前言

文章来自《*经济学人*》的*如何与外星人交谈*。

虽然标题是如何与外星人交谈，也适合于不同语言使用者的沟通问题。

想象一下，你在某个欧洲的小镇上吃饭，服务员不会说英语，但是你想尽办法点了菜单上你认识的菜。

再比如出门远行走错了方向，误入亚马逊流域附近的小村庄。那里的人对你一无所知，你模仿咀嚼的声音，他们会以为你是不是舌头不对劲。你举手投降，他们会以为你在发起进攻。

正文

How to talk to aliens

The challenge says a lot about talk among people, too

001 Imagine dining in a European capital where you do not know the local language. The waiter speaks little English, but by hook or by crook you manage to order some thing on the menu that you recognise, eat and pay for. Now picture instead that, af ter a hike goes wrong, you emerge, starving, in an Amazonian village. The people th ere have no idea what to make of you. You mime chewing sounds, which they mista ke for your primitive tongue. When you raise your hands to signify surrender, they t hink you are launching an attack.

002 Communicating without a shared context is hard. For example, radioactive site s must be left undisturbed for tens of thousands of years; yet, given that the Englis h of just 1,000 years ago is now unintelligible to most of its modern speakers, agen

cies have struggled to create warnings to accompany nuclear waste. Committees responsible for doing so have come up with everything from towering concrete spikes, to Edvard Munch's "The Scream", to plants genetically modified to turn an alarming blue. None is guaranteed to be future-proof.

003 Some of the same people who worked on these waste-site messages have also been part of an even bigger challenge: communicating with extraterrestrial life. This is the subject of "Extraterrestrial Languages", a new book by Daniel Oberhaus, a journalist at Wired.

004 Nothing is known about how extraterrestrials might take in information. A pair of plaques sent in the early 1970s with Pioneer 10 and 11, two spacecraft, show nude human beings and a rough map to find Earth—rudimentary stuff, but even that assumes aliens can see. Since such craft have no more than an infinitesimal chance of being found, radio broadcasts from Earth, travelling at the speed of light, are more likely to make contact. But just as a terrestrial radio must be tuned to the right frequency, so must the interstellar kind. How would aliens happen upon the correct one? The Pioneer plaque gives a hint in the form of a basic diagram of a hydrogen atom, the magnetic polarity of which flips at regular intervals, with a frequency of 1,420MHz. Since hydrogen is the most abundant element in the universe, the hope is that this sketch might act as a sort of telephone number.

005 Assuming that human messages actually reach their target, what would earthlings and aliens talk about? The obvious subject to focus on is mathematics; its basic concepts are often assumed to be universal. Any intelligent species might have an interest in natural numbers (1, 2, 3 and so on) as well as things such as pi. But moving beyond that to wider conversation would be far harder. Scientists have worked on "self-interpreting" languages—written in a way that aims to teach the reader the language as they go—which might make the next steps possible.

006 Is there any reason to think alien communication systems would share the two key design features of human language, words and grammar? A word like "book" is a symbol for all objects that exhibit bookish qualities; would aliens also employ symbols, rather than having separate names for every object in their world? Mr Oberhaus adduces arguments that they might. Whatever type of society they inhabit, alien life-forms would have limited time and energy, as people do. It is efficient to use symbols. Similarly, human grammar allows a vast number of sentences to be made from a finite number of rules. Any resource-constrained Moon-man might develop such grammar, too.

007 Even if all such hurdles were overcome, however, distance would still be a prob lem. Human children learn their first language by listening, trying it out and getting instant feedback. This give-and-take allows them to use fluent sentences by the a ge of four. In 2015 the first known exoplanet at a "goldilocks" distance from its st ar (not too near and not too far), and with water, was discovered 110 light-years a way. A message sent today would arrive in 2129; its reply, in 2239. The kinds of ex changes depicted in sci-fi films would take lifetimes.

008 The awesome challenges of communicating across the galaxy mean that some t hink it not worth the effort—to say nothing of a political question raised by Mr Obe rhaus: "Who speaks for Earth?" But pondering these obstacles raises another thoug ht, not about aliens but what humanity has in common. Linguists argue about wheth er languages share universal features or are unique products of local cultures; what ever the answer, the world's 7,000-odd tongues are vastly closer to one another th an anything to be found out there.