become deformed. Under very strong fields, the droplets become drawn out into filaments and disrupt with attendant electrical discharges along their surfaces or through them.

It is probable that these phenomena occur along the channel of a lightning stroke through a cloud, and that some evaporation and disruptive breakdown of droplets occur in consequence of the intense heat and flow of electrical charges. These major effects on cloud or precipitation particles are believed to be confined to the lightning channel, although minor effects such as glow or brush discharges from particles in other portions of the cloud possibly occur in connection with the development of lightning strokes. These discharges from countless particles may yield a general illumination within the cloud under strong electrical field conditions, especially during propagation of lightning strokes.

Effects of "ball lightning" on clouds are unknown. Since "ball lightning," if real, is presumably less severe than an ordinary lightning stroke or at most is probably a dart streamer of such a stroke, we may assume that the effects of "ball lightning" on clouds are not more severe than those outlined above in connection with lightning.

2. Increased Ionization

The formation of corona discharge at any point leads to a considerable increase in ionization of the surrounding air. Any case of so-called "ball lightning" which is actually a corona discharge will have a similar effect.

Ordinary lightning strokes distribute heavy concentrations of electrons and ions or charged nuclei along and near their channels during the passage of the stepped leader or dart leader. These particles form a space charge surrounding the channel. After the leader reaches the earth, the return stroke occurs from earth to cloud. When this develops, the space charge tends to migrate rapidly to the channel, producing a rush of charges within it. The flow of these charges in the channel yields the brilliant, return lightning stroke. Within the channel ionization is exceeding heavy.

"Ball lightning" associated with a true lightning stroke will probably involve a flow of space charges to its