Essay 35

THE NAVY'S DEPTH CHARGE

When we were planning the 1964 test series (never accomplished because of the limited test-ban treaty signed in the fall of 1963) the Navy was planning a nuclear depth charge that would have been something to see. Bill Ogle was the Scientific Deputy Commander of the Task Force, planning the test series, and I was the chairman of the Joint (for Joint Task Force) Hazards Planning Group (The JHEG). This group had the task of reviewing each nuclear test the Department of Defense proposed doing, and we had the power to approve, or not.

Sitting at my desk in Los Alamos I had available to me the accuracy data arising from the entire list of test drops that had been made. The pattern around the target point looked pretty good, and the data points had been accumulated rather randomly from a variety of places under a variety of conditions. They looked pretty good, and should have.

The JHEG had had quite a bit of experience in evaluating such data, and had experienced sufficient uncertainty in the existing data that we had learned to be somewhat skeptical about what we were told. I decided it would be prudent to ask them to do another drop just to verify the data. I recognized that one drop would not prove much, but it would be better than nothing. Besides, as an old Army Air Corps man, I thought I knew the Navy better than they did, and a principal knowledge was not to trust paper work. Anyway I notified the Navy that they should do an additional drop test.

Some days later Bill called me to his office, and asked how things were going. I replied, "Fine". He then told me that an Admiral from Virginia had called telling him to fire me. So just what was I doing, anyway? I explained my rationale for asking for an additional test, and he told me that it sounded like I was doing my job, had taken the right approach, and to continue to watch everything closely.

So, the Navy reluctantly decided to do a test from the carrier Enterprise that was then sailing south of the Hawaiian chain somewhere. To my surprise I was invited to be present for the test, but I felt I was too busy to be gone at that time,

so declined. (I was young, and as the saying goes, was young and stupid). I should have been there.

The test was conducted a relatively short time thereafter. The pilot approached the drop point, toggled at the right moment—but nothing happened. He then toggled frantically, still nothing. After flying on the target line for a short time and banking to the left, the bomb then fell out, apparently when the wings flexed. When I plotted the actual drop point against the existing data, I discovered that the probability of a miss of that distance was about one in ten to the minus tenth power, i.e. one in ten billion.

I've had a long belief that if one defines miracles as something that happens once in a million times, then there are a lot of miracles. Genuine miracles should be defined as something that happens a hundred or a thousand times less often. But short of being a saint you cannot be lucky enough to see something ten thousand times less likely than one in a million. Something was wrong. So, at that moment I declared that no nuclear test could be conducted unless and until the problem was discovered, and solved.

The Navy was not just unhappy, but chagrined. They promised to look into it.

Several months passed, and one day I had a telephone call from the Naval Weapons facility in Albuquerque. They invited me to come to a meeting they were having. I flew down, was met by the Navy, and taken to their facility.

When I entered the large conference room, at a central table were seated six Navy captains, and there were maybe two or three dozen naval officers sitting along the walls. I was the only civilian present, I noted, and I suspected that meant there would be no witnesses to report my demise.

"Dr. Brownlee, please sit here and hear our report".

I was told that a panel of eight captains was organized, and they had visited every carrier in both fleets, ships scattered wherever. They not only investigated but had interviewed many of the pilots who had generated the data. AND, it turned out that the pilots aboard the ships were well aware that the nuclear bomb rack that was to be used for such things was so unreliable that whenever they flew for the record they used a rack that could be trusted. Their

careers certainly should not be jeopardized because of a bad piece of hardware. So, sure enough, the data were totally inappropriate to be used in the manner that I had used them. (Thus it was my mistake.)

New Navy programs emerged to design and test a brand new kind of bomb rack for attacking submarines with nuclear bombs. The old rack was abandoned.

The test was to be reinstated when the job was completed. But before all was accomplished, the limited test ban treaty came about. No such test was ever accomplished.

Doesn't it astonish what can be discovered at one's desk?