an inch! Not much of a result ... just about enough to wet the sidewalk. Hence it needs to be seriously examined whether the **Rs 5.6 crore** that the Maharashtra government has spent on Project Varsha – money that is taken from the pocket of the hardworking taxpayer – actually leads to commensurate returns. In this connection, the *Policy Statement on Planned and Inadvertent Weather Modification*, issued by the American Meteorological Society is especially significant. It states, in layman's terms, that with the exception of some highly specific situations, the results of carefully controlled scientific experiments have produced essentially inconclusive results regarding the effectiveness of cloud seeding to enhance precipitation. It is clear that seeding does affect clouds, but what is not clear is that, over the long haul, economically beneficial rainfall results from the process. Does that strike you as a dazzling endorsement of cloud seeding?

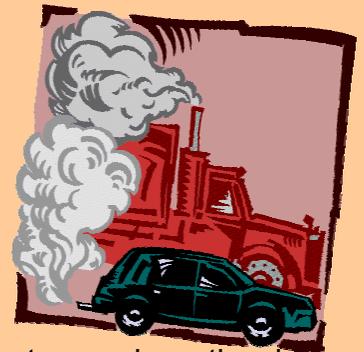


SIDE-EFFECTS

Thirdly, the track record of human intervention in natural processes shows that it inevitably produces some unintended harmful consequences. A typical example is the widespread soil infertility resulting from using fertilizers to temporarily increase crop yield. Moreover often the negative impact of a seemingly harmless application of technology becomes clear only after years of widespread use of that

technology. And by that time replacing the harmful technology requires major social and economic changes, which are often next to impossible. A striking example is the pollution and global warming caused by the modern automobile-centered lifestyle.

Considering this track record, it requires a considerable leap of faith to believe that cloud seeding will have no side-effects. In fact, American scientist Johnny Micou, among many others, has pointed out that **cloud seeding can lead to rain suppression, flooding, tornadoes and silver iodide toxicity**. Those supporting cloud seeding argue that these harmful consequences have not been scientifically proven. But this is false logic because neither have the benefits of seeding been scientifically verified. This sophistry can be better understood by examining similarities from other fields. In pharmaceutical research, when drug companies want to test a new drug, they bear the expense for the research and they pay the patients on whom the drugs are tested. It is a travesty of justice that, in the case of cloud seeding, experimentation involving an unproven technology with dubious benefits and unexamined harms is done using the taxpayers' hard-earned money – with the taxpayers themselves being used as the laboratory rats!



OUR DEPENDENCE ON NATURE

Of course the desire to reduce the sufferings of the drought-afflicted is not wrong, but the method of forcible extortion of the rains from the clouds is an invitation for disaster. The technological growth of the last few centuries has been characterized by the belief system that humans could command the forces of nature to bend to human will if humanity could develop a proper understanding of those forces through science. The recent decades

have however witnessed a growing scientific awareness that humanity would be better off trying to harmonize with nature than trying to force her into submission. This is firstly because science has started learning the hard way that human intervention in natural processes disturbs their delicate and intricate balance and leads to unforeseen counterproductive consequences, as discussed earlier. And secondly the sheer magnitude of the forces involved in nature is awesome; indeed the power of humanity as compared to that of nature is like that of a microscopic mite as compared to that of an elephant on the flea on whose back the mite lives. The extent of humanity's dependence on nature is best illustrated through the medium that is valued the most in modern society - money. In the science magazine *Nature*, issue dated 15 May, 1997, researchers from the University of Maryland presented the world with a "bill to nature" for \$16 trillion to \$54 trillion US dollars per annum for the natural resources and

raw materials that humanity takes from nature: food, water, air, lumber, rocks, metals, jewels, oil and so forth. Our cosmic bill to the sun is far more staggering. American scientist Dr. Edwin Kessler has calculated that, if we had to pay 5 cents per kilowatt-hour (a relatively cheap price) for the energy provided by the sun every day over the state of Oklahoma (which covers an area of about 200 thousand km²), the cost would be around \$60 billion per day!

CONSCIOUSNESS

CONTROLS

NATURE

Modern science would have us believe that these forces of nature, which so benevolently provide us with the necessities of life, are governed by cosmic chance. The Vedic texts, which are a vast body of profound knowledge coming from ancient India, consider this understanding to be naïve and uninformed. Vedic science posits the existence in the cosmos not only of physical elements and forces, but also of conscious elements. Where modern science sees only matter and its transformations, Vedic science sees the action of a supreme conscious intelligence behind everything.



The idea of a conscious intelligence orchestrating nature is much more scientifically acceptable now than it was a few decades ago. No longer do scientists feel so cocksure that the totality of nature can be explained in mechanistic terms. The more scientists have studied nature, the more they are stunned by the astounding order, the awesome energy, the incredible intricacy and the masterly harmony that characterizes every aspect of nature. The following remark of Dr John C Cartron, emeritus Chairman of the Science and Mathematics Department at the University of Minnesota, represents the mature scientific response to the testimony of nature:“ ... *Hence our logical and inescapable conclusion is not only that creation occurred but that it was brought about according to the plan and will of a person endowed with supreme intelligence and knowledge (omniscience), and the power to bring it about and keep it running according to plan (omnipotence) always and everywhere throughout the universe (omnipresence). That is to say, we accept unhesitatingly the fact of the existence of the supreme spiritual being, God, the creator and the director of the universe.*”

More and more empiric evidence is also coming up to confirm this conclusion. ‘Consciousness controls nature’ is the working principle of the New Age gardeners, who seek communion with their plants and crops as a means for higher yields. A vivid example of New Age gardening is the famous Findhorn farm community in Scotland, which grows amazing flowers and vegetation on barren, sandy soil. Dorothy Maclean, a member of the original family that started farming in Findhorn in the 1960s, explains their gardening secret: she communicates telepathically with the nature spirits and “*devas*” in charge of the garden and all the gardening is done exactly according to their instructions. Many people are likely to be skeptical about this sort of claims, but the miraculous abundance is well-documented and is there for everyone to see - and it continues to defy traditional scientific notions. Another successful New Age garden is Perelandra, in Virginia, USA, which was started by Machalle Small Wright in 1976, after being inspired by Findhorn’s wondrous results. These days any trendy urban bookshop can supply at least a few “*deva gardening manuals*” - *The Deva Handbook: How to work with Nature’s Subtle Energies*, or *Plant Spirit Medicine*, or *Garden Notes from the Nature Devas (helpful hints that enable you to communicate and learn on the devic level to heal the earth)*



VEDIC INSIGHTS

The Vedic texts go one step ahead. Not only do they assert that a Supreme Conscious Being, God, controls all the natural phenomena, but they also stress the need for harmonizing with Him. The Vedic texts assert that, just as while living in a country the citizens are duty-bound to obey the state government and pay taxes for the utilities that it provides, similarly, while living in the universe, we are expected to obey the cosmic government headed by God and pay cosmic taxes for the universal utilities of light, heat, air and water that we take from the cosmos. The method of remitting the cosmic taxes is through the medium of elaborate

and intricate fire-sacrifices (yajnas) accompanied by the precise chanting of specific mantras.

On superficial examination, the yajnas may appear to be a colossal waste of resources: ghee, silk and grains are just put into fire to be reduced to ashes. But those who are intelligent enough to be not deluded by externals can, on deeper study see, the profound principles of cosmic cooperation that are activated through the yajnas. The medium of economic exchange is known to vary greatly in accordance with the prevailing socio-cultural setting. For example, if an ancient from the Vedic age is transported through time into our society, he will be aghast to see the amount of value we ascribe to the pieces of paper that we call currency notes. Just as our medium of exchange – money – is unintelligible to an ancient, the Vedic medium of intra-universal exchange – sanctified fire and sound – is incomprehensible to us. What an intelligent person focuses on is not the medium of exchange, but the principle. We give valuable things – our time and energy – to get money and we get important things – the necessities of life – by giving money. Similarly Vedic followers offer oblations into the sacred fire to appease the Cosmic Controller and in return receive profusely all the gifts of nature. The proof of the pudding is in the eating and similarly the proof of the authenticity of the yajnas is in the resulting prosperity. The prosperity of ancient India is well-known and is almost legendary, as is described both in the Vedic literatures themselves such as the Shrimad Bhagavatam as well as by many scholars and historians including the renowned Indologist A L Basham in his world-famous '*The Wonder That Was India*'. This natural prosperity of India resulting from cosmic harmonization continued till even a few hundred years ago. Indeed, the present world's most prosperous nation, USA, was discovered when explorers were searching for new navigational routes to tap the prosperity of India! Savants in Vedic science explain that the neglect and / or rejection of the Vedic principles by modern Indians has caused the present downfall of India.



SPIRITUAL SOLUTION

Vedic science thus reveals the root cause of the present water-crisis: non-performance of yajnas. The present attempts to forcibly extort water from the clouds to counter the drought are like the attempts of a recalcitrant citizen to burglarize the public water tank on finding his water supply cut off due to not having paid the water tax. Such foolhardy measures will only aggravate the problem, not solve it. Just as the citizen needs to pay the water tax to get his supply restored, modern people, being citizens in the universal state, need to pay their cosmic dues to have the supply of the universal utility rain-water restored.

In the modern times, the Vedic texts do not recommend fire-sacrifices due to the prohibitive costs involved as well as due to non-availability of competent priests to perform these intricate rituals. Rather in the present age of Kali, all Vedic sacrifices culminate in the sonic glorification of the Supreme Lord, as confirmed in the Bhagavad-gita (*yajnanam japa yajno 'smi*). Sonic control of matter should not be difficult for us to relate to; most of us have probably heard of fans that turn on and off by the clapping of hands. From the Vedic perspective, this sort of sonic technology is very crude and rudimentary. The sonic technology, or, more accurately, the mantra technology, that the Vedic texts talk about is of a level of sophistication that modern science is yet to fathom. In principle, mantras are said to be highly empowered sound vibrations that are attuned with various phenomena in nature and the predominating deity controlling them. Hence the chanting of the specified Vedic mantras, especially the maha-mantra Hare Krishna Hare Krishna Krishna Krishna Hare Hare Hare Rama Hare Rama Rama Rama Hare Hare, can harmonize modern society with the cosmic state and thus bring about sustainable prosperity.



IS IT BLIND FAITH?

The idea of chanting of certain mantras causing rains may be difficult to digest for those of us who have been educated since childhood in modern matter-based scientific notions of the universe. However if we just take off the science-imposed blinkers on our intellectual vision and have an objective look at nature, we cannot but be wonder-struck. Whenever there is water scarcity in any area,

water tankers are at once deployed there at a considerable expenditure to provide relief. In the earth all the land-locked areas are subject to potential water scarcity as all the water is concentrated in the oceans, rivers and lakes. Imagine millions of gallons of water being moved through the airways to provide relief. Sounds unbelievable, but that is what a cloud is – a mobile, air-borne gigantic water-tank. And the design of this water tank is so astounding that an entire airplane can pass right through it and still there is not much leakage loss! Further, pressure and temperature variations cause the water vapor to form cloud droplets, which come together to form rains drops. But raindrops tend to grow only to a certain size. What if raindrops grew to huge sizes? Then the rains would, instead of sustaining life, destroy it. Experience shows that raindrops usually come down in the right size, and gently, seldom hurting even a blade of grass or the most delicate flower. Thus it certainly requires blind faith to believe that all this wondrous and benevolent arrangement is happening by itself, by chance. No wonder then that the renowned physicist Kelvin has said, “If you think deeply enough you will be forced by science to believe in God.”

Once we have scaled the intellectual hurdle in understanding how God controls nature, the effect of mantras on natural phenomena becomes easier to comprehend. Imagine an illiterate villager, with no prior experience of modern medicine, coming to an allopathic doctor and

complaining of severe arm pain. After due diagnosis, the doctor prescribes a painkiller and a medicine for oral administration. The villager protests, “Doctor, don’t fool me. The pain is in the arm, not the mouth.” Just as the uneducated rustic cannot understand the scientific connection between the oral medicine and the muscular pain, uninformed people may not be able to comprehend, with the few grams of their grey matter, the higher dimensional science by which mantra technology can activate rainfall. John Milton has therefore wisely said in his *Paradise Lost*, “*Accuse not Nature, she hath done her part; do thou but thine.*”

