HIGH RESOLUTION STRATIGRAPHY OF THE DEEP RUN SHALE MEMBER (MOSCOW FORMATION) ACROSS THE FINGER LAKES OF NEW YORK: A REINTERPRETATION OF BASIN AXIS DEPOSITION

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Gordon C. Baird
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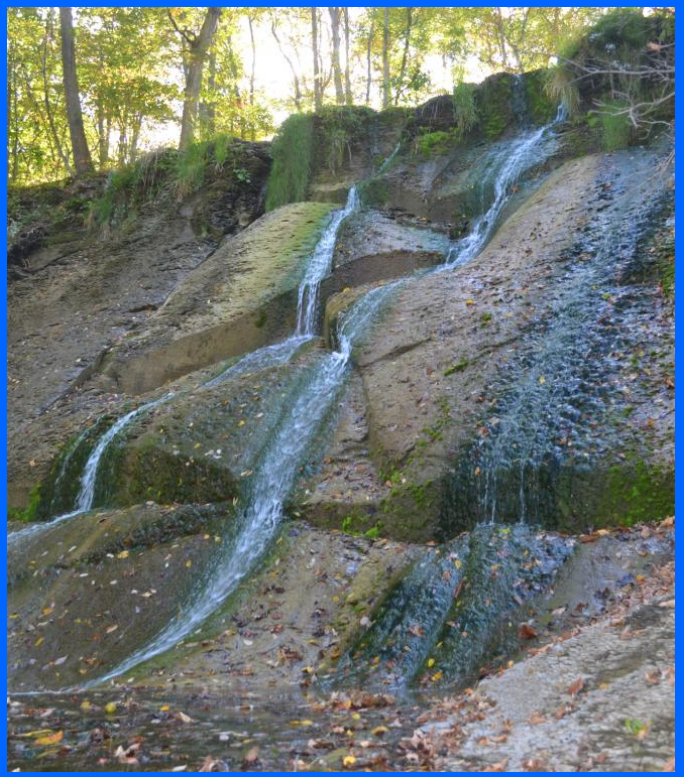
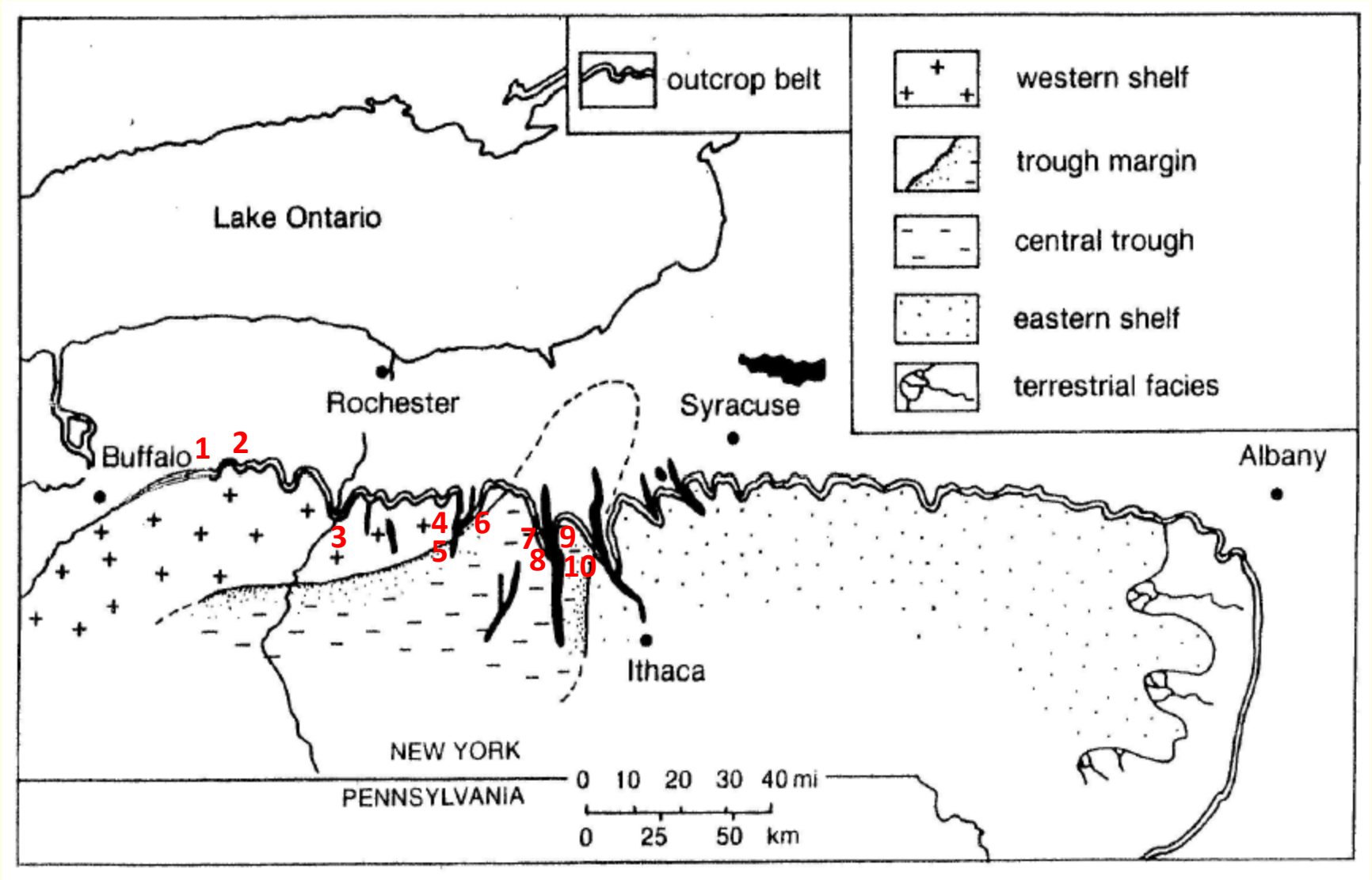


OBJECTIVES

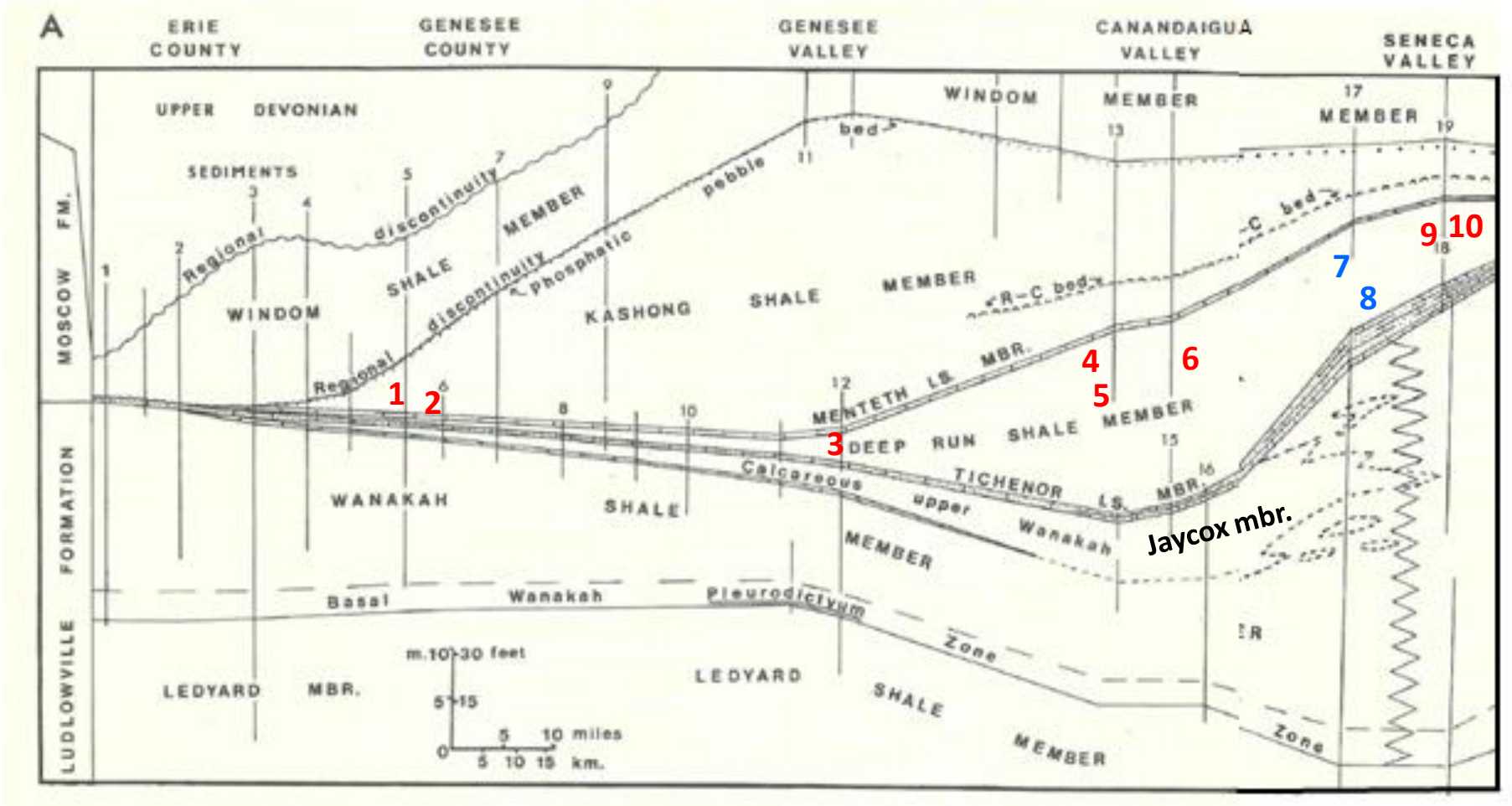
- Identify and correlate isochronous beds within the Deep Run Shale Member using principles of high resolution stratigraphy
- Survey fossil species and abundance throughout the unit to infer paleoecological conditions and rates of sedimentation.
- Examine the western erosional truncation of the Deep Run Shale Member beneath the Menteth Limestone.
- Investigate previously undescribed Ludlowville-Moscow sections along the west shore of Seneca Lake and interpret their basinal trough deposition



1. Eleven-Mile Creek
2. Murder Creek
3. Jaycox Creek
4. Tichenor Gully
5. Menteth Gully
6. Deep Run Gully
7. Kashong Creek
8. Houston Rd. Gully
9. Shale banks along Seneca Lake
10. Indian Creek

West

East



after Baird, 1979. NYSM Bulletin 433

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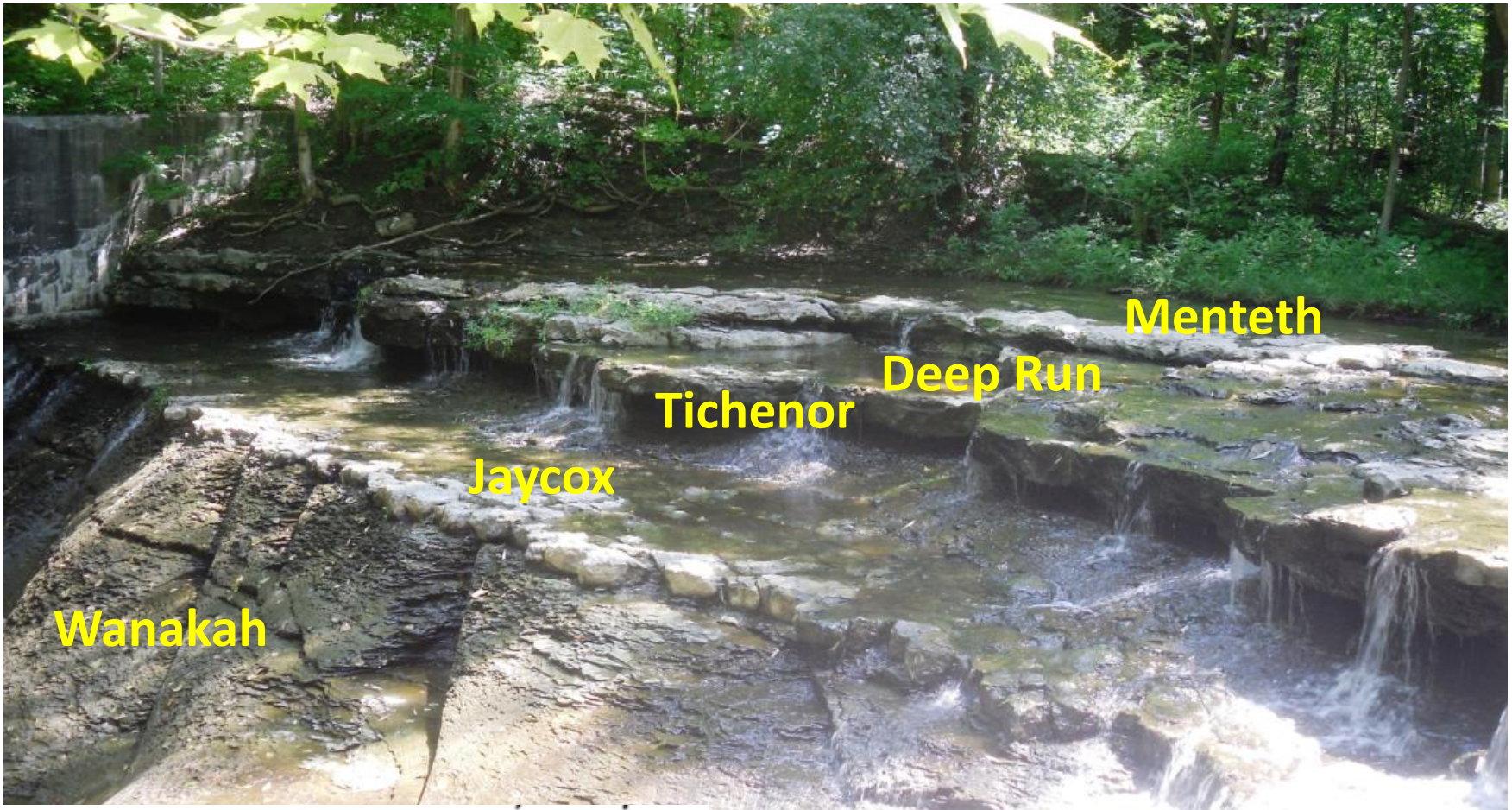
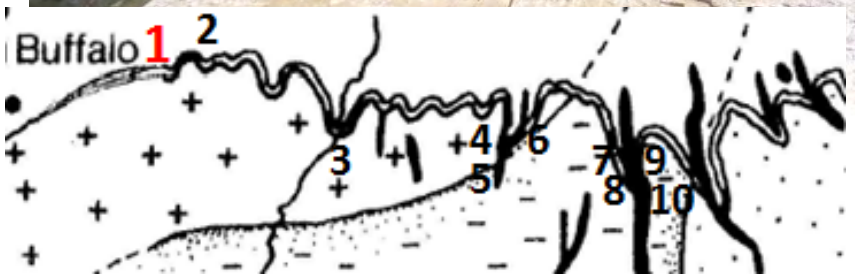
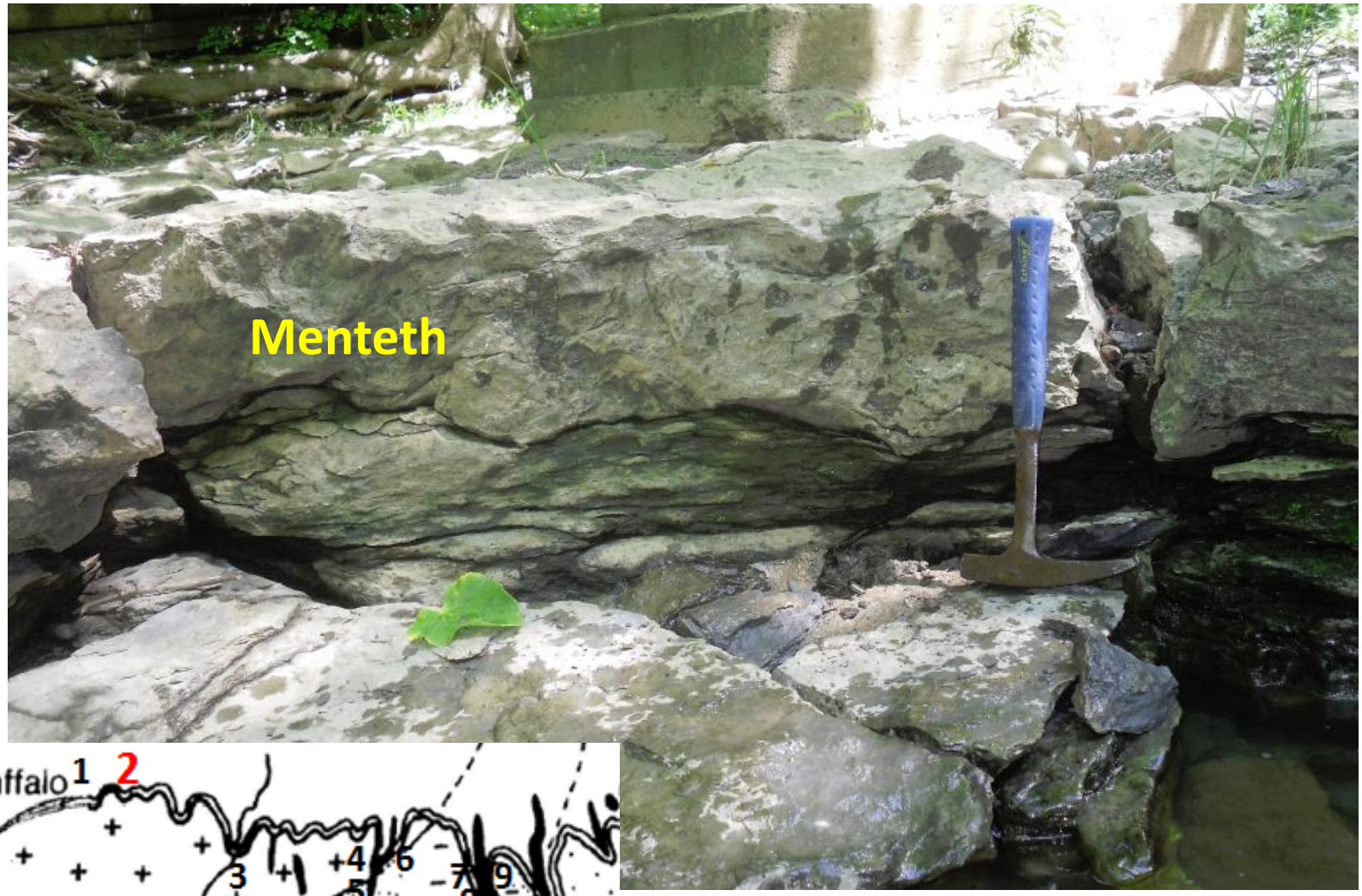
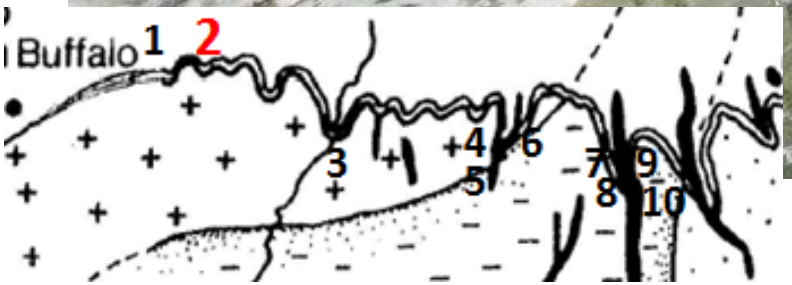
Eleven Mile Creek



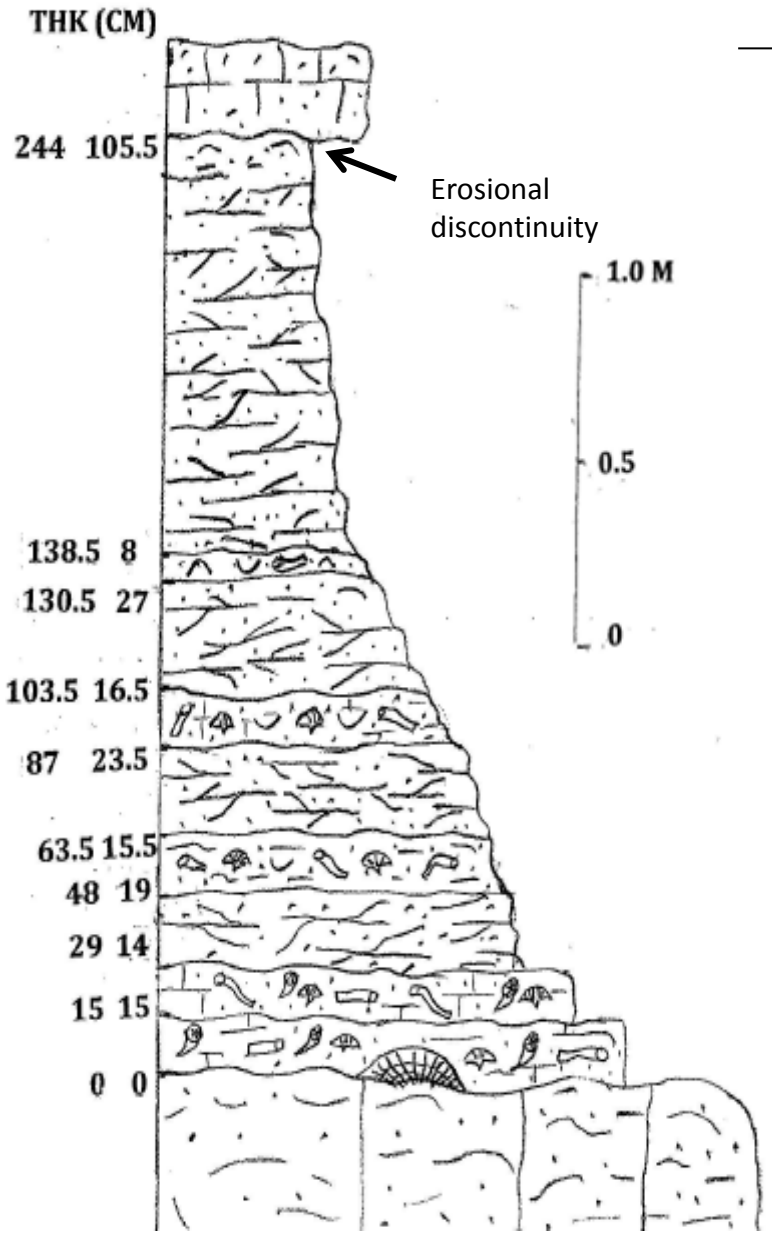


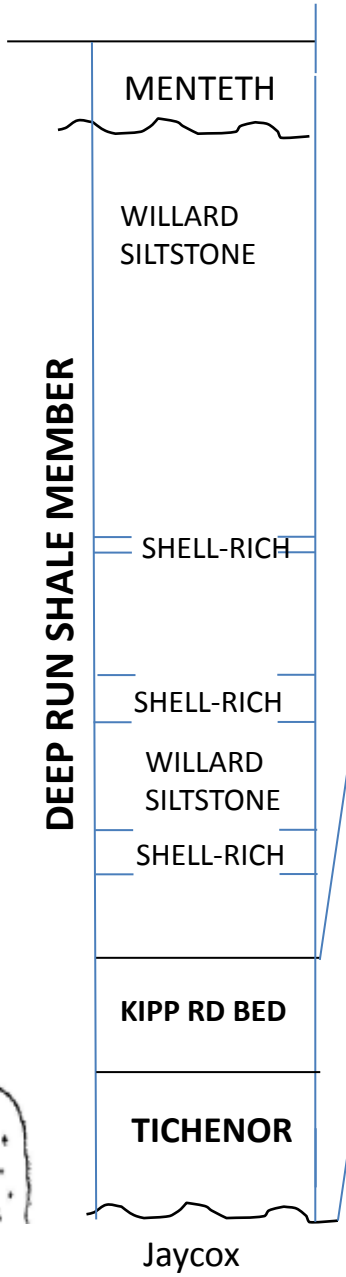
Murder Creek Menteth limestone

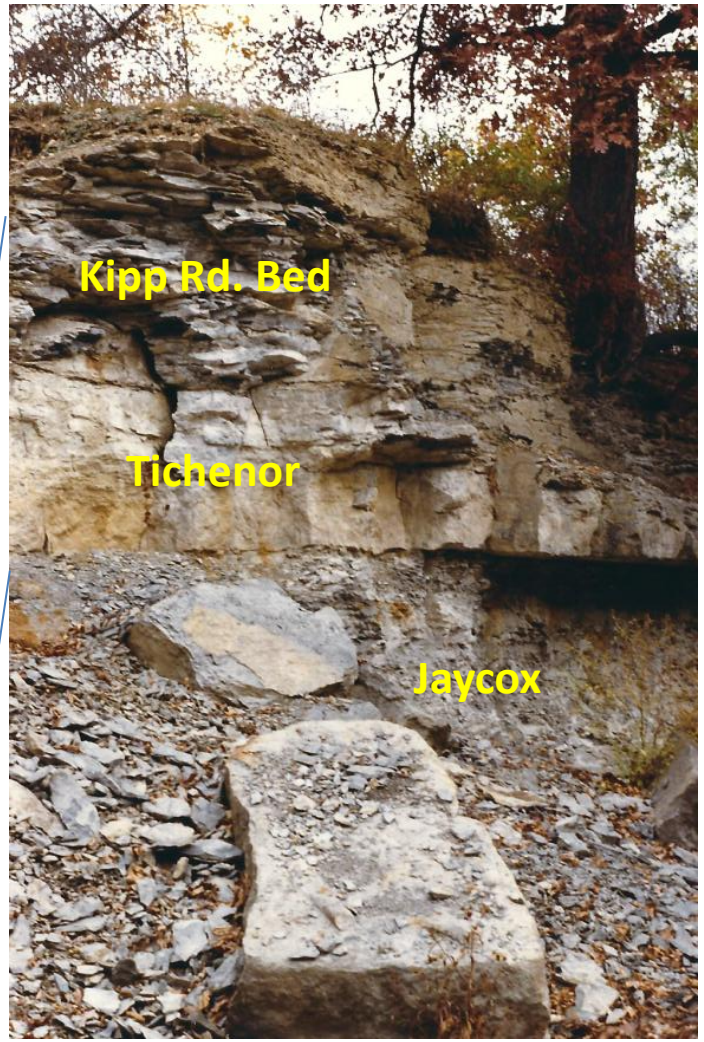




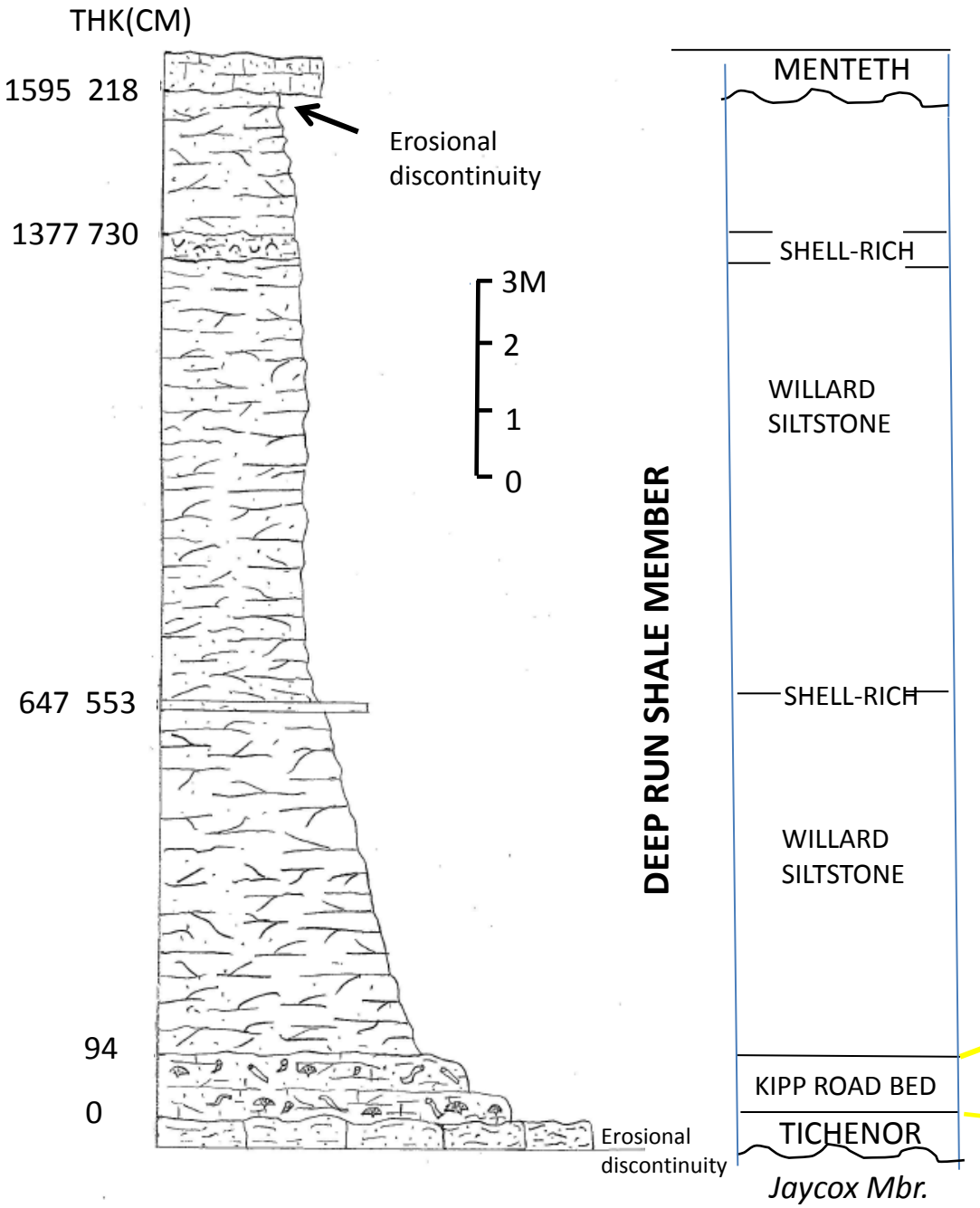
DEEP RUN SHALE MEMBER – JAYCOX CREEK, GENESSEE RIVER VALLEY

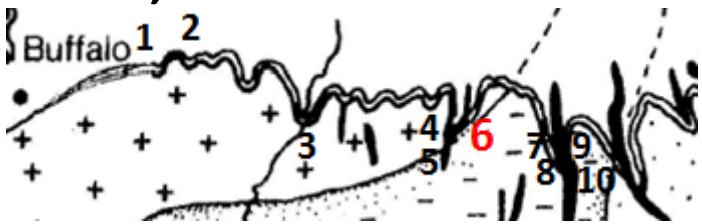






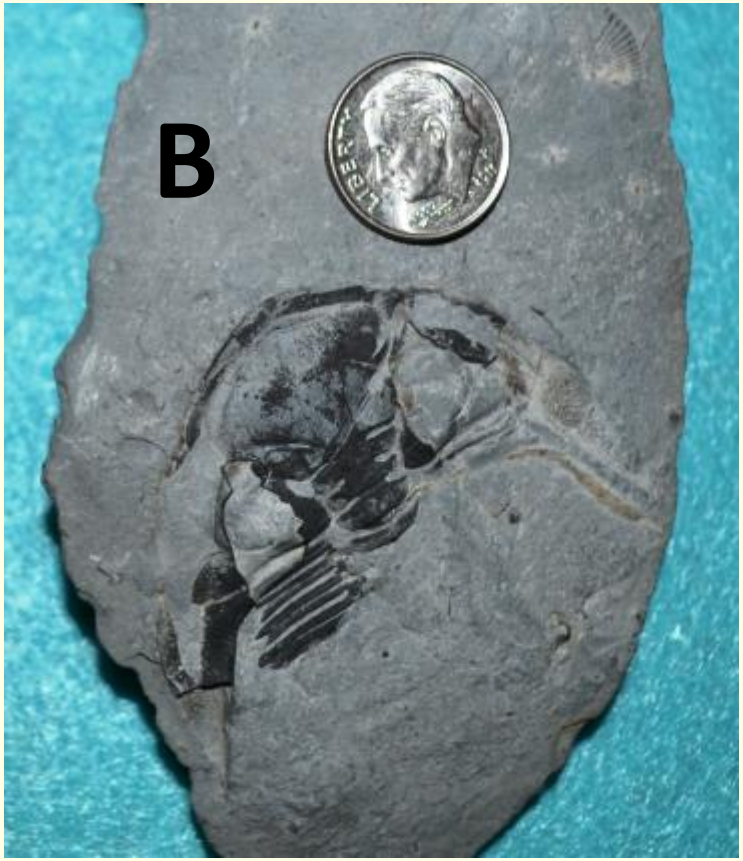
DEEP RUN SHALE MEMBER – DEEP RUN GULLY, CANANDAIGUA LAKE



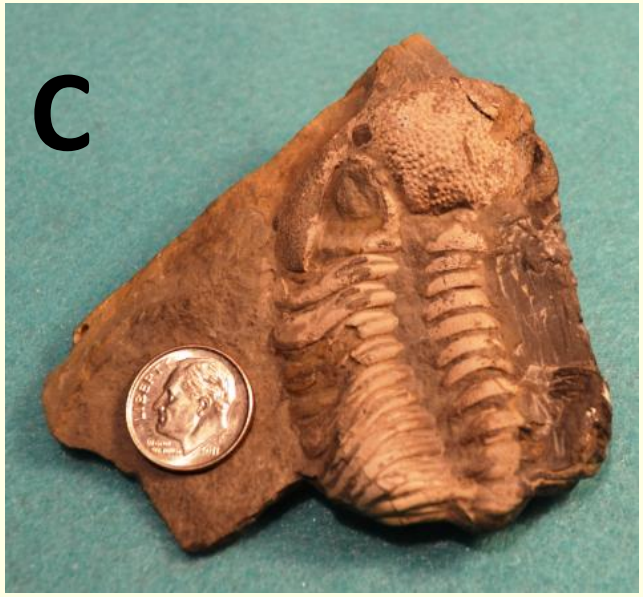


Trilobites from the Kipp Road Bed, Deep Run Shale Member

Eldredgeops rana, Jaycox Creek



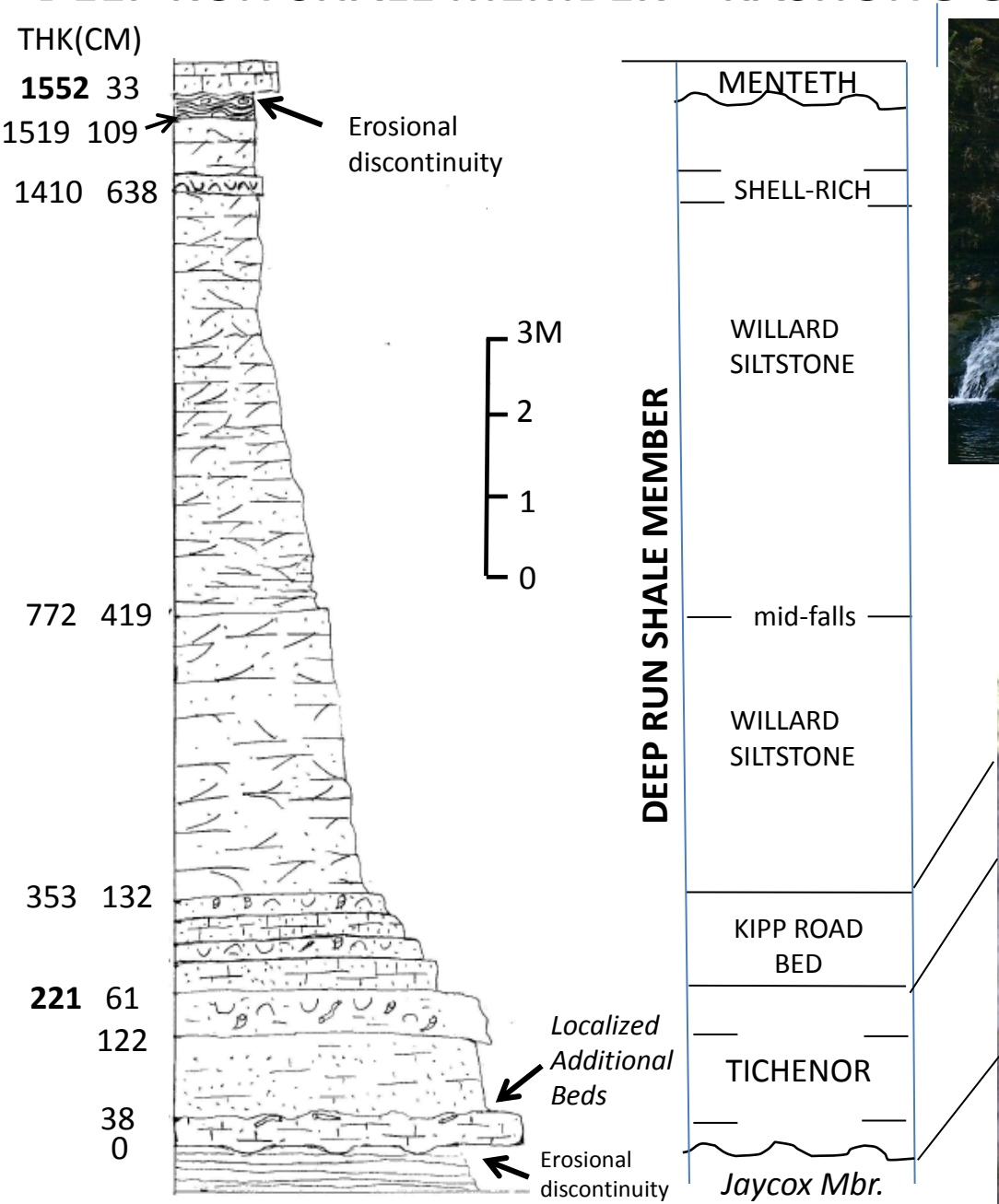
Bellacartwrightia whiteleyi, Jaycox Creek

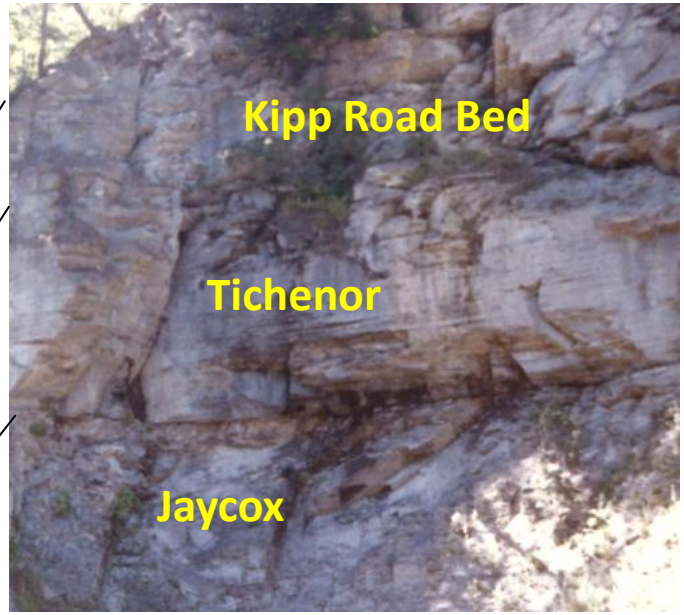


Eldredgeops rana, Green's landing

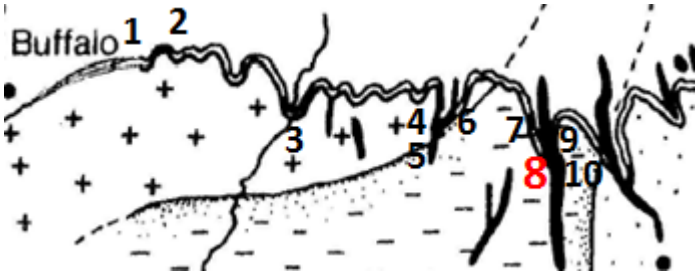
Camerate Crinoid holdfasts typical of the Kipp Road Bed

DEEP RUN SHALE MEMBER – KASHONG GLEN, SENECA LAKE VALLEY

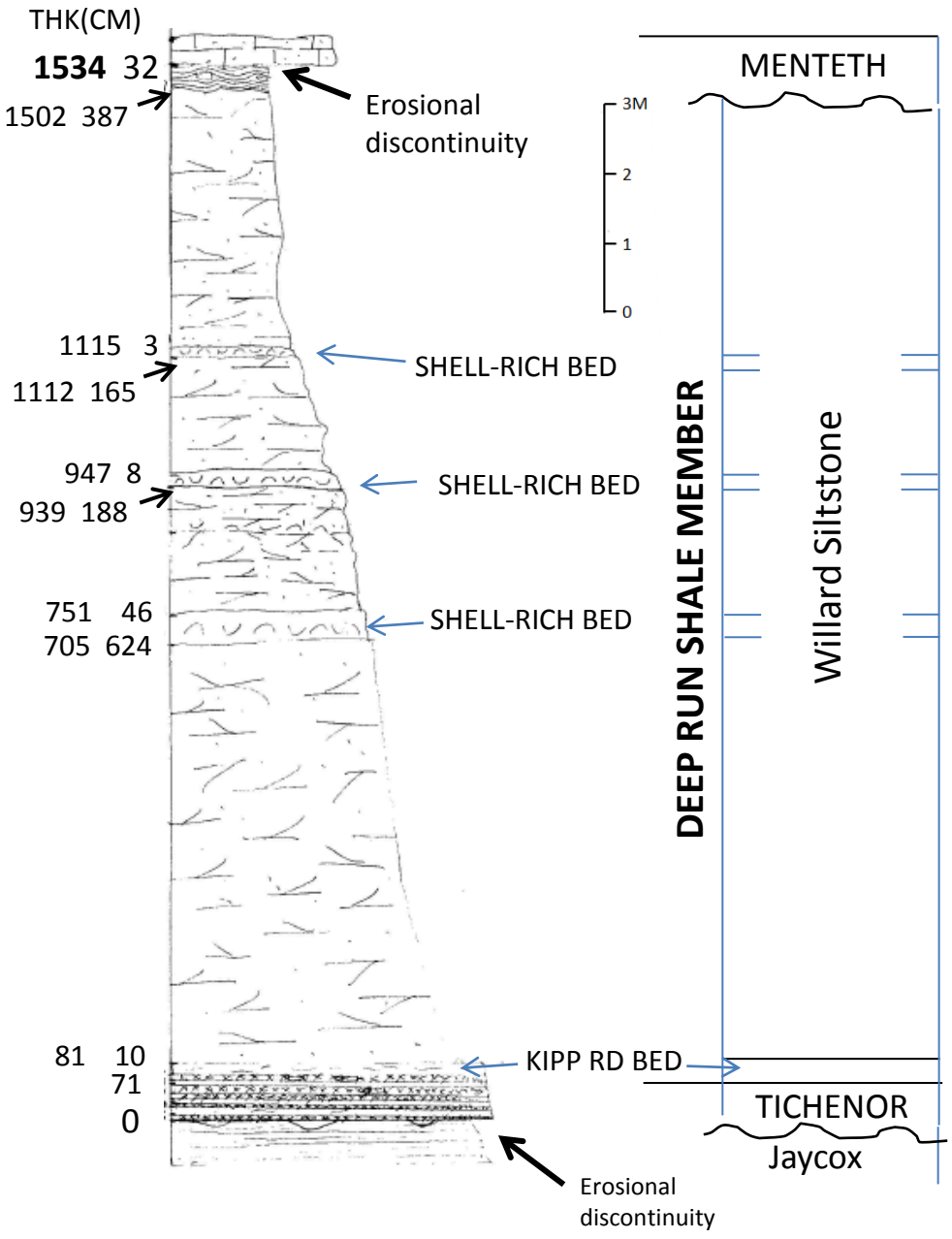




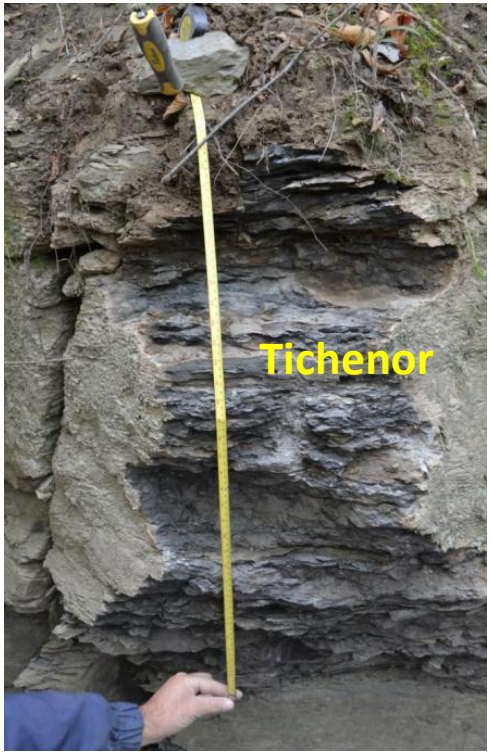
BASAL DEEP RUN – HOUSTON RD. GULLY, SENECA LAKE VALLEY



DEEP RUN SHALE MEMBER, HOUSTON RD., SENECA LAKE VALLEY



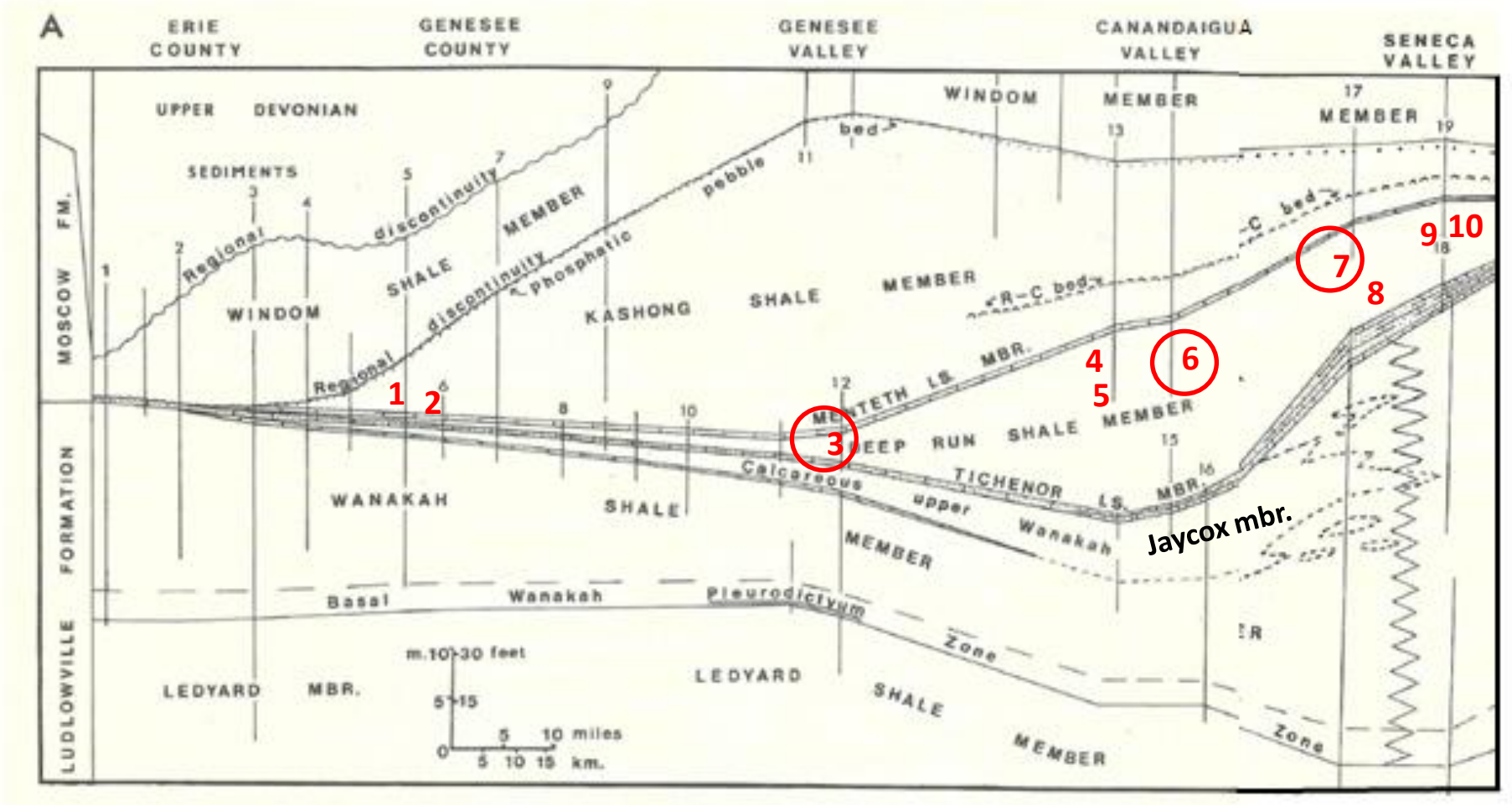
Interbedded crinoid-rich shale and recrystalline limestone



Deep Run Shale Member, East Side of Seneca Lake near Willard, NY

West

East



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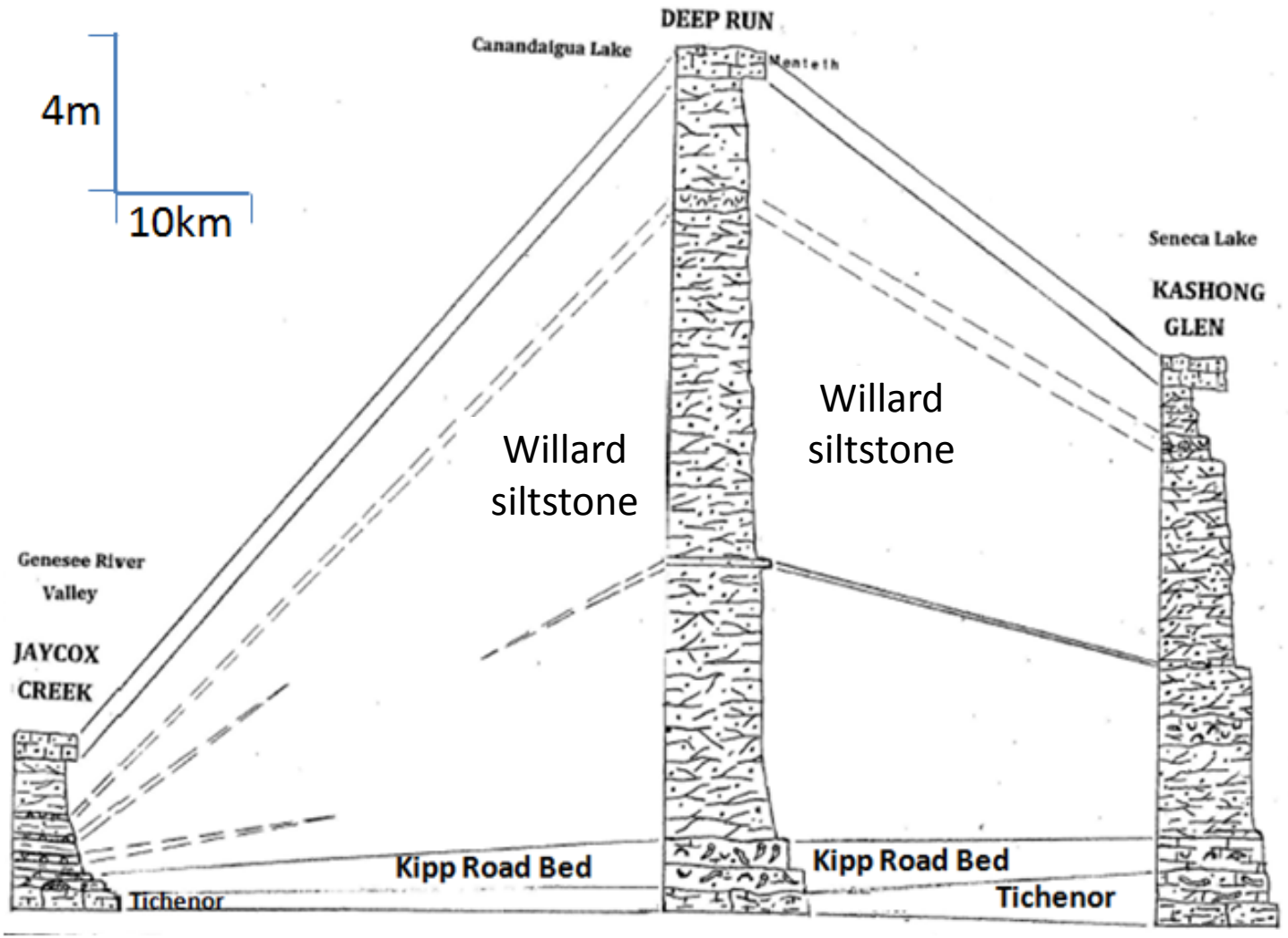
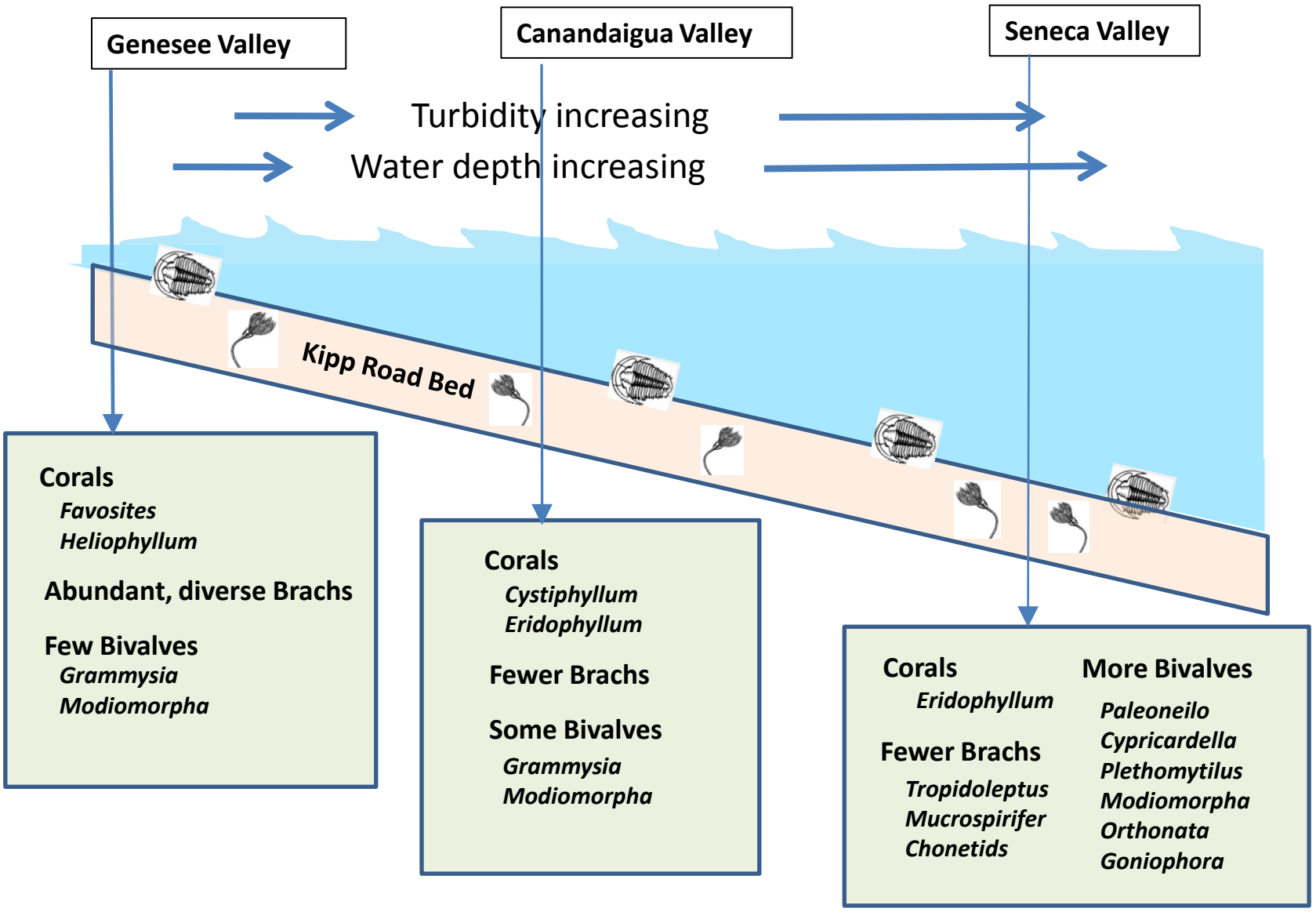
Deep Run Shale Member Across the Finger Lakes



KIPP ROAD BED FOSSIL ASSEMBLAGES

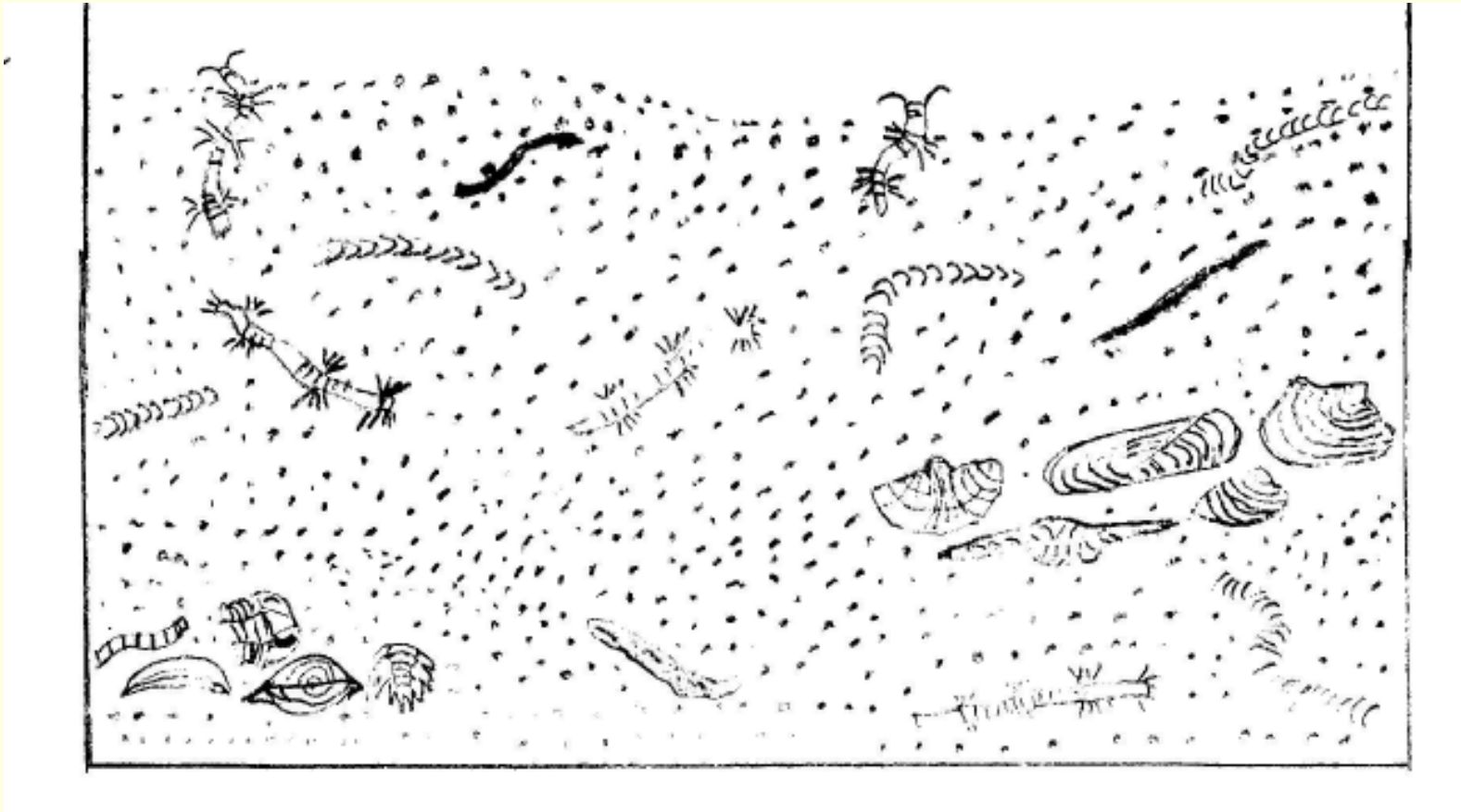
West

East



WILLARD SILTSTONE FOSSIL ASSEMBLAGES

- **Rapid sedimentation and maximum water depths**
- **Barren to poorly fossiliferous**
- **Pervasive bioturbation – Zoophycos spreiten**
- **Localized shell-rich horizons with low species diversity**



Conclusions

1. **Deep Run Shale Member is an east-west trending muddy siltstone consisting of two regionally mappable units:**
   - **a 1 m thick lower fossiliferous layer designated the Kipp Road Bed**
   - **a 4-15 m thick sparsely fossiliferous upper unit designated the Willard siltstone**

2. **Previously undescribed Ludlowville–Moscow sections along the west shore of present-day Seneca Lake revealed new beds, which may have been deposited only in the central trough and are interpreted to be early stages of Tichenor deposition.**

Conclusions

3. **The Kipp Road Bed is characterized by high species diversity and abundance, which decreases basinward due to increased bathymetry and turbidity.**

4. **The Willard is typified by low species diversity and scarcity, which reflects rapid rates of sedimentation with intense bioturbation and maximum water depths.**

5. **A few widely scattered very thin shell-rich horizons in the Willard contain many well-preserved in-situ fossils indicating a temporary slowing of sedimentation followed by renewed rapid burial.**

6. **The uppermost strata of the Deep Run Shale Member exhibit coarse-grained layers which resemble ripple-like marks subjacent to the Menteth erosional surface.**