4/23/41

Notes on Ralf Woolley's Manuscript,
"Floods in Utah"

1. Characteristics of cloudburst storm of August 13, 1923 (from records of U.S.W.B., Salt Lake City, Utah.) This storm was of the frontal type.

2. "It is apparently axiomatic that a thunderstorm, in impinging upon a mountain range, is materially augmented both in violence and in degree of condensation and rainfall."

3. Thunderstorms more frequent in southern and eastern parts of State.

4. The only accessible records of rainfall intensities in this region are those of the U.S.W.B. at Salt Lake City.

5. Analysis of intensity diagrams.

$$F = \frac{T}{a + bT}$$ (See Meyer's hydrology)

F = cumulative percent of precipitation

T = percent of duration from beginning of storm

a and b are constants determining the curvature and therefore the intensity deviation from the mean for any given storm.

$(a + 100b = 1.00)$ (Safe values of a = .18, b = .0082)

$$Iau = \frac{M}{a + bT}$$

Iau = average intensity for any interval from beginning of storm

M = mean intensity for entire storm

$$I = \frac{Ma}{(a \mp bT)^2}$$ where I = theoretical instantaneous intensity

With increasing mag. of temp. drop "a" decreases and slope of intensity curve is steeper.

4

6. Factors influencing intensities (Humphreys, W. J. Physics of the air)

7. An idea of the area covered at any instant by a thunderstorm can be gained through consideration of the storm's velocity and the length of the precipitation period recorded by a stationary gage. The duration of the period of precipitation.