



The clues were buried a long time ago.
That won't stop a team of archaeologists, historians, forensic experts, and
one college intern named Ana
from uncovering the truth about the secret in the cellar.

The Secret in the Cellar:

A Written in Bone Forensic Mystery from Colonial America

Based on a true story.



Dr. Kingsley
Forensic Anthropologist

Charles
Chief Archaeologist

Ana
College Intern

Janet
Deputy Archaeologist

Dr. Howell
Historian



Two modern-day archaeologists in the Tidewater Chesapeake area, Maryland USA. An archaeological survey...

What did you find Charles?

Trade and belly tobacco pipes.
Quite a few of them!

Looks like we were right to
think there was a colonial
settlement around here.

Look Janet - the sod farm operations must have disturbed and uncovered these artifacts.



I hope the removal of the topsoil didn't destroy too many of them. We need to get a Lost Towns dig started right away.



[Definition: Shovel Test Pit](#)

[Definition: Geophysical Surveys](#)

Months later...

Janet, I'd like you to meet Ana, our intern. She'll be learning about archaeology and getting college credit for it.

Glad to have you. You'll be helping to excavate a house cellar from the last half of the 17th century, where the owners discarded their trash. And you know what they say - you can learn a lot about people from their trash.

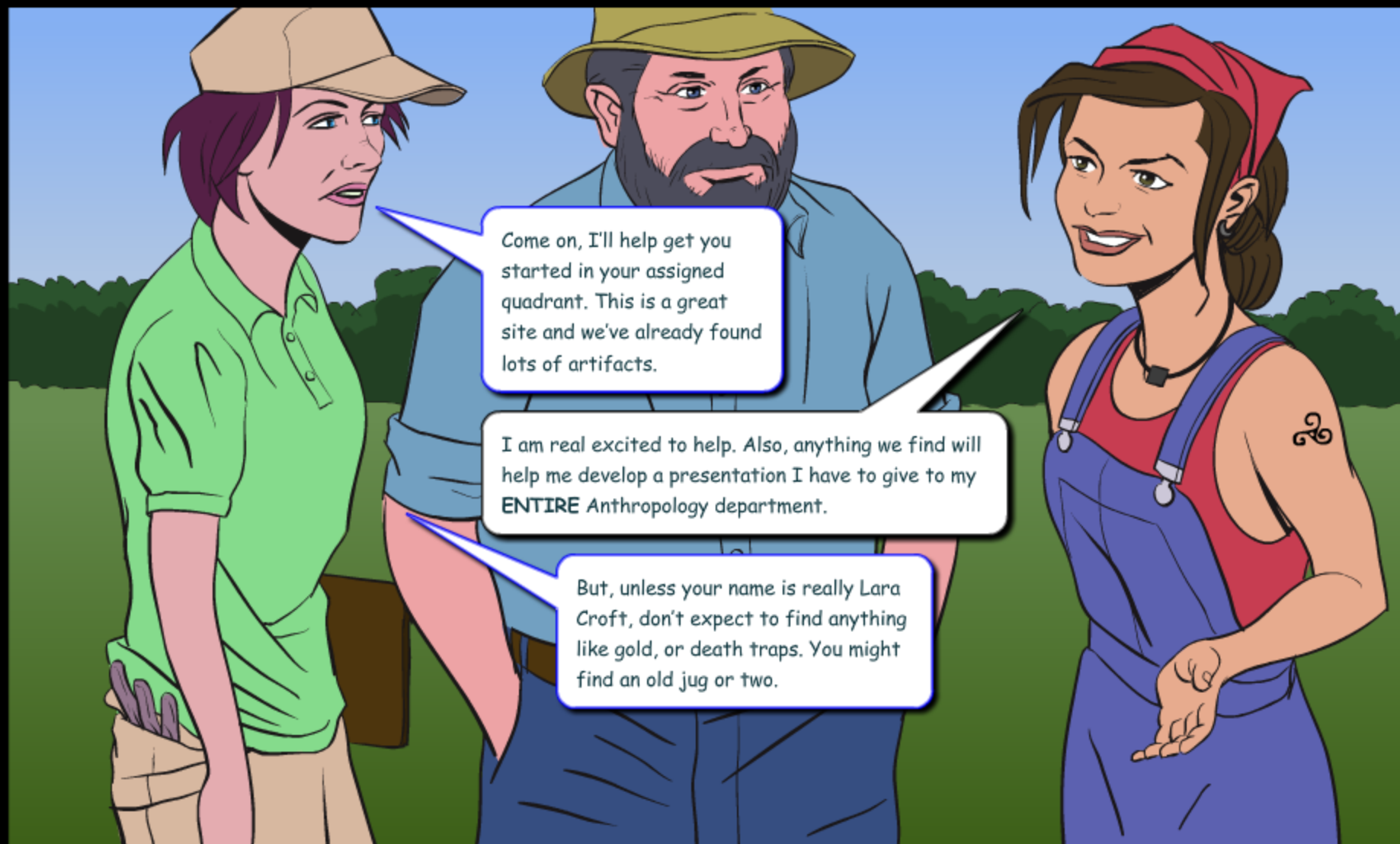
Sounds great.

[Article: Archaeology](#)

[Role: Janet](#)

[Role: Charles](#)

[Role: Ana](#)



Come on, I'll help get you started in your assigned quadrant. This is a great site and we've already found lots of artifacts.

I am real excited to help. Also, anything we find will help me develop a presentation I have to give to my **ENTIRE** Anthropology department.

But, unless your name is really Lara Croft, don't expect to find anything like gold, or death traps. You might find an old jug or two.

A few weeks later - Ana is working in a shallow trench in her quadrant of the old cellar.

Hey! JANET! HEY!

I think this might
be a skull--- a
HUMAN SKULL!





A few weeks of digging later...

Wow. Look how the body was folded into this small space between the floor beams. They must've used this ceramic milk pan to cram the body in the trench.

But...why in the cellar and without a coffin? I mean, why would someone bury a body with the trash under their own house?



Ana writes about her experience in her journal.

We finally uncovered the rest of the body today. It is very easy to see that someone shoved the body under the house into a shallow trench that was too small for the body.

We also found a crack in the back of the skull. Janet thinks that a blow to the head could have killed this person, then someone hid the corpse under the house. Gross! I can't imagine a dead body in my basement! This whole murder idea is a little freaky. I hope we can solve this mystery by combining the evidence from the dig, the forensic bone data, and what we can determine from history.

Tomorrow, a famous local historian, Dr. Howell, is going to visit and tell us more about the area during the 17th century.

Dr. Howell shares his knowledge of local history.

I didn't think of it until after we talked on the phone, but the English Civil War spread to the Colonies around the time you are asking about. The Battle of the Severn River was fought right over that hill in 1655!



Activity: [Battle of the Severn](#)

Role: [Howell](#)

We know that after the battle, four prisoners of war were executed - but no graves were ever found. Once you've dated the site, we'll have a better idea if this is one of the soldiers from the battle.

Oh... it would be very exciting if you found more of the missing bodies in the other pit that you found in the adjacent quadrant in the cellar.



Weeks later...

Too bad there wasn't another skeleton in the other pit - that would have given us a lot more clues. Now, I am not sure if this person was an executed prisoner of war or not.

Although we didn't find another body, we did find several artifacts with and on top of the body that we should be able to date. Pretty soon, we'll be able to have a good idea when our mystery person died.

Look here... This coin is dated 1664 and this piece of window lead has a date stamp of 1663. So the window lead indicates that the house was built in 1663 or later. We use a variety of facts to determine the terminus post quem.

But, Dr. Howell said that the Battle of the Severn River happened years earlier -- in 1655, so the body can't be one of the executed soldiers.

Our mystery person might not have been a soldier, but we now know a date after which he or she was buried.

SHE!? I've been assuming that he was a guy. I mean... a soldier...therefore a guy.

[Images: Coin and Window Lead](#)

[Activity: Terminus post quem](#)



The sex is one of the things that I'm hoping that Dr. Kingsley, from the Smithsonian, will be able to determine when he comes next week to examine the body in situ. Forensic anthropologists can tell a lot about the body even before taking it to a lab. Then, once in the lab, it's like the bones actually start talking to them.

[Activity: Can you identify the age?](#)

[Activity: Is the skeleton male or female?](#)

[Activity: Can you identify ancestry?](#)

[Definition: In situ](#)

Dr. Kingsley examines the body in situ.

From the size and shape of the pelvis, I would say we are looking at a male. And the growth plates suggest a teenager. The shape of the cranium, the slope of nasal bones and the width of the nasal cavity suggest European ancestry.

We have to examine all the bones and teeth back at the lab to get an accurate age, how long he'd been in the Colonies and what might have killed him.

[Role: Dr. Kingsley](#)

What about that fracture in the back of the skull?

I need to look more closely to decide if this was the cause of death or happened postmortem.



It was amazing that Dr. Kingsley could tell so much from the bones. I hope our trip to the Smithsonian lab next week can provide some more answers.

I've been worried about my presentation that's coming up. I just really want to know what happened to him before I finish my internship.

Questions

✓ Age = teenager

✓ Sex = male

Where was he from? Skull = European, but was he born in America?

✓ When did he die? Approx. 1664 or later

How did he live?

Why a cellar, not a cemetery?

How did he die?

~Murder? -Skull fracture

~Disease?

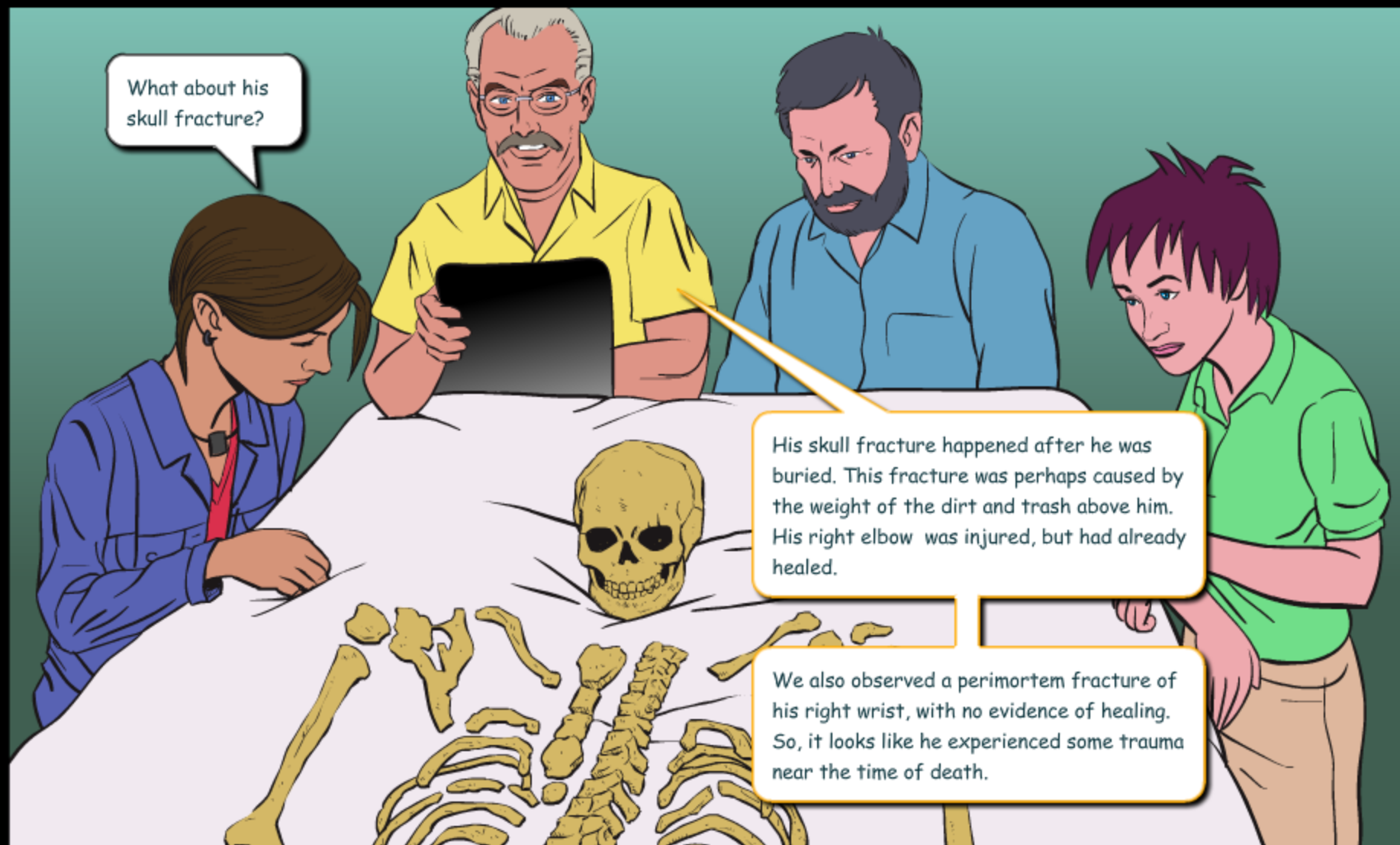
~Accident?

~Battle? -Battle of the Severn River happened in 1655

The team reviews the lab analysis results with Dr. Kingsley.

So, how old was the boy, Dr. Kingsley?

Dental X-rays indicate an age of 15 to 17 years. This matches well with the unfused growth plates in his arms and legs - showing that he was still growing at the time of death.



Can you determine if he was born here or not?

Absolutely. We analyzed stable carbon isotopes in his bones. Europeans had wheat-based diets and their bones contain lower amounts of the ^{13}C isotope. The bones of someone born in the Chesapeake, or living here a long time would have higher amounts of the ^{13}C isotope from their corn-based diet. You are what you eat, even 350 years after your last meal.

Questions

- ✓ Age = 16 years old
- ✓ Sex = male
- ✓ Where was he from? Born in Europe
- recent immigrant because the bones showed a wheat-based diet
- ✓ When did he die? Approx. 1664 or later
- How did he live?
- Why a cellar, not a cemetery?
- How did he die?
 - ~ ~~Murder?~~ - Skull fracture was postmortem
 - ~ Disease?
 - ~ Accident? - Is wrist fracture related?
 - ~ Battle? - Battle of the Severn River happened in 1655



As you can see, the spine and teeth are damaged - possibly from physical labor and/or disease.

[Activity: Can you identify activity patterns?](#)

[Activity: Can you identify disease in bone?](#)



Here's an e-mail from Dr. Howell who just uncovered a proposed law from that time requiring public burial. Indentured servants were being buried privately, without coffins, and not in a cemetery. Masters seem to have been hiding servants' deaths.

His life and death certainly fit that of an indentured servant - heavy labor, poor health, and a hidden burial.

Aha! I think we have enough clues to say how this boy died!

What caused this boy's death?

Activity: [What do you think caused this boy's death?](#)

Weeks later, Ana is discussing her presentation with Janet.

Although I think everything we discovered is fascinating, and I'm really excited to tell my story to my class, I'm just afraid my talk won't mean as much for the audience. I mean, this isn't like a TV show with non-stop action.

Do I need to add something more?

Isn't finding a body exciting? Stick with the facts and what you think they mean. That's the beauty of science - it helps you better understand the world around you.

Sure, this is some nameless kid from long ago who had a rough life. And died worse. But he deserves to have his story told.



And I think he would want you to tell it. Just describe what you did to find him again, and how you used science to uncover the truth about him.



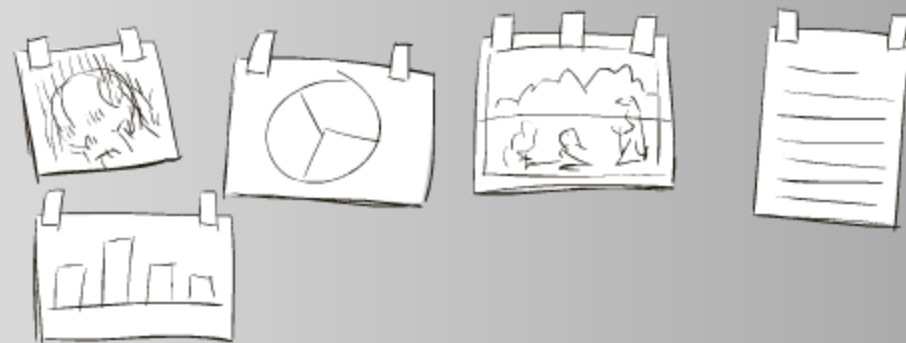
Let the audience experience what it all meant to you.
That'll be plenty exciting!

I will.

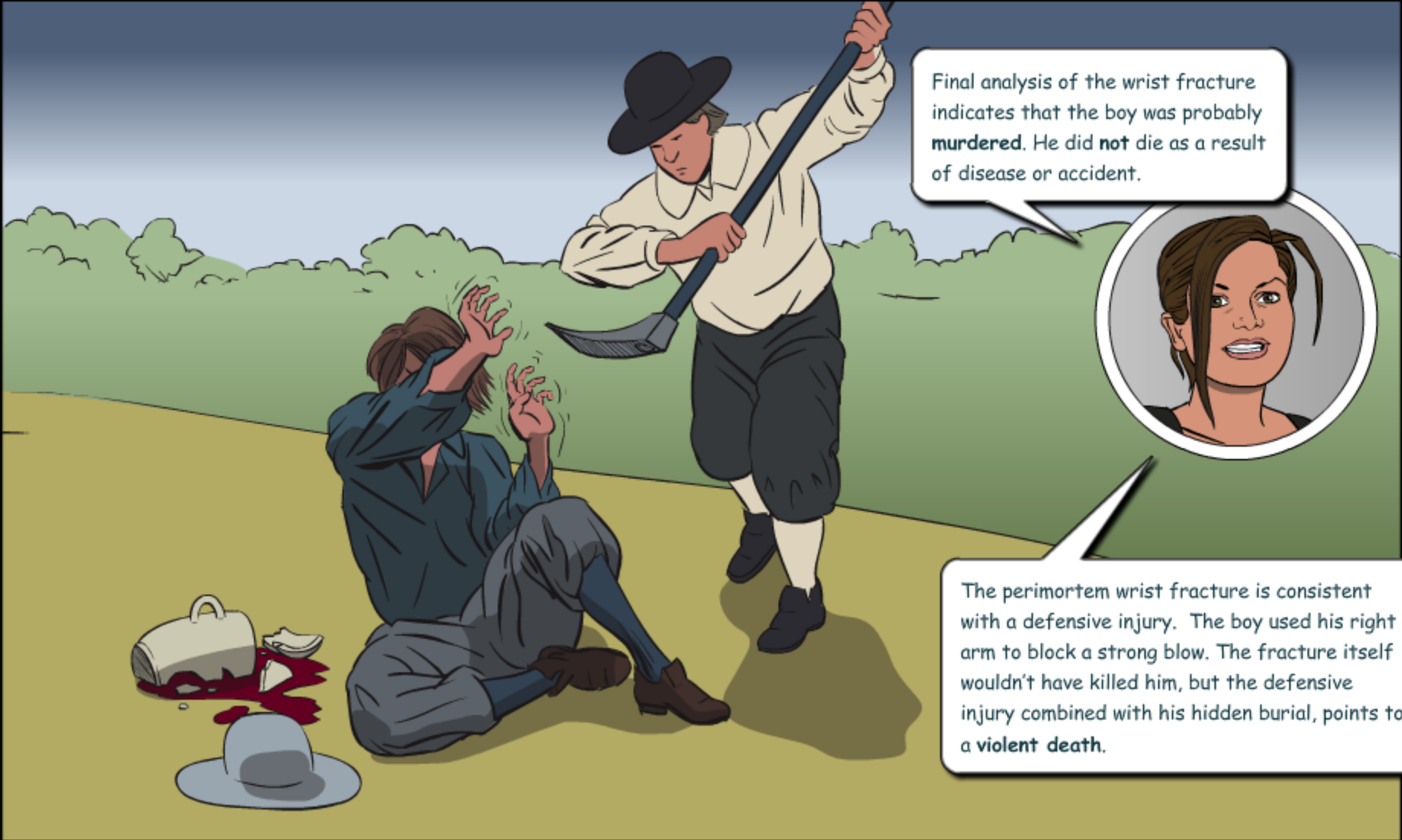
Ana concludes her final presentation.



WRITTEN IN BONE



So...all of this evidence from the scene, the burial location, the skeleton, and what we can learn from historic documents, suggests that the boy was a 15 to 17 year old European indentured servant. The bones show evidence of a hard life and early death.



Final analysis of the wrist fracture indicates that the boy was probably **murdered**. He did **not** die as a result of disease or accident.

The illustration depicts a crime scene in a rural setting. A man in a light-colored shirt, dark trousers, and a black hat is swinging a scythe towards a boy lying on the ground. The boy is wearing a blue shirt and grey trousers, with his hands raised in a defensive posture. A white bag and a hat are on the ground near the boy. The background shows a grassy field and a line of trees under a blue sky.



The perimortem wrist fracture is consistent with a defensive injury. The boy used his right arm to block a strong blow. The fracture itself wouldn't have killed him, but the defensive injury combined with his hidden burial, points to a **violent death**.

A circular inset portrait of a woman with brown hair, wearing a black top, is shown next to the text.



There are still questions about the exact cause of death, but science builds on evidence discovered one piece at a time. And it takes time and lots of different people and specialties to get to the answers. It's a team effort - and I'm glad I was part of it.



I'll take a few questions now, but the person I'd, uh, most like to ask some questions - and thank - can't...exactly be here.

Months later...





That's...AMAZING!

The Smithsonian forensic anthropologists, working with a forensic artist created a facial reconstruction. Now that's science really putting a face on history.



This story is based on an actual case - click [Behind the Scenes](#) to read a summary of the events as they occurred in the actual case. Please let us know what you thought of the Webcomic – complete the [Short Survey](#). You can also view [Ana's Facebook](#) page and become a fan.

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