Aryne’t You Doubly Impressed with this Cyclopropenone Insertion?

**Significance:** The authors demonstrate a method to formally insert two aryne units into the carbon–oxygen double bond of a ketone, producing spirocyclic xanthene–cyclopropene scaffolds. Mechanistically, a direct formal [2+2] cycloaddition of an aryne with cyclopropenone is followed by the subsequent cycloaddition of the ortho-quinone methide intermediate with the second aryne equivalent.

**Comment:** The reaction relies on the strong nucleophilicity of the ketone oxygen: cyclopropenone proved to be one of the best candidates due to its zwitterionic structure, and attempts to generalize the reaction with other ketones failed. Interestingly, the more electron-rich aryne precursor, when exposed to trace acid, ring-opened to produce xanthylium triflate.

**Selected examples:**

- 80% yield, 30 °C, 24 h
- 78% yield, 30 °C, 24 h
- 0% yield
- 56% yield, 30 °C, 24 h

**Xanthylium triflate formation:**

- 80% yield, 30 °C, 24 h
- 78% yield, 30 °C, 24 h
- 56% yield, 30 °C, 24 h