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These elegant constructs were first known to mathematics and then to engineers as structures that are physically strong with minimal mass. As mentioned in the feature on page 133, only later were these shapes found in biology, the products of evolutionary tinkering iteratively optimizing structure and function. The "saddle" shape on the left is the form of the familiar potato chip, but mathematicians know it as a hyperbolic paraboloid. Jewelers and builders use it to fashion strong, light structures that distribute loads evenly. In biology the mantis shrimp incorporates this saddle structure into the joint of its raptorial limb, which is capable of producing shell crushing force and traveling through water so fast that a trail of evaporative bubbles and light flashes can be detected by high-speed video. The middle and right images form the softer side of biology; these "gyroid" structures decorate the colorful wings of butterflies, bouncing light to produce brilliant colors not based on pigment, but on reflection and refraction of light by the physical shape of the gyroid. Before being found on the wings of butterflies, gyroids were fabricated as a by-product of NASA research into "minimal surfaces." (image credit: left, courtesy of mathforum.org; middle and right courtesy of Adam G. Weyhaupt)