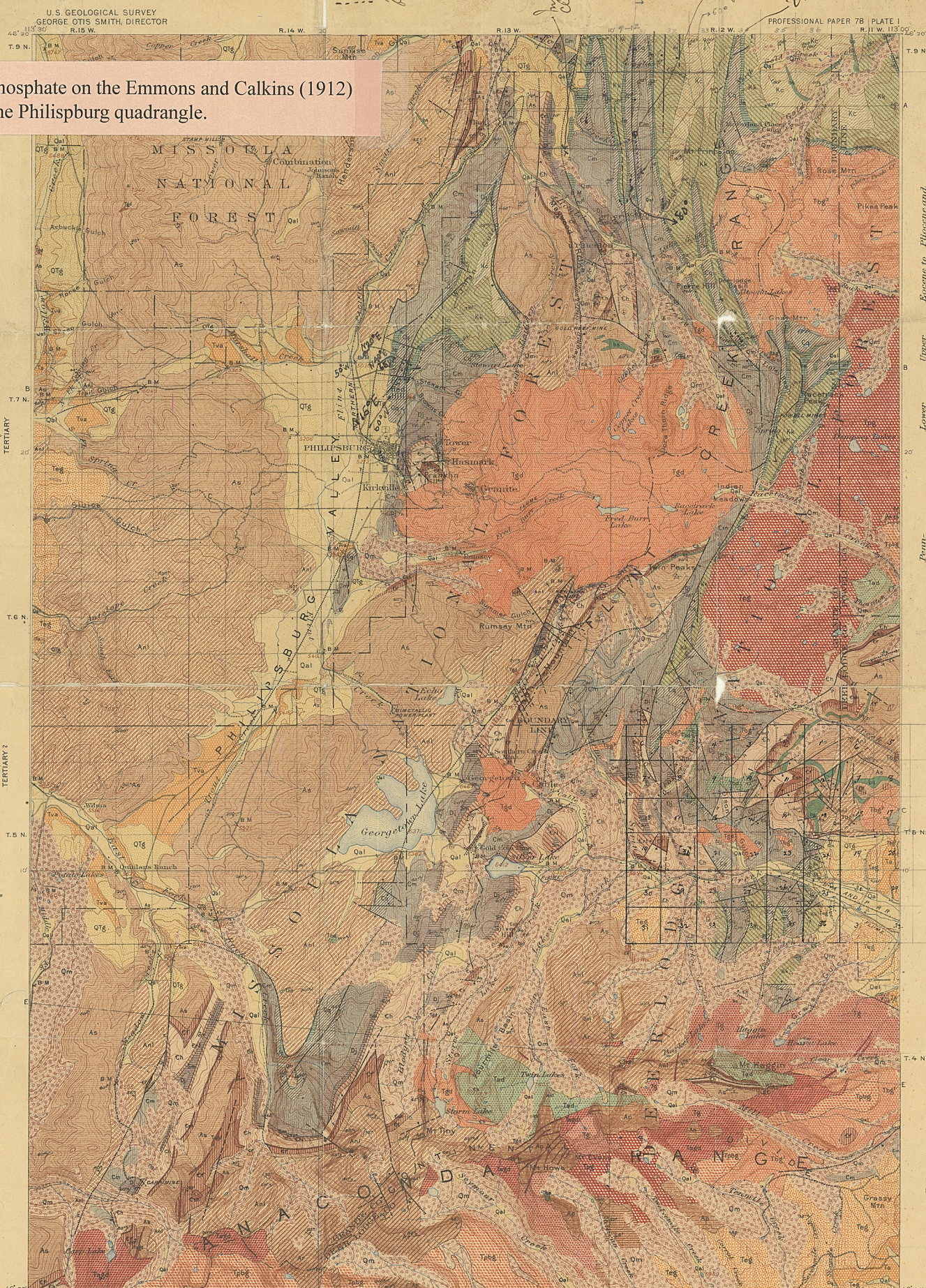


Pardee notes on phosphate on the Emmons and Calkins (1912)
geologic map of the Philipsburg quadrangle.



LEGEND

SEDIMENTARY ROCKS

- Deposits are shown by patterns of parallel lines, subvertical deposits by patterns of dots and circles. Metamorphism is indicated by the color of the pattern.
- QUATERNARY**
- Qal Alluvium (water-laid deposits on valley bottom and low terraces)
 - Om Moraines (earlier and later moraines not distinguished)
- QUATERNARY AND TERTIARY**
- Otg Later terrace gravels (gravelly, capped by high terrace)
 - Teg Earlier gravels (familiarly capped and underlain by high terrace)
- UNCONFORMITY**
- TERTIARY**
- Ke Colorado formation (black shale overlain by gray sandstone with subvertical, irregular formation in part)
 - Kc Kootenai formation (chiefly red and green shale and sandstone with irregular, irregular conglomerate in most places)
- UNCONFORMITY**
- JURASSIC**
- Ja Ellis formation (chiefly buff weathering calcareous shale and sandstone and impure limestone conglomerate near middle)
- UNCONFORMITY**
- PERMIAN**
- Qm Quadrant formation (upper part mainly quartzite, lower part mainly limestone and sandstone)
 - Cm Madison limestone (upper part thick bedded, white and gray; lower part dark, thin bedded, fossiliferous)
- UNCONFORMITY**
- DEVONIAN**
- Dj Jefferson limestone (white to black magnesian limestone with little or no fossiliferous)
- SILURIAN**
- Sm Maywood formation (red, gray and dark shale and gray magnesian limestone)
- UNCONFORMITY**
- CAMBRIAN**
- Ch Red Lion formation (mainly limestone with locally abundant siliceous limestone; fossiliferous)
 - Csh Hasmark formation (white magnesian limestone in upper part; red, gray and dark shale in lower part)
 - Ch Silver Hill formation (upper part calcareous shale and limestone with siliceous limestone; lower part dark gray, slightly calcareous shale)
 - Ch Flathead quartzite (dark-colored, coarse quartzite)
- UNCONFORMITY**
- ALGONKIAN**
- Sp Spokane formation (quartzite and sandstone, marked sandstone and shale, possibly red where metamorphosed)
 - Nf Newland formation including Greyson (?) shale (calcareous shale and impure limestone characterized by buff beds on weathered surface)
 - Rf Ravalli formation (chiefly gray quartzite and sandstone with dark shale in upper part)
 - Pf Picher formation (sandstone and gneiss, possibly quartzite, locally in weathered surface, and from clay shale)
 - Nh Neihart quartzite (pure thick bedded, light-colored quartzite)
- Legend is continued on the left margin

