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25 August 1945.

Teletype from Dr. Louis Hempelmann

The radioactivity of the soil at Trinity was quite high but was confined almost entirely within a radius of 1,200 yards. After 24 hours the highest estimate of radioactivity in the crater by members of the tank crew was 650 R per hour. This fell to 2 R per hour at 800 yards and to 1/10 R per hour at 1,200 yards. After 1 week the above activity had decayed by a factor of 15. After 30 days the highest radiation intensity was 15 R per hour. The area containing significant acivity (more than 1/10 R per hour) had shrunk to a radius of 400 yards. The radiation was due to both induced radioactivity of the soil resulting from the action of neutrons and the deposition of fission products on the ground. The induced radioactivity which corresponded to about 1/2 of the total at one day, was chiefly radio active sodium. It decayed very rapidly (half-life 15 hours) and was insignificant after about one week. The fission products are disappearing more slowly following 1/T law. Radioactive materials did not fall from the cloud outside the above area in amounts which would be considered dangerous. In combat use due to the great height of detonation the neutron induced activity of the soil should be insignificant. Depending upon meteorologic conditions, the activity due to fission products may be much less or much greater than at the Trinity trial.

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