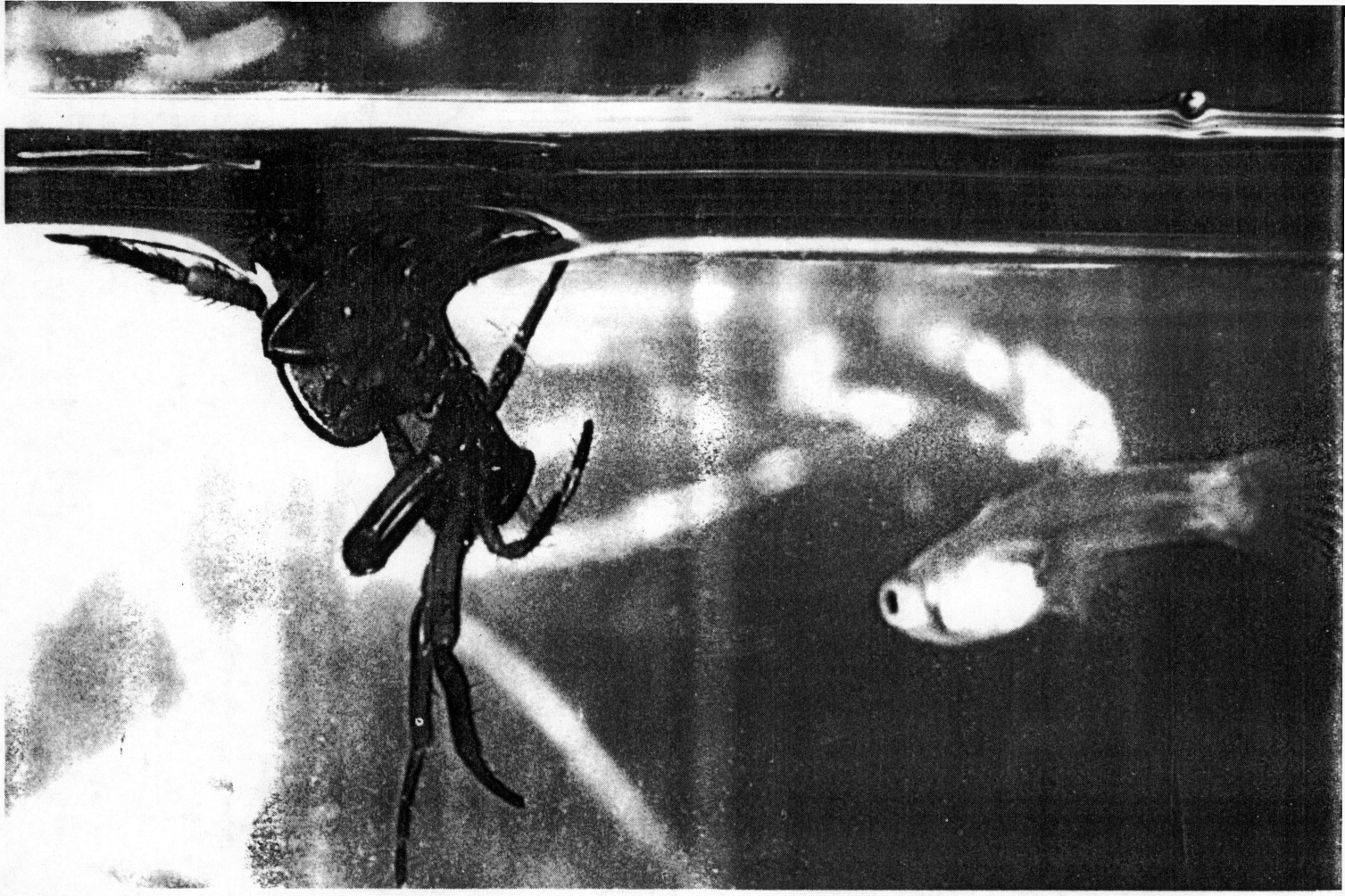

teristics, or color pattern. However, this unprepossessing little creature has a lifeway shared by no other member of the Araneida: alone among spiders she spends virtually her entire life from birth to death under water. There are some other spiders which can run about on top of the water or even dive briefly to catch their prey, but *Argyroneta* is the only one able to live and swim freely under water for long periods of time. She builds her nest under water, and like herself, her almost microscopic offspring are endowed from birth with this same remarkable adaptation to an aquatic environment.

Yet *Argyroneta* boasts no special equipment for this feat. She is built exactly like other spiders — a land creature dependent upon breathing oxygen from the air for survival. It is simply that at some time in the distant past her terrestrial ancestor returned to the water, the primordial birthplace of all life on earth.

Of course, whales and seals have also done this, but over time these and other aquatic mammals developed specialized appendages for swimming, although, like *Argyroneta,* they retained their terrestrial lungs. But *Argyroneta* has not been modified in any way by evolution. She has neither specialized appendages nor organs which would enable her to take oxygen directly from the water. Rather, she brings her aerial environment with her when she goes beneath the surface, replenishing the supply of life-giving oxygen from time to time as she exhausts it. In this sense, of course, her behavior more nearly approximates that of the aqualung diver than that of lower mammals which have returned to the sea.

Willis J. Gertsch of the American Museum of Natural History, a leading student of American spiders, is positively lyrical about *Argyroneta* (which does not naturally occur in the New World):

"Severely plain when outside the water," he writes in his classic work, "American Spiders" (1949), "once *Argyroneta* dives she becomes a shiny, silvery bubble, transformed from a drab gnome into 'an elfin fresh from fairyland.' "

This description and the Statz fossils in the Los Angeles County Museum of Natural History made me curious and I ordered some live specimens from a natural science supply house in England on the recommendation of Dr. Fred Truxal, then Curator of Entomology and now Chief Curator of Life Sciences of the Museum. It was Dr. Truxal who first introduced me to the world of spiders in the early 1950's by presenting me with a live tarantula. *Argyroneta* arrived by air, packed securely in wet moss, probably to the mystification of U. S. Customs. Placed in a small aquarium she proved at once that Gertsch had not exaggerated: hugging a silvery air bubble to her abdomen as she dove beneath the surface she was indeed instantly transformed. She lost no time choosing a suitable spot amid the water plants to build a nest — a tightly woven silken sheet anchored to the surrounding flora into which she released bubble after bubble of air carried down from the surface, until the silk billowed upward and outward to form a kind of miniature diving bell. Over time, as the oxygen became used up, she would return to the surface to capture more air with which to replenish her