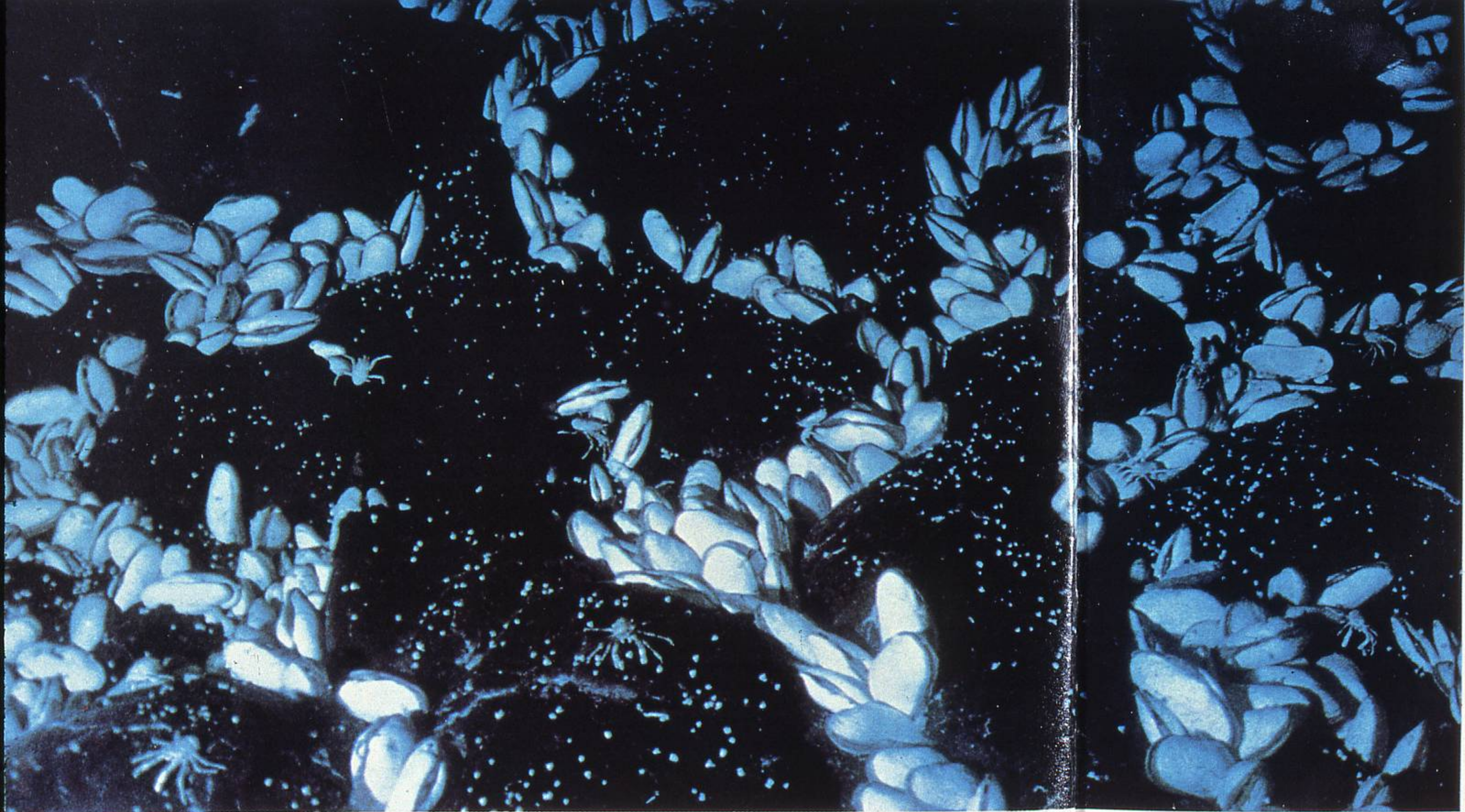


CARL
ZEISS
4704801
West Germany

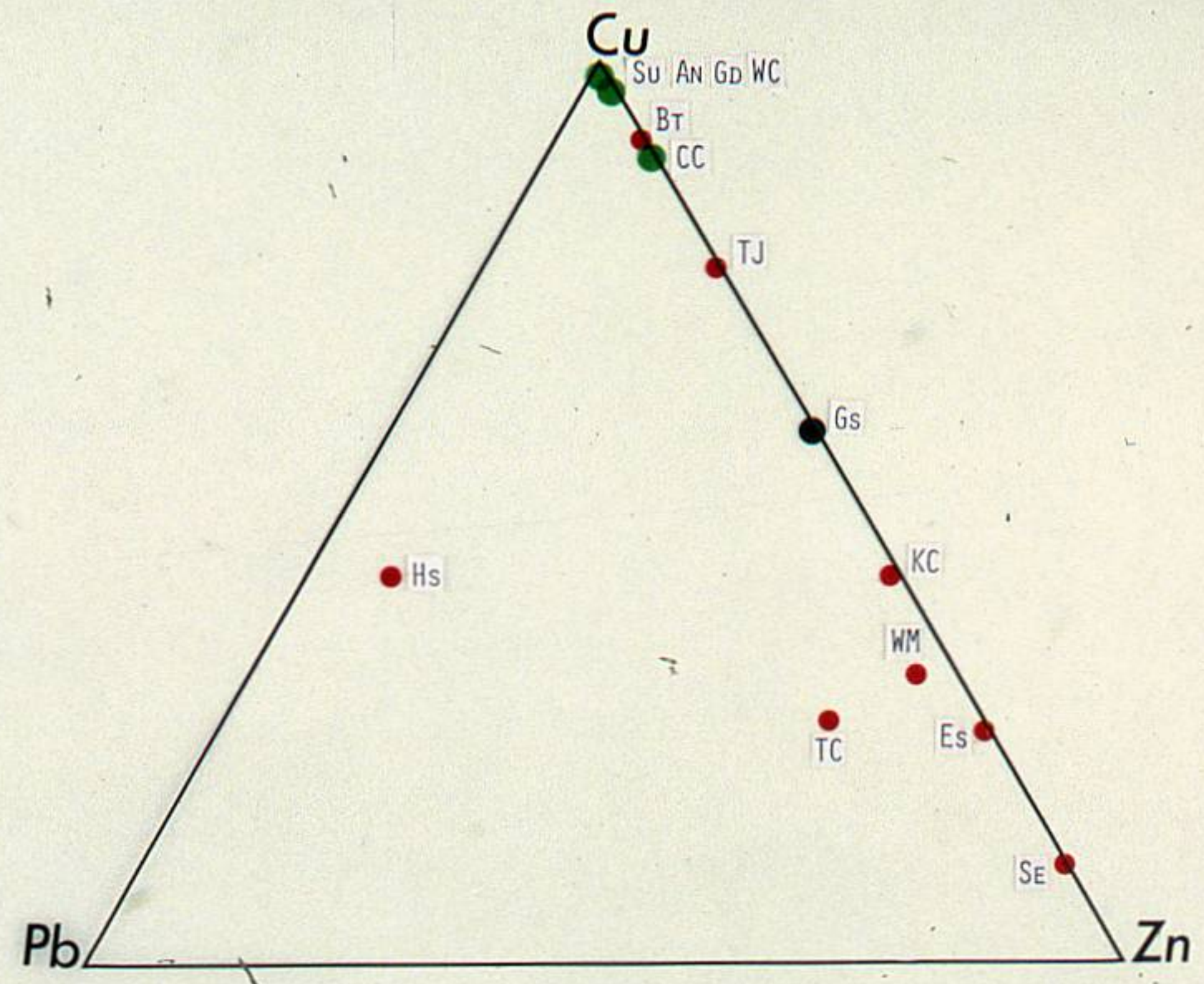
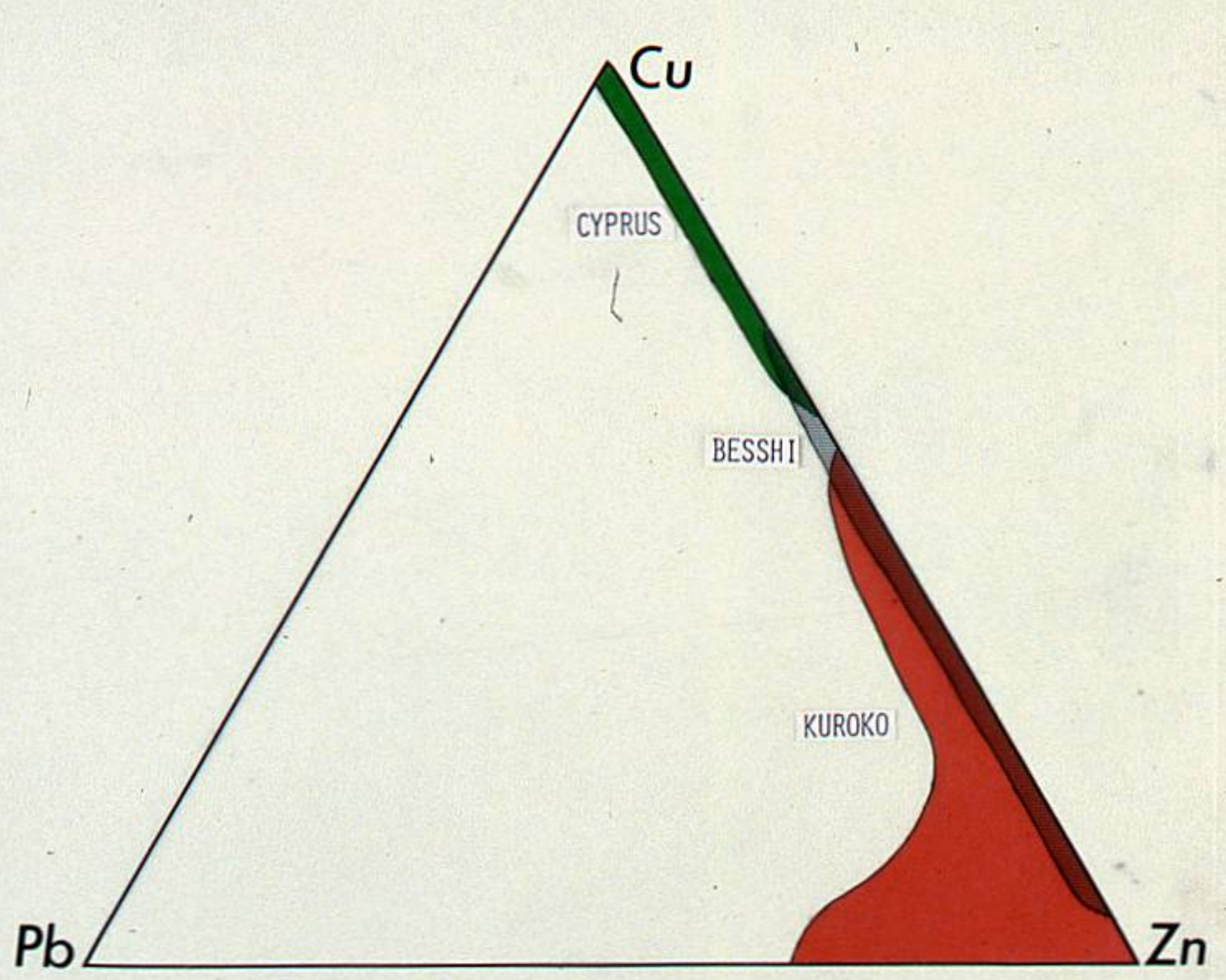
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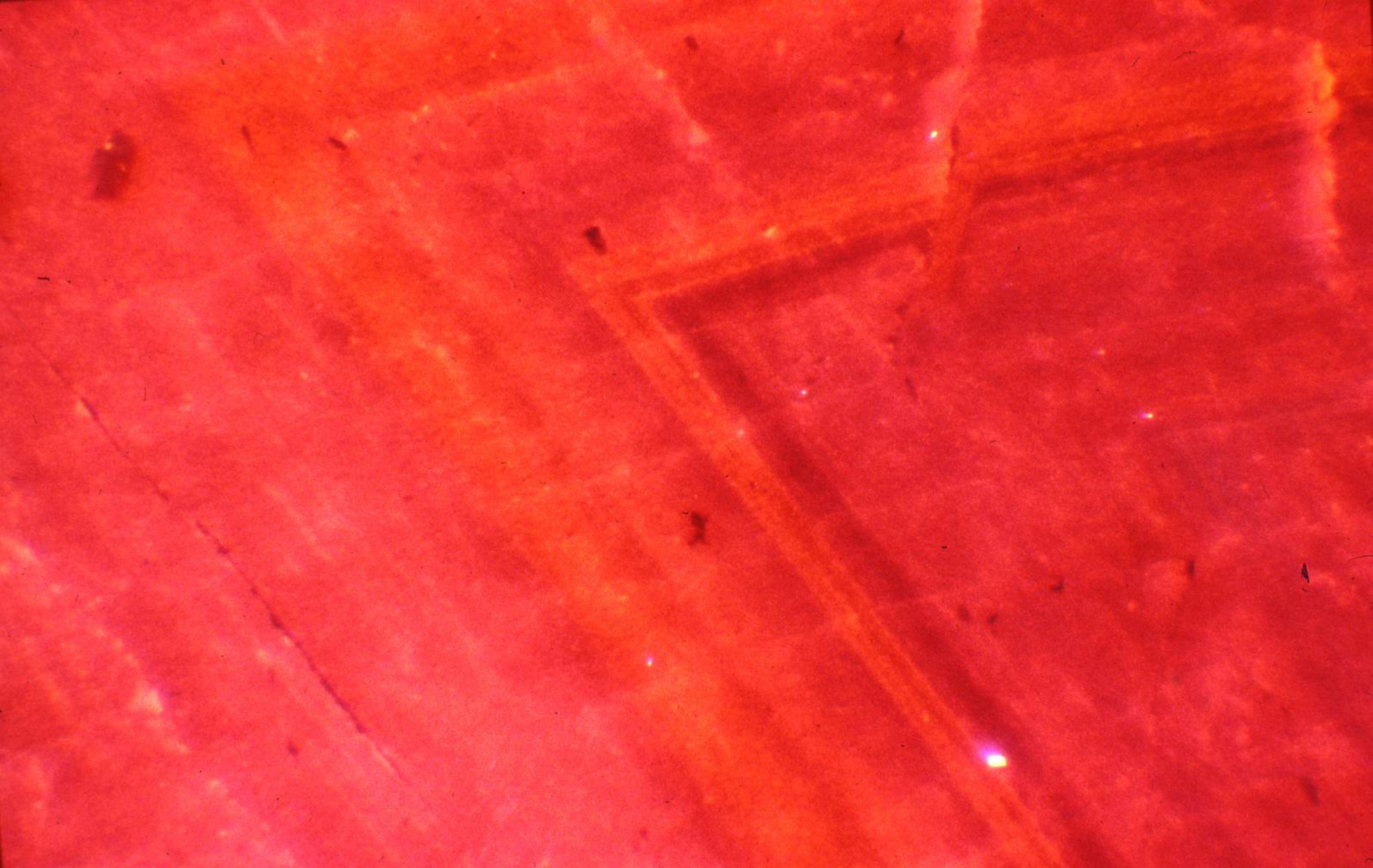


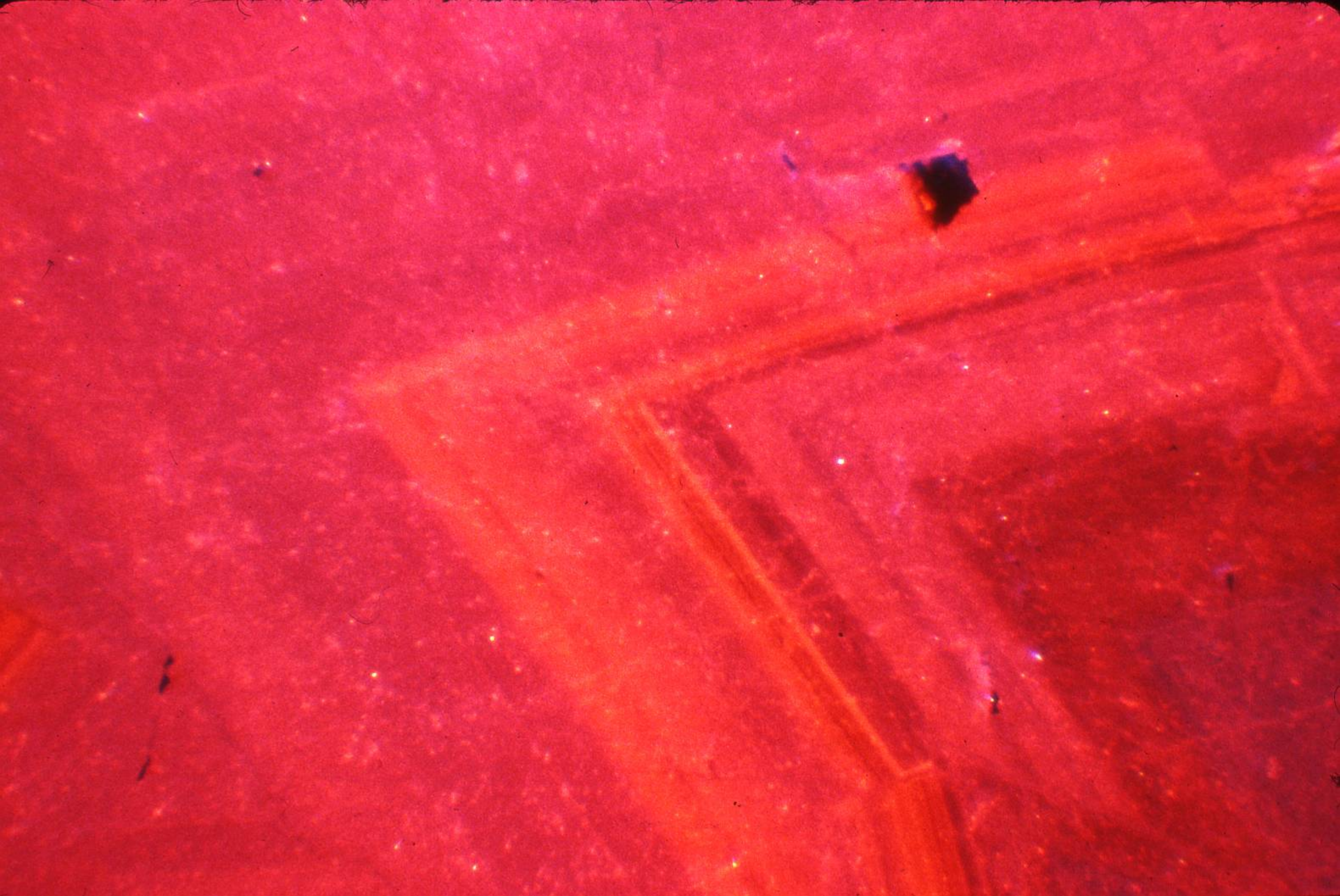
GIANT CLAMS AT A HOT-SPRING FIELD on the ocean floor just south of the Gulf of California cluster between pillow-shaped

mounds of basalt at fissures from which hydrothermal solutions are venting at a temperature of about 17 degrees C. The solutions are

rich in hydrogen sulfide, which nourishes certain bacteria. The bacteria nourish the clams.







BLACK SMOKE (FeS)

AMBIENT SEAWATER

AMBIENT SEAWATER

SO_4^{2-}

SO_4^{2-}

Ca

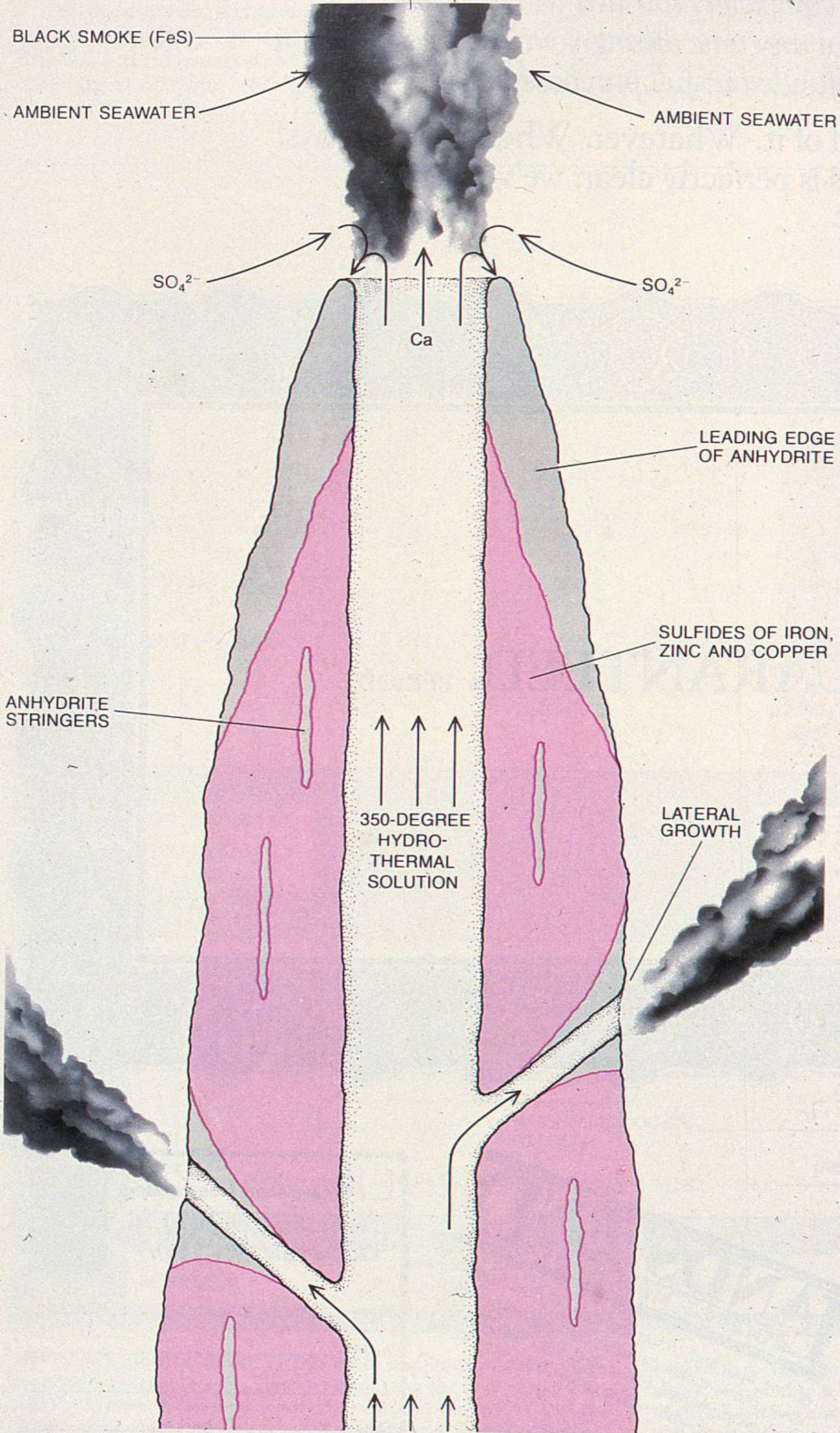
LEADING EDGE OF ANHYDRITE

SULFIDES OF IRON, ZINC AND COPPER

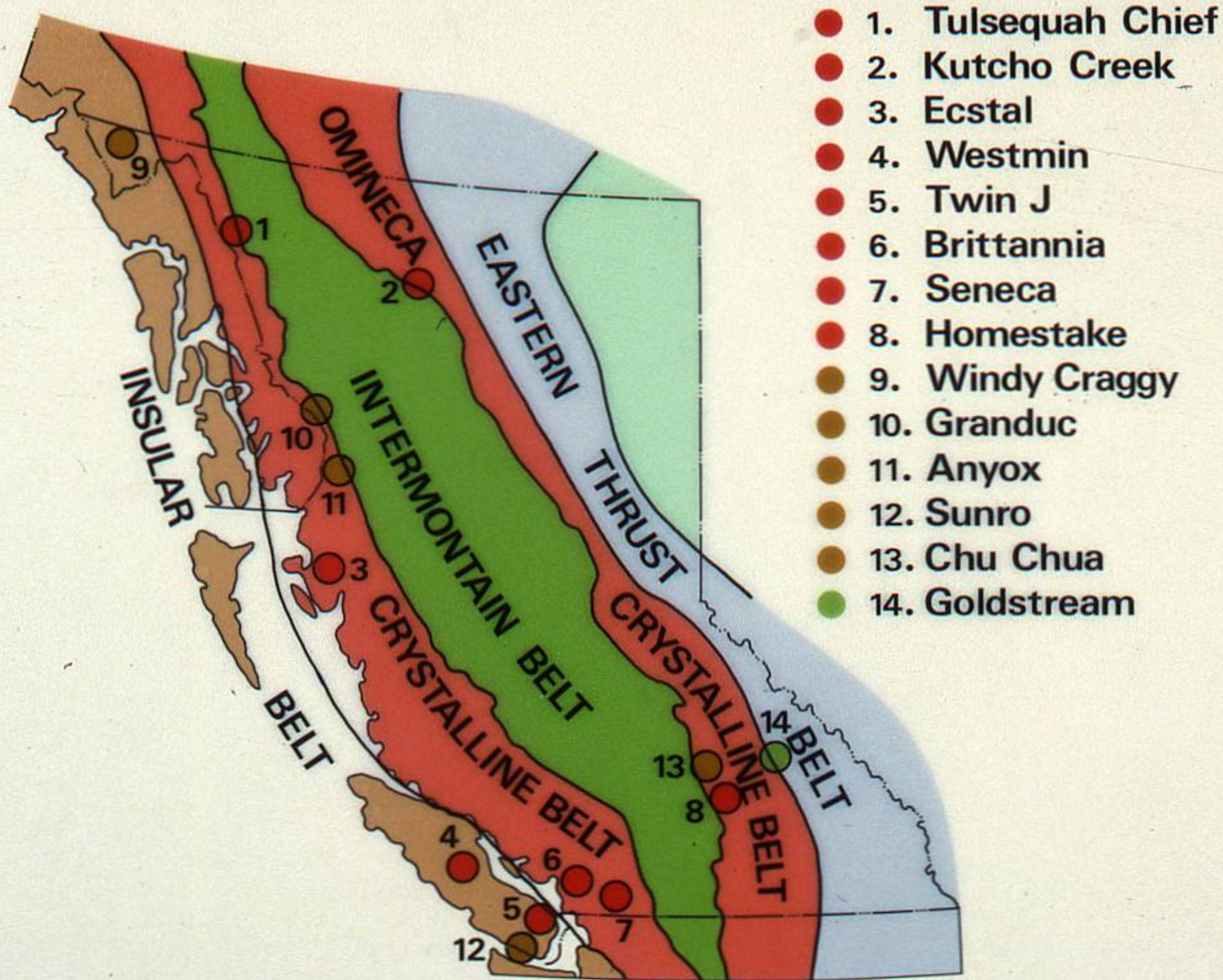
ANHYDRITE STRINGERS

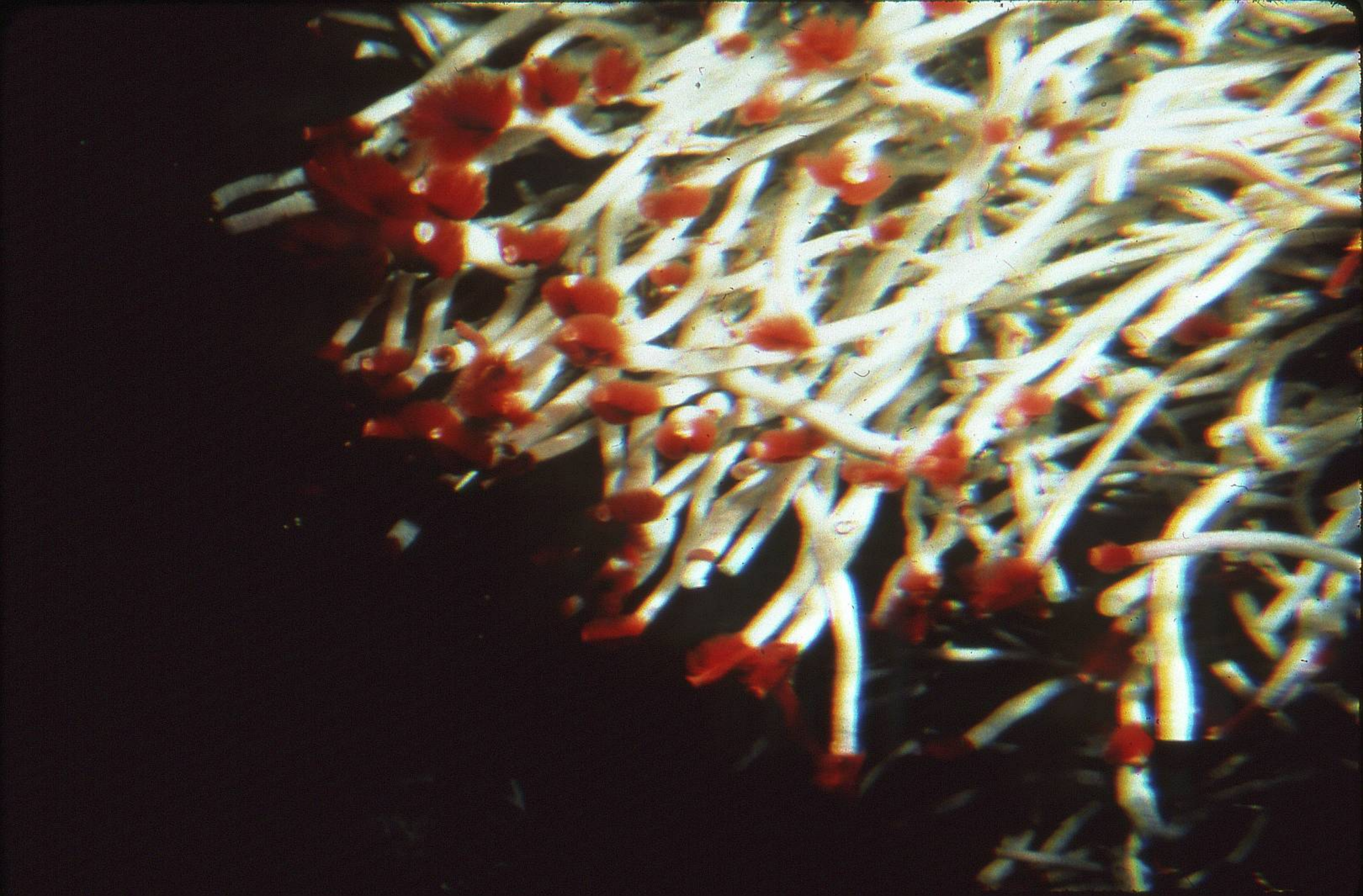
350-DEGREE
HYDRO-
THERMAL
SOLUTION

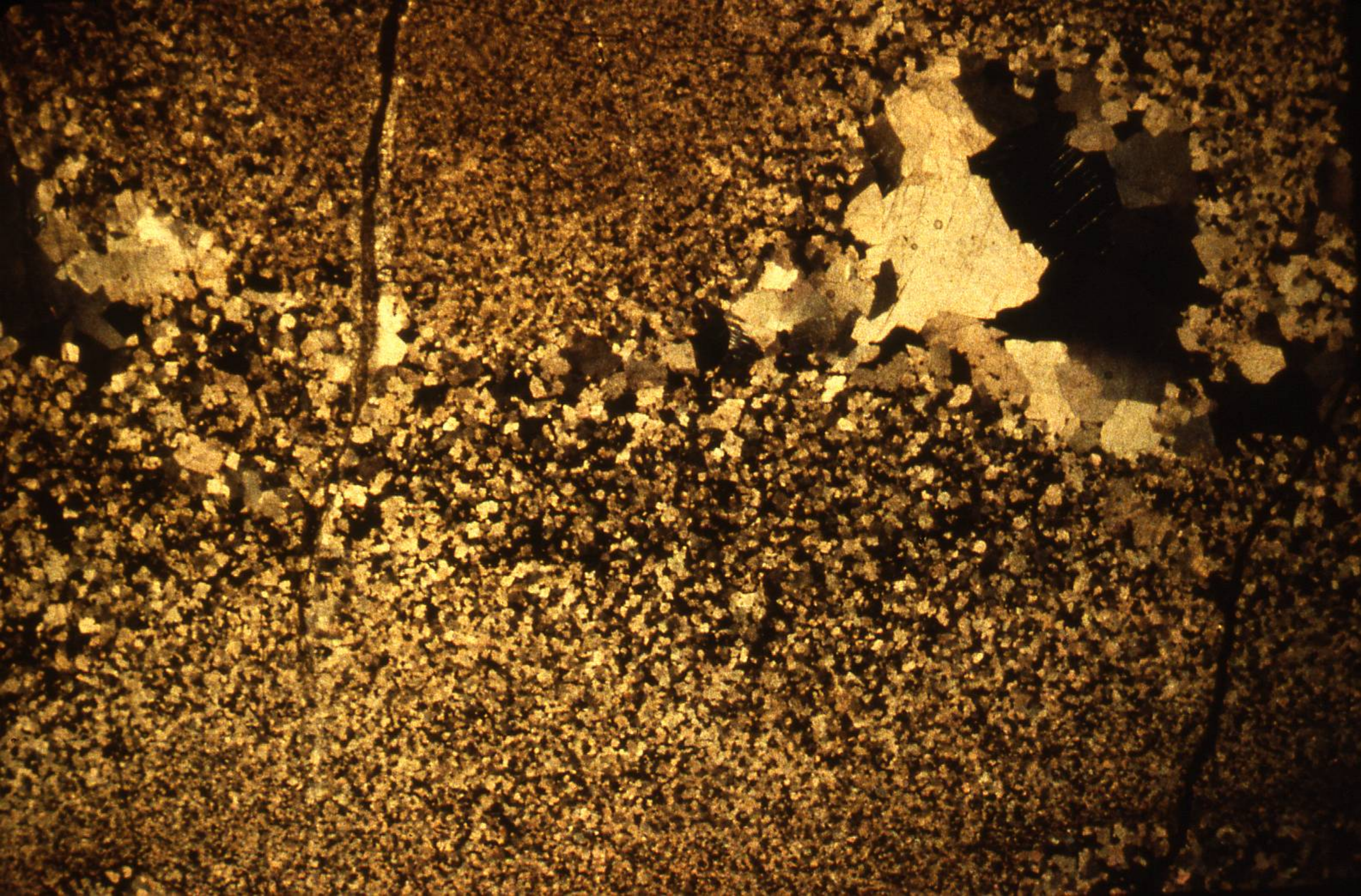
LATERAL
GROWTH

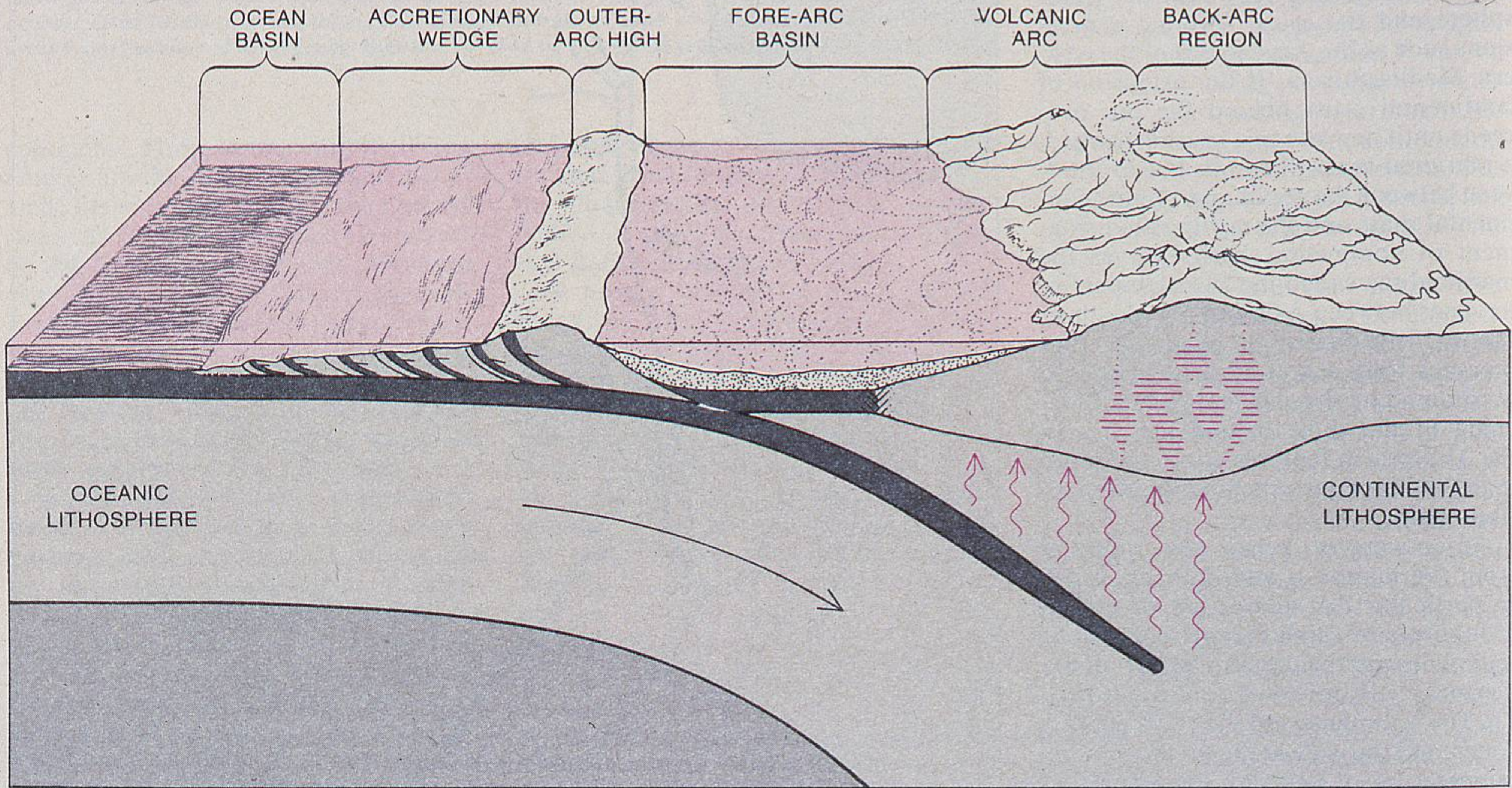


TECTONIC BELTS AND VOLCANOGENIC MASSIVE SULPHIDE DEPOSITS









CONVERGENT PLATE BOUNDARY, where two plates collide, is marked by a characteristic sequence of geologic features in the overriding plate. In the most usual configuration oceanic lithosphere (crust and upper mantle) is subducted under continental lithosphere. Fragments of oceanic crust and sedimentary rock scraped from the subducted plate form an accretionary wedge and an outer-arc high.

Next comes a fore-arc basin, which accumulates sediments from the adjacent elevations, and then a volcanic arc, the most characteristic feature resulting from subduction. Some of the magma rising from the subduction zone solidifies in the crust. The back-arc region behind the volcanoes may show convergence (such as crustal faulting and folding) or divergence (such as crustal thinning and subsidence).

