TPO10

–

Conversation 1

Narrator

Listen to a conversation between a student and her Photography Professor.

Student

Professor Jason, there is something that’s been on my mind.

Professor

Ok.

Student

Remember last week, you told us that it's really important to get our photography into a show, basically as soon as we can?

Professor

Yes up, it's a big step, no question.

Student

Thing is, I am sitting here and I am just not sure how I get there. I mean I’ve got some work I like, but is it the really what the gallery is looking for? How would I know, how do I make the right context to get it into show, I just really don't...

Professor

Ok, slow on, slow on. Um…these are questions, well, just about every young artist has to struggle with. Ok, the first thing you should do is you absolutely have to stay true to your artistic vision; take the pictures you want to take.

Don't start trying to catch the flavor the monsoon, be trendy because you think you are getting into a show--- that never works, because you wanna them creating something you don't really believe in. That sounds uninspired, and won’t make any shows. I've seen that have happened so many times. This doesn’t mean that you should go into the caves. Keep up with the trends,

even think about how your work might fit in with them, but don't mindlessly follow them.

Student

Well, yeah, I can see that. I think though I have always been able to stay pretty true to what I want to create, not what others want me to create. I think that comes through my work.

Professor

Ok, just remember that is one thing to create works that you really want to create one that in the classroom. The only thing is stake is your grade. But what create outside the classroom? That could be in different story. Eh, I'm not talking about techniques or things like that. It's just there is so much more stake when you are out there making art for living. There are a lot of pressures to become something you are not, and people often surrendered to that pressure.

Student

But to get stuff it exhibited…

Professor

Well, you need to be a bit of opportunists. Now, a common sense things like always having a sample if you worked on hand to give the people. You won’t believe the kind of contacts and opportunists you get it in this way. And try to get your work seen in the places like restaurants, bookstores, you will be surprised how world get surround it about photography in places like then.

Student

Ok it's just so hard to think about all of these practical things and make good work, you know

TPO10

–

Lecture

1

Narrator

Listen to part of a lecture in a Marine Biology Class

Professor

We know whales are mammals and that they evolved from land creatures. So the mystery is figuring out how they became ocean dwellers. Because until recently there was no fossil record of what we call “the missing link”- that is evidence of species that show the transition between land-dwelling mammals and today’s whales. Fortunately, some recent fossil discoveries have made the picture a little bit clearer. For example, a few years back in Pakistan, they found a skull of a wolf-like creature. It’s about 50 million years old. Scientists had seen this wolf-like creature before, but this skull was different. The ear area of the skull had characteristics seen only in aquatic mammals, specifically whales.

Err, well, then also in Pakistan they found a fossil of another creature, which we call Ambulocetus natans That’s muffle lay. The name Ambulocetus natans comes from Latin of course, and means “walking whale that swims”. It clearly had four limbs that could have been used for walking. It also had a long thin tail, typical of mammals, something we don’t see in today’s whales. But, it also had a long skeletal structure. And that long skeletal structure suggests that it was aquatic. And very recently in Egypt, they found a skeleton of Basilosaurus. Basilosaurus was a creature that we’ve already known about for over a hundred years. And it has been linked to modern whales because of its long whale-like body. But this new fossil find showed a full set of leg bones, something we didn’t have before. The legs were too small to be useful. They weren’t even connected to its Power San and couldn’t have supported its weight. But it clearly shows Basilosaurus an evolution from land creature. So that’s a giant step in the right direction. Even better, it established Ambulocetus natans as a clear link between the wolf-like creature and Basilosaurus. Now these discoveries don’t completely solve the mystery. I mean, Ambulocetus natans is a mammal that shows a sort of bridge between walking on land and swimming. But it also is very different from the whales who know today. So really we are working just a few pieces of a big puzzle.

Emm…a related debate involved some recent DNA studies. Remember, DNA is the genetic code for any organism. And when the DNA from two different species is similar, it suggests that those two species are related. And when we compared some whale DNA with DNA from some other species, we got quite a surprise. The DNA suggests that whales are descendants of the hippopotamus. Yes, the hippopotamus! Well, it came as a bit of a shock. I mean, that a four-legged land and river dweller could be the evolutionary source of a completely aquatic creature up to 25 times its size. Unfortunately this evolution of the hippopotamus apparently contradicts the fossil record, which suggests that the hippopotamus is only a very distant relative of the whale, not an ancestor. And of course as I mentioned, that whales are descendent not from hippos but from that distant wolf-like creatures. So we have contradictory evidences. And more research might just raise more questions and create more controversies. At any rate, we have a choice. We can believe the molecular data- the DNA, or we can believe the skeleton trail, but unfortunately, not both.

Err… and there have been some other interesting findings from DNA research. For a long time, we assumed that all whales that had teeth including sperm whales and killer whales were closely related to one another. And the same for the toothless whales, like the blue whale and other baleen whales, we assumed that they be closely related. But recent DNA studies suggest that that’s not the case at all. The sperm whale was actually closely related to the baleen whale, and it’s only distantly related to the toothed-whales. So that’s the real surprise to all of us.

TPO10

–

Lecture

2

Narrator

Listen to part of a lecture in a European History Class

Professor

So would it surprise you to learn that many of the food that we today consider traditional European dishes that their key ingredients were not even known in Europe until quite recently, until the European started trading with the native people in North and South America? I mean, you probably aware that the Americas provide Europe and Asia with food like squash, beans, turkey, peanuts. But what about all those Italian tomato sauces, humgarengurush or my favorite, French fries? Those yummy fried potatoes.

Student

Wait. I mean I knew potatoes were from where, South America?

Professor

South America. Right, the Andes Mountains.

Student

But you are saying tomatoes too? I just assume since there used to so many Italian dishes.

Professor

No, like potatoes, Tomato grew widely in the Andes. Although unlike potatoes, they weren’t originally cultivated there. That seems to occur first in Central America. And even then the tomato doesn’t appear to have been very important as a food plant until the European came on the scene. They took it back to Europe with them around 1550. And Italy was indeed the first place where it’s widely grown as food crop. So in a sense, it really is more Italian than American. And another thing and this is true of both potato and tomato. Both of the plants are members of Nightshade family. The Nightshade family is a category of plants which also includes many that you wouldn’t want to eat, like mandrake, belladonna, and even tobacco. So it’s no wonder that people once considered potatoes and tomatoes to be inedible too, even poisonous. And in fact, the leaves of the potato plant are quite toxic. So, too it took both plants quite a while to catch on in Europe. And even longer before it made a return trip to North America and became popular food items here.

Student

Yeah, you know, I remember, I remember my grandmother telling me that when her mother was a little girl, a lot of people still thought tomatoes are poisonous.

Professor

Oh, sure. People didn’t really start eating them here until the mid-eighteen hundreds.

Student

But seems like I heard didn’t Tom Jefferson grow them or something?

Professor

Well, that’s true. But then Jefferson is known not only as the third president of the United States but also as a scholar who was way ahead of his time in many ways. He didn’t let the conventional thinking of his day restrain his ideas.

Now, potatoes went through a similar sort of rejection process, especially when they were first introduced in Europe. You know how potatoes can turn green if they are left in the light too long? And that green of skin can make the potatoes tastes bitter; even make you ill. So that was enough to put people off for over 200 years. Yes, Bill?

Student

I’m sorry professor Jones. But I mean yeah ok. American crops have probably contributed a lot to European cooking over the years. But…

Professor

But have they really played any kind of important role in European history? Well, as a matter of fact, yes. I was just coming to that. Let’s start with North American corn or maize, as it’s often called. Now before the Europeans made any contact with the Americas, they subsist mainly on grains, grains that often suffered from crop failures. And largely for this reason, the political power in Europe was centered for centuries in the South, around the Mediterranean Sea which was where they could grow these grains with more reliability. But when corn came to Europe from Mexico, wow, now they had a much hardier crop that could be grown easily in more northerly climates and centers of power began to shift accordingly. And then, well as I said potatoes weren’t really popular at first. But when they finally catch on which they did in Ireland around 1780. Well, why do you suppose it happen? Because potatoes have the ability to provide abundant and extremely nutritious food crop, no other crop grew in North Europe at the time had anything like the number of vitamins contained in potatoes. Plus, potatoes grow on the single acre of land could feed many more people than say, wheat grow on the same land. Potatoes soon spread to France and other Northern European countries. And as a result, the nutrition of the general population improved tremendously and population soared in the early 1800 and so the shift of power from southern to northern Europe continued.

Part 2 - Script:

TPO10

–

Conversation

2

Narrator

Listen to a conversation between a student and an employee in the University bookstore.

Student

Hi, I brought this book at the beginning of this semester, but, some things come up and… I’d like to return it.

Employee

Well, for full refund: store policy is that you have to return merchandises 2 weeks from the time it was purchased. Er~~but for science text books or anything having to do with specific courses. Wait...What is it for specific course?

Student

Yeah, but actually…

Employee

Well... for course books, the deadline is 4 weeks after the beginning of the semester. So this forth semester, the deadline was October. 1st.

Student

Ouch, then I missed it. But, why October.1st?

Employee

Well, I guess the reasoning is the by October. 1st, the semester is for gear. And everyone kind knows what courses all we are taking that semester

Student

I get it, so it mainly for people who decided to its drop from… to changes new courses early on.

Employee

Exactly!!! The books have to been in perfect condition of course. They can be marked up or looked use in any way for the full refund, I mean.

Student

Well, but, my situation is a little different. I hoped you might be able to make an exception.

Employee

Well, the policy is generally pretty rigid and this semester is almost over.

Student

Okay~ here what’s happen? Um~ I think my professor really miscalculated. Anyway the syllabus was away too ambitious in my opinion. There’re only 2 weeks of classes last semester and there are I‘d like 6 books on the syllabus that we haven’t even touched.

Employee

I see. So you’re hoping to return in this one.

Student

Yeah, professor already announce that we want be reading this one by Jane Boons and all the others I bought used

Employee

Jane Boons? Which book of hers?

Student

It called “Two serious ladies”

Employee

Oh, but you should keep it that one. Are you interested in literature?

Student

Well. I am in English major.

Employee

You are lucky to have professor who includes the last note writer like her on the syllabus, you know, not the usual authors we’ve all read.

Student

So you really think..

Employee

I do. And especially if you into literature

Student

Hem~~ well, this I wasn’t it expecting. I mean… er~em.. Wow~

Employee

I am hoping you were done to get been too pushy. If you prefer, you can return the book and arrange for store credit, you don't qualified for refund. Policy is policy after all, but you can make it exchange and you can use the credit for your books for the next semester. The credit carries over for one semester to the next.

Student

Emm…that’s good to know, but now I am really entry, I guess that just because we run out of time to read this book in class, doesn't mean that I cannot read it on my own time. You know, I think I’ll give it a try.

TPO10

–

Lecture

3

Narrator

Listen to part of a lecture in an Ecology Class.

Professor

So we’ve been talking about nutrients, the elements in the environment that are essential for living organisms to develop, live a healthy life and reproduce.

Some nutrients are quiet scarce; there just isn’t much of them in the environment. But fortunately they get recycled. When nutrients are used over and over in the environment, we call that a nutrient cycle. Because of the importance of nutrients and their scarcity, nutrient recycling is one of the most significant eco-system processes that will cover in this course. The three most important nutrient recycles are the nitrogen cycle, the carbon cycle and the one we are going to talk about today, the Phosphorus cycle.

So the Phosphorus cycle has been studied a lot by ecologists because like I said, Phosphorus cycle is a most important nutrient and it’s not so abundant. The largest quantities are found in rocks at the bottom of the ocean. How the Phosphorus get there? Well, let’s start with the Phosphorus in rocks. The rocks get broken down into smaller and smaller particles as they are weathered. They are weathered slowly by rain and wind over long periods of time. Phosphorus is slowly released as the rocks are broken down and then it gets spread around into the soil. Once it’s in the soil, plants absorb it through their roots.

Student

So that’s the reason people mine rocks that contain a lot of Phosphorus to help the agriculture?

Professor

Hum, they mined the rock, artificially break it down and put the Phosphorus into the agricultural fertilizers. So humans can play a role in a first part of the Phosphorus cycle -- the breaking down of rocks and the spreading Phosphorus into the soil by speeding up the rate at which this natural process occurs. You see. Now after the Phosphorus is in the soil, plants grow. They use Phosphorus from the soil to grow. And when they die, they decompose. And the Phosphorus is recycled back into the soil; same thing with the animals that eat those plants, or eat other animals that have eaten those plants. We call all of this – the land phase of the Phosphorus cycle. But a lot of the Phosphorus in the soil gets washed away into rivers by rain and melting snow. And so begins another phase of the cycle. Can anyone guess what it is called? Nancy

Nancy

Well, if the one is called the land phase, then this has to be called the water phase, right?

Professor

Yes, that’s such a difficult point isn’t it? In a normal water phase, rivers eventually empty into oceans, and once in the oceans, the Phosphorus gets absorbed by water plants like algae. Then fish eats the algae or eat other fish that have eaten those plants. But the water phase is sometime affected by excessive fertilizers. If not all of Phosphorus gets used by the crops and larger amounts of Phosphorus gets into the rivers. This could cause a rapid growth of water plants in the river, which can lead to the water waste getting clogged with organisms, which can change the flow of the water. Several current studies are looking at these effects and I really do hope we can find the way to deal with this issue before these ecosystems are adversely affected. Ok?

Of course, another way that humans can interrupt the normal process is fishing. The fishing industry helps bring Phosphorus back to land. In the normal water phase the remaining Phosphorus makes its way, settles to the bottom of the ocean and gets mixed into the ocean sediments. But remember, this is a cycle. The Phosphorus at the bottom of the ocean has to somehow make its way back to the surface, to complete the cycle, to begin the cycle all over again. After millions of years, powerful geological forces, like under water volcanoes lift up the ocean sediments to form new land. When an under volcano pushes submerge rock to the surface, a new island is created. Then over many more years the Phosphorus reach rocks of the new land begin to erode and the cycle continues.

Guy

What about, well, you said that the nitrogen cycle is also an important nutrient cycle. And there is a lot of nitrogen in the atmosphere, so I was wondering, is there a lot of Phosphorus in the atmosphere too?

Professor

Good question, George. You’re right to guess the Phosphorus can end up in earth atmosphere. It can move from the land or from the oceans to the atmosphere, and vice versa. However, there’s just not as substantial amount of it there, like there is with nitrogen, it’s a very minimal quantity.

TPO10

–

Lecture

4

Narrator

Listen to part of a lecture in a Psychology Class.

Professor

OK. If I ask about the earliest thing you can remember, I will bet for most of you, your earliest memory would be about from age of 3, right? Well, that’s true for most adults. We cannot remember anything that happened before age of 3. And this phenomenon is so widespread and well-documented it has a name. It is called child amnesia and it was first documented in 1893.

As I said, this phenomenon refers to the adults not being able to remember the childhood incidents. It’s not children trying to remember events from last month or last years. Of course you follow that if you can’t remember incidents as your child, you probably won’t remember as an adult. OK, so … why is this? What is the reason from the child amnesia? Well, once a popular explanation was that child memories are always repressed and memories are disturbing so that is adults we keep them in barricade. And so we can recall them and this is base on…well it’s not base on, on, on… the kind of self-research in the lab testing we want to talk about today. So let’s put that explanation aside and concentrate on just two. OK? It could be that as children we do form memories of things prior to age of 3, but forget as we get grew older, let’s one explanation. Another possibility is that children younger than 3 lack some cognitive capacity for memory. And that idea, that children are unable to form memories that have been the dominant belief psychology for the past 100 years. And this idea is very much tied to things, the theory of Jean Piaget and also to language development in children.

So PRJ’s theory of cognitive development--- PRJ’s suggested that because they don’t have language, children younger than 18-24 months leave in the here and now that is they lack the mean to symbolic represent object, and events, that will not physically presented. Everybody get that? PRJ proposed that young children don’t have way to represent things that aren’t wide in front of them. That’s what language does, right? Words represent things, ideas. Once language started to develop for about age 2, they do has a system for symbolic representation and can talk about things which are not in there in immediate environment including the past. Of course he didn’t claim that infants don’t have any sort of memory it is acknowledged that they can recognize some stimuli, like faces. And for many years this model were very much in favors in psychology, even thought memory tests were never performed on young children.

Well, finally in the 1980s, study was done. And this study show that very young children under age of 2 do have capacity for recall. Now if we children cannot talk, how was the recall tested? Well, that is a good question, since the capacity for recall has always been linked with the ability to talk. So the researcher set up an experiment using imitation based texts. The adults use probable toys or other objects to demonstrate action that has 2 steps. The children were asked to imitate the steps immediately and then he again after lays off one or month. And even after delay, the children could…couldn’t call or replicate the action, the objects they used, and the steps involved and the order of the steps. Even children young is 9 months, now, test showed that there was a faster way of forgetting among the youngest children but most importantly it shows that the development of the recall did not depend on language development. And that was the importance finding. I guess I should add that the findings, don’t say there was no connection between the development of language and memory. There are some of evidence that are being able to talk about the event does lead to having a strong memory of that event. But that does not seem the real issue here.

So, back to our question about the cause of the childhood amnesia, well, there is something called the rate of forgetting. And childhood amnesia may reflect high rate of forgetting, in other words, children under age of 3 do form memory and do so without language. But they forget the memories at a fast rate, probably faster than adults do. Researcher has set standards….sort of unexpected rate of forgetting, but that expected rate was set based on the tests done on the adults. So what is the rate of forgetting for children under the age of 3? We expected to be high, but the tests disproved these really haven’t been done yet.