

observation does not exclude, of course, the possibility that rhythm parameters might be altered after a longer sojourn in darkness. An increase in amplitude and in mean value of the excretion of 17-OHCS has been observed in synchronized subjects who had lived first for 6 days in continuous illumination and thereafter for 6 days in continuous darkness (11). Our results indicate that knowledge of time of day, living routine, and social communication are powerful Zeitgebers for the human circadian system. This corroborates our earlier demonstration that there occurs mutual (social) entrainment between members of a group that is enclosed in isolation without time cues (12). However, our experiment adds the new information that human circadian rhythms can be entrained to 24 hours by social cues from the environment. This is also of interest in view of the fact that the presence of a clock alone is not sufficient to entrain an otherwise isolated subject (13). Finally, the conclusion that light—at least artificial light—is a rather weak Zeitgeber for man is supported by the observation that human subjects, kept in isolation, tend to “free run” with a circadian period of more than 24 hours in the presence of an artificial 24-hour light-dark cycle (14). In our experiment, social cues apparently were sufficient to entrain human circadian rhythms, and the absence of artificial

light did not change mean phase and range of the socially entrained circadian system during 4 days.

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than the target area itself will avoid belated attempts to gather data, which result in loss (6), oversight, omission, or distortion.

The on-site inspections and other fact-finding procedures advocated by Lovasich *et al.* (7) will be more effective when applied during the planning and during the development of experiments than when these procedures are applied years later, when no opportunity exists for improving either the experimental design or the physical measurements of meteorological variables (8).

Most importantly, progress toward resolving the uncertainties that continue to plague weather modification attempts (9) will come with the adoption of a new standard procedure for giving worldwide notice of impending experiments together with opportunity for criticism of the experimental design, followed by giving the world scientific community access to all data as fast as they are produced. Such “experimental design and data news service” should properly call for fiscal support by the experimenters, for it would ensure the acceptability of their data and ensure early contributions by the rest of the scientific community. Results would then be easier to apply, and action by professional specialists at the peak of their expertise would be expedited. Meteorologists could function to produce more reliable data, and statisticians could rely upon these data to extract more meaningful results and conclusions.

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Experimental Design and Data News Service

M. Tribus (1) expressed the need for “a greater variety of carefully planned observations instead of a greater number,” and he warned about “blindly seeding every cloud” while he stressed that “the instrumentation plan should be very thorough.” These ideas deserve practical implementation—by the cloud scientists themselves and by those who approve grants for fiscal support. The following comments (2) point the way toward one practical procedure—namely, a data news service.

Weather modification attempts will not merit the description “experiment” nor justify status as “scientific” unless they are competently designed and are objectively and thoroughly reported. Inadvertent omissions of some data in the ultimate final report, editing of data to gloss over defects, or failure to anticipate legitimate statistical objections about the experimental design leave the

way open for undesirable controversy (3) and the bitter charge of “charlatan.”

Financial support of weather modification experiments must often come from people who, as Condon (4) has observed, cannot distinguish objectively between science and pseudoscience. To gain support for genuine science, it is imperative for conscientious scientists not only to design such experiments according to the best modern concepts and to arrange for the acquisition of all needed data not already available but also to assume responsibility for the prompt and complete collection and dissemination of all data.

Full written disclosure and definition of the experiment [as advocated by Braham (5)] before actual operations begin will ensure objectivity when the results are discussed. Similarly, prompt and periodic (weekly) collection of all data for a region considerably larger