TED演讲者：Prosanta Chakrabarty | 普罗萨塔·查克雷巴迪

演讲标题：Four billion years of evolution in six minutes | 六分钟了解四十亿年的进化史

内容概要：Did humans evolve from monkeys or from fish? In this enlightening talk, ichthyologist and TED Fellow Prosanta Chakrabarty dispels some hardwired myths about evolution, encouraging us to remember that we're a small part of a complex, four-billion-year process -- and not the end of the line. "We're not the goal of evolution," Chakrabarty says. "Think of us all as young leaves on this ancient and gigantic tree of life -- connected by invisible branches not just to each other, but to our extinct relatives and our evolutionary ancestors."
人类是从猴子进化而来，还是从鱼类进化而来？在这个启发式的演讲中，鱼类研究学者同时也是TED研究员，普罗萨塔·查克雷巴迪，将打破一些根深蒂固的进化传说，鼓励我们记住，在复杂的四十亿年的进化中，我们只是一小部分而不是终点。“我们不是进化的终极目标，”查克雷巴迪说，“想想我们只是古老的巨大的生命树上年轻的叶子，被看不见的枝干所连接，不仅仅是连接我们彼此，更是与一些我们已经消失的近亲和进化的祖先相连。”

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If we evolved from monkeys, why are there still monkeys?	如果我们从猴子进化而来, 为什么现在仍然有猴子？[00:12]
(Laughter) Well, because we're not monkeys, we're fish.	（笑声） 因为我们并不是猴子进化来的, 我们是鱼。[00:17]
(Laughter) Now, knowing you're a fish and not a monkey is actually really important to understanding where we came from.	（笑声） （笑声） 对于理解我们从哪里来非常重要。[00:21]
I teach one of the largest **evolutionary** biology classes in the US, and when my students finally understand why I call them fish all the time, then I know I'm getting my job done.	我在教的一个班,是在美国学习 生物进化论的最大的班级之一。 当我的学生们最终理解了 为什么我总叫他们鱼的时候, 我明白我的目标达到了。[00:30]
But I always have to start my classes by **dispelling** some **hardwired myths**, because without really knowing it, many of us were taught evolution wrong.	但我总是不得不通过打破一些 根深蒂固的传说来开始我的授课, 因为在没有真正了解进化论前,我们中的大多数都被灌输了错误的进化观念。[00:40]
For instance, we're taught to say "the theory of evolution."	比如,我们被教导使用”进化论“这个词。[00:50]
There are actually many theories, and just like the process itself, the ones that best fit the data are the ones that survive **to this day**.	实际上,有非常多的理论, 就像这个进程本身, 那些最合适的理论就是 那些被保存倒如今的理论。[00:54]
The one we know best is **Darwinian** natural selection.	其中最广为人知的理论之一就是 达尔文的自然选择论。[01:03]

evolutionary: adj.进化的;发展的;渐进的 **dispelling:** 驱散/驱逐/消除(dispel的现在分词形式) **hardwired:** adj.电路的 **myths:** 神话/谬见 **For instance:** 例如 **to this day:** 至今 **Darwinian:** adj.达尔文的;达尔文学说的/n.进化论者

That's the process by which **organisms** that best fit an environment survive and get to reproduce, while those that are less fit slowly **die off**.	在这种进化方式中, 最适应环境的生物生存下来, 并且得到繁衍, 而那些相对来说不太适应环境的 生物,会渐渐走向消亡。[01:06]
And that's it.	就是这样。[01:16]
Evolution is as simple as that, and it's a fact.	进化就是这么简单, 它是一种事实。[01:17]
Evolution is a fact as much as the "theory of gravity."	进化就像重力理论一样是一种事实。[01:21]
You can prove it just as easily.	你可以很容易地证明它。[01:25]
You just need to look at your **bellybutton** that you share with other **placental mammals**, or your **backbone** that you share with other **vertebrates**, or your DNA that you share with all other life on earth.	你只需要看看你的肚脐, 那是你和其他胎生 哺乳动物一样的地方, 或者看看你的脊椎骨, 那是你和其他脊椎动物一样的地方; 又或者你的DNA,那是你和 地球上其他生物相似的地方。[01:28]
Those **traits** didn't **pop up** in humans.	这些特征并不会让人类与众不同。[01:39]
They were passed down from different ancestors to all their **descendants**, not just us.	它们被不同的祖先 遗传给它们所有的后代。[01:41]
But that's not really how we learn biology early on, is it?	但这些并不是我们最早 了解到的生物学,不是吗？[01:47]

organisms: n.[生物]生物体(organism的复数);[生物]有机体 **die off:** 相继死去,逐个死亡 **bellybutton:** n.肚脐 **placental:** adj.胎盘的;胎座的/n.有胎盘哺乳动物 **mammals:** n.[古生]哺乳类;哺乳类动物(mammal的复数);哺乳纲 **backbone:** n.支柱;主干网;决心,毅力;脊椎 **vertebrates:** n.[脊椎]脊椎动物(vertebrate的复数) **traits:** n.特性,特质,性格(trait的复数) **pop up:** v.突然出现 **descendants:** n.后代,晚辈(descendant的复数);子节点;衍生物

We learn plants and **bacteria** are **primitive** things, and fish **give rise to amphibians** followed by **reptiles** and mammals, and then you get you, this perfectly evolved creature at the end of the line.	我们知道植物和细菌是原生生物, 然后是鱼类,进一步到两栖类, 进而是爬行动物和哺乳动物, 之后到人类自己, 在进化的时间轴终点 完美地成为进化的生物。[01:50]
But life doesn't evolve in a line, and it doesn't end with us.	但生物并不是在一条轴线上进化的, 也不是由我们

	来终结的。[02:02]
But we're always shown evolution **portrayed** something like this, a monkey and a **chimpanzee**, some extinct humans, all on a forward and **steady** march to becoming us.	但我们总是被灌输这样的 关于进化论的描述: 猴子,大猩猩, 一些消失的类人猿, 通过稳定的进化,最终成为我们。[02:08]
But they don't become us any more than we would become them.	但它们并不会成为我们, 我们也不会成为它们。[02:19]
We're also not the goal of evolution.	我们也不是进化的终极目标。[02:23]
But why does it matter?	但为什么这一点这么重要呢? [02:27]
Why do we need to understand evolution the right way?	为什么我们需要 用正确的方式来理解进化呢? [02:28]
Well, misunderstanding evolution has led to many problems, but you can't ask that **age-old** question, "Where are we from?"	对进化的误解已经产生了很多问题, 但当你没有以正确的方式理解进化时, 你不会问这样古老的问题,[02:32]
bacteria: n.[微]细菌 **give rise to:** 使发生,引起 **amphibians:** n.两栖动物;[古生]两栖类 **reptiles:** n.爬行动物(reptile的复数);[脊椎]爬行类;爬虫类 **portrayed:** vt.描绘;扮演 **chimpanzee:** n.[脊椎]黑猩猩 **steady:** adj.稳定的；不变的；沉着的/vi.稳固/vt.使稳定；稳固；使坚定/adv.稳定地；稳固地/n.关系固定的情侣；固定支架 **age-old:** adj.古老的;由来已久的	
without understanding evolution the right way.	“我们从哪里来？” [02:42]
Misunderstanding it has led to many **convoluted** and **corrupted** views of how we should treat other life on earth, and how we should treat each other **in terms of** race and **gender**.	对进化的误解,已经导致了许多关于 我们如何对待地球上其他生物, 以及在我们如何站在 种族和性别的角度 对待彼此的方式的 破坏性的,扭曲的观念。[02:44]
So let's go back four billion years.	让我们回到四百万年前。[02:59]
This is the single-celled organism we all came from.	这些单细胞有机体是我们的起源。[03:02]
At first, it gave rise to other single-celled life, but these are still **evolving** to this day, and some would say the **Archaea** and Bacteria that make up most of this group is the most successful on the planet.	首先,它们演变成其它的单细胞生命, 但这些单细胞生物今天仍在进化, 而有些人会说古细菌和细菌组成了 这颗星球上 最成功的种群。[03:05]
They are certainly going to be here well after us.	它们在我们消失后一定还会存在的。[03:17]
About three billion years ago, **multicellularity** evolved.	大约在三百万年前, 出现了多细胞生物。[03:21]
This includes your **fungi** and your plants and your animals.	这包括真菌,植物和动物。[03:25]
The first animals to develop a backbone were **fishes**.	第一种进化出脊椎的动物是鱼类。[03:28]
convoluted: adj.复杂的;费解的;旋绕的/v.盘绕;缠绕(convolute的过去分词) **corrupted:** adj.腐败的;毁坏的;崩溃的/v.(使)腐败;(使)堕落(corrupt的过去分词) **in terms of:** 依据;按照;在...方面;以...措词 **gender:** n.性;性别;性交/vt.生(过去式gendered,过去分词gendered,现在分词gendering,第三人称单数genders,形容词genderless) **evolving:** adj.进化的;展开的/v.进化;展开(evolve的ing形式) **Archaea:** n.古生菌 **multicellularity:** n.多细胞 **fungi:** n.真菌;菌类;蘑菇(fungus的复数) **fishes:** n.鱼类(fish的复数)/v.捕鱼;间接探听;搜寻(fish的三单形式)	
So technically, all vertebrates are fishes, so technically, you and I are fish.	科学地说,所有的脊椎动物都是鱼。 所以,科学地说, 你和我都是鱼。[03:33]
So don't say I didn't warn you.	所以别说我没有提醒过你们。[03:40]
One fish **lineage** came onto land and gave rise to, among other things, the mammals and reptiles.	一些鱼类来到岸上,然后演变成 其他的生物,哺乳动物,爬行动物。[03:43]
Some reptiles become birds, some mammals become **primates**, some primates become monkeys with tails, and others become the great **apes**, including a variety of human species.	一些爬行动物变成了鸟类, 一些哺乳动物变成了灵长动物, 一些灵长动物变成了有尾巴的猴子, 另一些变成了猿类,包括不同的人种。[03:49]
So you see, we didn't evolve from monkeys, but we do share a common ancestor with them.	所以我们并不是猴子演变而来的, 但我们和它们拥有同一个祖先。[04:01]
All the while, life around us kept evolving: more bacteria, more fungi, lots of fish, fish, fish.	与此同时,我们周围的 生命也在保持进化: 出现了更多真菌,更多细菌, 以及更多的鱼,各种各样的鱼。[04:06]
If you couldn't tell -- yes, they're my favorite group.	可能你不知道—— 是的,它们是我最喜欢的种群。[04:13]
(Laughter) As life **evolves**, it also goes extinct.	（笑声） 生命在进化,也在消亡。[04:16]
Most species just last for a few million years.	大多数的动物 仅仅存在不到一百万年。[04:20]
So you see, most life on earth that we see around us today are about the same age as our species.	所以你看,今天我们在地球上 看到的周围的大多数生物 和我们都有着差不多的年纪。[04:23]
lineage: n.血统;家系,[遗]世系 **primates:** n.灵长类 **apes:** n.[脊椎]猿;猩猩;类人猿(ape的复数)/v.模仿;仿效(ape的三单形式) **evolves:** v.进化,进展(evolve的第三人称单数形式)	
So it's **hubris**, it's **self-centered** to think, "Oh, plants and bacteria are primitive, and we've been here for an evolutionary minute, so we're somehow special."	我们却因此骄傲自大地认为: “噢,植物和细菌是原生生物, 而我们已经进化了一阵子, 所以我们是特别的物种。” [04:28]
Think of life as being this book, an unfinished book for sure.	想想生命这部书, 一定是一本尚未完成的书。[04:38]

We're just seeing the last few pages of each chapter.	我们仅仅看到了每一章的最后几页。[04:43]
If you **look out on** the eight million species that we share this planet with, think of them all being four billion years of evolution.	如果你注意到和我们 共享这颗星球的 八百万种生物, 想想它们已经有了 四百万年的进化历程。[04:48]
They're all the product of that.	它们都是进化的产物。[04:56]
Think of us all as young leaves on this ancient and **gigantic** tree of life, all of us connected by invisible branches not just to each other, but to our extinct **relatives** and our evolutionary ancestors.	想想我们只是这古老的巨大的 生命之树中年轻的叶子, 我们被看不见的枝干所连接, 它们不仅仅连接了我们彼此, 更连接了我们已经消亡的近亲, 以及我们进化了的祖先。[04:59]
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As a **biologist**, I'm still trying to learn, with others, how everyone's related to each other, who is related to whom.	作为一名生物学家, 我仍然在和他人一起探究, 我们每个人是如何与其他人 相连的,谁又和谁相关联。[05:12]
Perhaps it's better still to think of us as a little **fish out of water**.	也许这样想更好, 我们只是离开水的小小的鱼。[05:20]
hubris: n.傲慢;狂妄自大 **self-centered:** adj.自我中心的;利己主义的 **look out on:** 面临 **gigantic:** adj.巨大的，庞大的 **relatives:** n.亲属;[语]关系词(relative的复数) **biologist:** n.生物学家 **fish out of water:** 如鱼离水;离水之鱼,不得其所	
Yes, one that learned to walk and talk, but one that still has a lot of learning to do about who we are and where we came from.	是的,一条学习了走路和说话的鱼。 但仍然有许多事情需要探究, 关于我们是谁,[05:26]
Thank you.	谢谢。[05:35]
(Applause)	（掌声）[05:36]