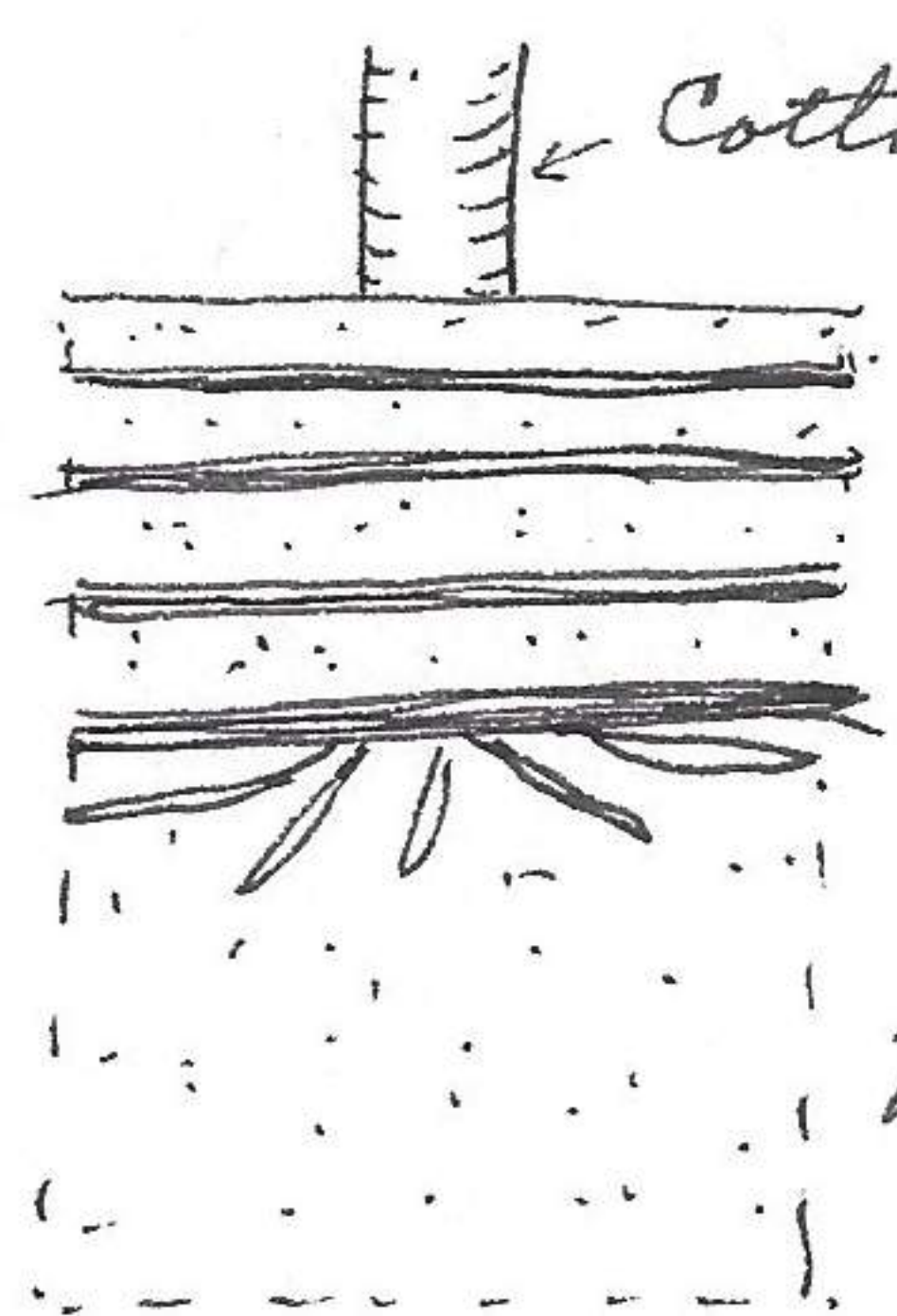


or stems and colored yellowish-brown leaves at ^{the canopy level.} If the leaves are not defoliated they are dead and brownish. This condition is reversed in the cottonwood, which today are practically all leafless, but earlier in the season loose leaves first in the upper story. 10:15 first rock barrier on N side. More Robins than usual. 10:37 Eudora Bridge Have used current all the way. A bucket tied on to front rope of canoe keep canoe from drifting and properly oriented. If there is a wind it is less effective. Eddies keep canoe away from bank and into main stream current, again, providing there is no wind. 10:50 redtail. Temp 54° and maintaining constant level since cloud mass passed overhead. The cold front is a continuous mass of clouds without character. 10:58 mouth Wakarusa river. Leaves on wakarusa from lack of current. 10:30 at end of bend at point where large cottonwood of old homestead is almost undercut by stream, a lesser scamp was noted at edge of a log jam. It remained until I was within 100 and then moved in toward jam and dove. It swam under water toward the center of the stream where it resurfaced, stood up and flopped its wings. Its full body was exposed with head high. As I pursued this duck it remained on surface for shorter periods of time and when ^{it surfaced} within 30 or so feet would immediately dive again and when resurfacing would only extend head & part of neck. It finally disappeared

And I believe it again took refuge among the log jam. 11:40 temp 54°F. 12:02 temp 54°F. 10:30 mouth of creek (left) at beginning of bend to E. 12:48 passing under utility line. Redtail flew from S side to oak on hill to N. Observed first Cardinals (2♂♂). Considerable jay activity in hills to N (oaks). Crows calling from 2 directions to N. 1:12 E end of bend and beginning of sand cliffs. Redtail (or roughleg) to N. Passing by sand cliffs and noticed that there are many holes just below top (2-4 inches) and others down to 12-18 inches, probably mole and gophers. These holes are generally distributed and where grouped are about every 1-2 feet. Clean surface of cliffs show good structural profiles. 1:32 end of exposed sand cliffs. The first cottonwood trees on bank beyond show their buried condition



Cottonwood
 stratified sand and black clay
 ← roots of cottonwood on original sand surface
 pure white sand

This banding is continuous to NW up stream on N side river - but slightly displaced toward river. It would appear that the sand cliff profiles are old and that the stratification above the ^{pure} sand is after the growth of the cottonwoods