When marbles challenge pearls

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The spectacular nature of non-wetting drops mainly arises from their extreme mobility, and quicksilver, for instance, was named after this property. There are two ways to make water non-wetting, and they both rely on texture : either we can roughen a hydrophobic solid, which makes drops looking like pearls, or we can texture the liquid with a hydrophobic powder that "isolates" the resulting marble from its substrate. We observe, here, races between pearls and marbles, and report two effects : (1) the static adhesion of the two objects is different in nature, which we interpret as a consequence of the way they meet their substrates ; (2) when they move, pearls are generally quicker than marbles, which might arise from the dissimilarity of the liquid/air interface between these two kinds of globules.

Références

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