

Observations of the Trinity Shot

July 16, 1945

P. Morrison

~~SECRET~~

I observed the Trinity shot looking toward Zero from a position on the south bank of the base camp reservoir directly beside the larger water tank. There were three distinct stages in the process I saw, which I describe consecutively as follows:

1. Instantaneous glow and ball of fire

At time $T = -45$ seconds I lay prone facing Zero wearing ordinary sun glasses and holding in one hand a stop watch and in the other the welding glass issued by the stockroom. I watched the second-hand until $T = -5$ seconds when I lowered my head onto the sand bank in such a way that a slight rise in the ground completely shielded me from Zero. I placed the welding glass over the right lens of my sun glasses, the left lens of which was covered by an opaque cardboard shield. I counted seconds and at zero began to raise my head just over the protecting rise. During this motion, the gadget went off while I was looking at it or possibly a small fraction of a second before. What I saw first was a brilliant violet glow entering my eyes by reflection from the ground and from the surroundings generally. I had not raised my head quite enough to provide clear vision of Zero. Immediately after this brilliant violet flash, which was somewhat blinding, I observed through the welding glass, centered at the direction of the tower an enormous and brilliant disk of white light. The sensation lasted for such a short time and the light was so great that I cannot be sure of the shape observed. I remember it only as a well-marked vaguely round pattern. This disk was a true white in color, even through the welding glass which makes the sun's disk distinctly deep green. On subsequently looking at the noon sun through these glasses I have been led to estimate this initial stage of the gadget as corresponding to a color much whiter or bluer and a brightness several times greater than that of the noon sun. I felt a strong sensation of heat on the exposed skin of face and arms, lasting for several seconds and at least as intense as the direct noon sun.

It should be noted that my eyes were adapted to twilight or perhaps even to somewhat brighter light because of the use of the radio dial light I had made just previous to the $T -45$ second signal.

2. Growth of the mushroom

For a time which I guess to be less than two seconds the bright disk produced an after effect in my eyes which spoiled the details of the following process. I quickly realized that my vision was improving, that the image was becoming much fainter and less white. I then took off the welding glass and several seconds later the sun glasses as well. Beginning at $T = +2$ to 3 seconds, I observed the somewhat yellowed disk beginning to be eaten into from below by dark obscuring matter. Meanwhile the whole surface of the plain was covered with matter being thrown up into the air as the motion continued outward from Zero. In a matter of

~~SECRET~~

CLASSIFICATION CANCELLED.
OR CHANGED TO *Unclassified*
BY AUTHORITY OF *H. J. Carroll*
BY *B. Wise* DATE *1-27-65*

~~SECRET~~

a few seconds more the disk had nearly stopped growing horizontally and was beginning to extend in a vertical direction while its appearance had transformed into that of a bright glowing distinctly red column of flame mixed with swirling obscuring matter. The column looked rather like smoke and flame rising from an oil fire. This turbulent red column rose straight up several thousand feet in a few seconds growing a mushroom-like head of the same kind. This mushroom was fully developed and the whole glowing structure complete at about 15,000 feet altitude. I do not recall whether this stage was reached before or after the arrival of the shock. At T + 30 I realized the shock was due very soon and I huddled closer to the ground in anticipation of a severe shock. The arrival of the air shock at T +45 on my stop-watch came as an anti-climax. I noticed two deep thuds which sounded rather like a kettle drum rhythm being played some distance away. I remember the sound as being without any important high frequency components as cracks, etc. There was no earth tremor perceptible to me at any time. The ground on which I was lying was a very loosely packed dike of mud.

3. Appearance of the smoke cloud

After the passage of the shock I stood up to watch the end of the mushroom. The red glow died out and the mushroom appeared as a column of smoke or cloud hanging over Zero. In a matter of another minute or so the smoke had arranged itself in three rather well defined oblique clouds forming roughly a vertical Z. The lowest cloud was quite well defined and stretched north at a slight angle. At a couple of thousand feet, it appeared to bend around almost double and to stretch about southeast for a somewhat greater distance. This second cloud again seemed broken off rather sharply and a large cloud gradually spread with less and less well defined shape from the upper end of the second step. This process was nearly complete when the upper cap was spread over most of the bowl at a height of about 30,000 feet. There was a strong impression of definite layers in the wind structure, and there were even some water vapor clouds which seemed to mark the boundaries between winds of different directions. The completion of this stage took many minutes until finally the cloud was rather well dispersed toward north 10,000 at a rather low level, had overspread at an intermediate level all the way to the Oscuro Mountains, and on a higher level was drifting slowly south and southeast.

Other observations:

seconds

After T +50 I distinctly smelled upon standing up a faint but marked odor of ozone or corona discharge ionization.

At T +15 minutes or more I observed Zero through a battery commander's periscope set of 8-power. Not much detail was visible in this region. A sort of dust haze seemed to cover the area. A remarkable amount of heat shimmer was noticed on the horizon directly above the Zero area. It was shortly after this time also that I saw that the Jumbo tower was missing.

Size and distance figures mentioned here are based on judgments of angular size and the assumption of 18,000 yards distance from Zero to base camp.

~~SECRET~~