

INSTITUTE OF CURRENT WORLD AFFAIRS

JT-10
South Pole Station:
Some Problems of Precipitation and Personnel

1208 West Dayton Street
Madison, Wisconsin
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Dear Dick:

The complaints heard here when temperatures fall to the zero degree range, and a personal tendency to agree that such seem definitely chill, brings to mind that in 1957 similar temperatures seemed extremely balmy, and marked the height of summer. This was at the South Pole Station, where maximum temperatures are but a few degrees above zero and recorded minima are well below -100°F .

Such temperature minima attract popular attention and some commiseration, yet, despite its extreme cold, weather at the South Pole Station is, in a human sense, less severe than that at some other Antarctic stations where greater total snow accumulation and harsh, prolonged blizzards with driving, drifting snow create conditions much more unpleasant and damaging than are caused by extremely low temperatures alone.

The accumulation of snow drifts around and over buildings has caused considerable concern, inconvenience, and actual damage to buildings and other structures at the two American inland bases, Byrd Station and the South Pole Station. The situation at Byrd is much more drastic than that at the Pole, and damage to the structures of the original station, built in 1956-57, has been so extensive that the construction of a new, undersnow station was begun in late 1960; this is now complete, or nearly so.

At the South Pole Station there is a similar problem, though of much lesser magnitude. Total annual accumulation is slight - about 10" of snow - in contrast to a figure of about $2\frac{1}{2}$ feet for Byrd Station. Buildings and tunnels at the Pole have suffered damage due to the weight of snow atop them - the weight of drift accumulation. (Both the Pole and Byrd Stations were built on the snow surface, with wood-framed, chicken wire and burlap-covered tunnels connecting the various buildings.)

Undoubtedly all ex-inhabitants of Antarctic stations find much of interest in a return visit. There are changes: some evoke admiration, others are noted with a distinct lack of enthusiasm. It is always difficult to be objective and to prevent subjective feeling from coloring would-be honest evaluation of observed conditions.

During my two Antarctic winterings, at N.A.F. McMurdo in 1956 and at the South Pole Station in 1957, I felt that I was extremely fortunate in being at each station during its first year of operation. There was a greater feeling of accomplishment, and the advantage of starting new-unlike succeeding groups, we inherited no problems from predecessors. My Antarctic summer trip during Deep Freeze 61 confirmed and heightened belief in first-year good fortune. In several ways, the situation at the Pole Station made a negative impression.

To try to enumerate in fine detail the changing conditions and problems at the Pole Station would tend to obscure the more basic considerations, the fundamentals of which are planning and personnel. With particular regard to planning, however, it should be remembered that the recent Antarctic effort was originally predicated upon the establishment and maintenance of scientific stations for the International Geophysical Year, July 1957 thru December 1958, and that it was planned to close the stations at the end of this period. They were not, then, built to become permanent.

Nonetheless, in the construction of the Pole Station as much as possible was done to build for long-term use, though some temporary improvisations were necessary. More recent additions to the station give the impression of some lack of long range coordinated planning. Recognizing that such planning is not simple, and being personally unfamiliar with just what may and may not have entered into consideration I had best leave it at that, that the visible results indicate a real potential for planning improvement. The dual nature of our Antarctic effort, a predominantly civilian scientific program supported mainly by the military, presents added difficulties in coordinated planning.

The same dualism at lower levels is one facet of a major and serious personnel problem. The wintering groups at the Pole, 18 to 20 men, have been about half military personnel and half civilian scientists. The Military Leader is responsible for the operation and maintenance of the station; the Scientific Leader for the implementation of the scientific program. There are many areas of overlap between things "military and things "scientific". Neither leader has overall authority. In cases where the two top men do not get along well - and such have occurred - the results can be damaging for the entire group. Further tensions arise when the recommendations and advice of a man with previous, pertinent Antarctic experience are ignored by an opposite number with no previous experience. (This is not, however, to say, that previous polar experience automatically qualifies a man to be a station Scientific or Military Leader.)

Lack of experienced personnel, or the failure of personnel to profit from the experience of others, has been at least partially responsible for some of the present physical problems

at the Pole Station. The problem is simple to state: damage to buildings and tunnels due to the weight of drift accumulation on top of them. The solution now is not simple, but prevention of the problem was possible.

Prevention was easiest at the start - a conscious effort was made to eliminate drift-causing obstructions, i.e. anything projecting above roof level. Somethings - tower legs, stovepipes, engine exhaust pipes - cannot be eliminated. The drift they caused was shovelled clear.

As the general surface level around the base rises (due primarily to drift) the job of snow removal from the roofs becomes more difficult. Yet I feel that it could have been done, and that had it been done, had the problem been tackled conscientiously and continually, much of the building and tunnel damage never would have been sustained.

Knowledgeable people at McMurdo, people who should have known, told me before I visited the Pole that there were no problems with the buildings, few with the tunnels. A very few weeks later the chapel and some sections of the tunnels collapsed "due to uneven roof lines with heavy snow accumulation".

There were other signs of general and specific neglect at the Pole Station, some due to pure dereliction of duty and utter disregard for the well-being of those who would next winter over. The responsibility for much of this could be laid to one man.

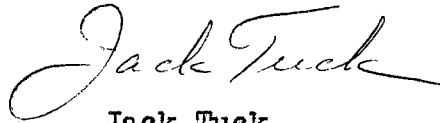
The Navy has the responsibility for construction and maintenance in support of the scientific program. The long period of isolation requires the presence of a doctor, and, with one exception, the doctor at the Pole has also been designated the Military Leader. Good doctors, however, do not necessarily make good Military Leaders at an Antarctic station. Their experience is in medicine, not in polar operations; they are faced with responsibilities which they are not well qualified to tackle. There has been a greater degree of polar experience among the various Scientific Leaders, however. I believe the entire program would be measurably enhanced if the Military Leader were an officer with experience in construction problems and the overall maintenance of a base, preferably also with some polar training. In short, a Seabee would be much better equipped to handle the job than is a doctor.

I had two years in Antarctica, one of them at the Pole. I had learned enough to be glad that I was not inheriting the problems I saw. Hopefully the policy may change, and the

men chosen as Military Leaders be ones whose backgrounds are more germane to the existing situation.

It is easy to criticize.

Very sincerely,

A handwritten signature in cursive script that reads "Jack Tuck". The signature is fluid and extends to the right with a long tail.

Jack Tuck

Received New York February 26, 1962