We live on a planet of iron and silicon in bodies of oxygen, carbon, and nitrogen in a universe that began with nothing but hydrogen and helium. It took a few billion years and a zoo of massive stars, compact objects, nebulae, and more to create and distribute the stuff that makes up everything around us. This talk will describe what we know - and don't know - about the astrophysical field of nucleosynthesis, the process of forging the periodic table. Come learn how neutrinos make toothpaste, neutron stars make gold, and nobody knows what makes molybdenum-92 - yet.