

## **The Perfect Predator Discussion Guide**

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### Forward.

Do you agree with Steff when she says that “Viruses were to be feared. Bacteria? Not so much” ?

Why does Steff not seem to be aware that her husband is dying? Should the ICU doctors have told her this if were the case?

### Chapter 1.

What is bioluminescence and what literary device does it serve in this context?

What did the ancient Egyptians believe about the soul and how to protect it?

### Chapter 2.

What are the very different “forces of nature and nurture” that Tom muses about from his and Steff’s childhoods that shaped who they are as adults? How do you see them reflected in their personalities or behavior?

Steff refers to Tom’s ethos, or characteristic spirit, as “never retreat” and her own as “never give up.” How are the two qualities similar? How are they different? Does everyone have a defining trait like this? How does it shape everyday decisions or different approaches to problem solving?

### Chapter 3:

What does an epidemiologist do?

Who is John Snow and why is he considered the father of epidemiology?

Why does Steff think that Tom is suffering from food poisoning?

How do you think Steff's background in epidemiology helped or hindered her approach to fighting Tom's symptoms?

What is "gumshoe epidemiology" and how is it uniquely valuable in science? How can "simple dogged detective work" be helpful to us in other situations?

### Chapter 4:

What is MRSA and when was it discovered?

Why was pancreatitis suggested?

### Chapter 5:

What challenges do Tom and Steff face at the clinic?

What is "mold juice"? Why did it take so long between the Alexander Fleming's discovery of penicillin and its availability for widespread use?

When was it first recognized that antibiotic resistance could become a problem? Under what circumstances?

In Chapter 1, Steff shared the myth of Egyptian god Apophys. As Tom's condition worsens, she mentions Apophys again. How is the context different this time? How does the sense of being inside or outside of Apophys' realm change how she relates to the myth?

### Chapter 6:

Tom's Interlude I: With bacteria raging through Tom's system, his recollections can be haunting. What does this add to the telling of the story?

In this Interlude and others to come, what aspects of Tom's situation might be triggering these particular memories or feelings?

At what point do you think Steff realizes that she needs to take the reins as the decision maker to get them out of this crisis?

## Chapter 7:

When they get to Frankfurt, the staff implements universal precautions. Why?

Why is the pseudocyst filled with “murky brown fluid”?

What are the signs that Tom is becoming aware of his own fragile mental state? As a psychologist, how might that affect his experience of his own shifting sense of reality at this point? Do you think his scientific understanding of delirium would make him less upset or more so?

## Chapter 8:

Why does Dr. Zeuzem consider *Acinetobacter baumannii* to be the worst bacteria on the planet?

What other organism was cultured from the pseudocyst? How was it treated?

What do you think of Steff’s decision to consult a psychic intuitive counselor? What is an ‘empath’?

How do Steff’s descriptions of someone’s physical appearance, tone of voice and other personal details affect how you imagine the character? How does this personal description of doctors, nurses and others in the healthcare system affect how you think about your own experiences in medical or healthcare settings?

## Chapter 9:

Why is *Acinetobacter baumannii* sometimes called Iraqibacter? Why is it commonly acquired in hospital settings?

Why was there some tension between the various disciplines about what course to take to treat Tom’s infection? Should the doctors have told Steff that there was no “right answer”?

What is sepsis? What are the signs of septic shock?

What are the major causes of antimicrobial resistance? What role do hospitals play?

When Tom asks Steff if he is going to die, what does she consider before answering him? How does his personal history, and theirs together, shape her decision? Do you think she should not have told him the truth? Why or why not?

## Chapter 10.

What signs are there that Steff is learning medicalese?

Why do so many patients' rooms in the TICU have a sign on the door saying "droplet precautions"?

Why is Steff envious of the wife of the of the flu patient down the hall? How does her thought about the flu reflect commonly held attitudes about the illness?

What bad news does Chip share with Steff and why is it so significant?

### Chapter 11.

Discuss different ways that bacteria have evolved to become resistant to antibiotics.

Why is Steff angry that Tom's *Acinetobacter* infection was not a reportable condition to the CDC in the US, when it was a reportable condition in Germany? What do you think of the difference in policies between the two countries?

As Steff describes the global forces that have created antibiotic-resistant superbugs, how does the combination of the global story as well as the highly individual one for Steff and Tom make you feel about the threat of antibiotic resistance on a personal level?

How does Steff's worldview as an epidemiologist and her understanding of disease from the global perspective contribute to her strategy for helping Tom?

### Tom's Interlude III:

Which elements in Tom's hallucination might correspond to "real" elements—people, things or physical symptoms—depicted in the scene?

### Chapter 12:

What is "autism spectrum disorder" and what signs of being "on the spectrum" do Steff and her son Cameron show the reader?

What are the signs of PTSD that Steff is experiencing?

There were many by-products of Tom's infections. Probably the most disconcerting aspect was his hallucinations and altered reality. What do you think this is caused by?

When Davey describes ICU psychosis and his personal experience with it, how might that be reassuring to Tom?

### Chapter 13:

As it seemed that Tom was beginning to mend, the bacteria mounted a full assault. What was the first evidence/symptoms that trouble was coming? What does it mean to be "fully colonized"?

After three rounds of septic shock, Tom is placed on colistin, a last resort or salvage therapy. When was colistin discovered and why is it used as a last resort?

What role did Dr. Randy Taplitz play that may have saved Tom's life?

What do you think of the family's decision to bring in a healer to try to help Tom?

What is the role of humor in the ICU?

What role did music and dancing play in this story?

#### Chapter 14:

What are the signs that Steff learned which indicate that someone is about to die?

Why does Steff ask Tom if he wants to live when he is in a coma? What do you think she would have done if Tom hadn't squeezed her hand?

Steff finds a 2013 publication called "Emerging Therapies for Multidrug Resistant *Acinetobacter baumannii*." What were the alternative therapies listed there? Why does she decide to only pursue one of them?

List 4 'fun facts' about phages that Steff recalls from her microbiology training.

#### Tom's Interlude V:

Though Tom is very sick, what signs does he show that he is understanding on some level. Why do you think Tom thinks he is a snake rather than some other creature?

What does Tom think about using phages?

#### Chapter 15:

Felix d'Herelle and Frederick Twort made the first contributions to phage biology. Who coined the word 'bacteriophages'? Passing samples through a 'Pasteur filter' was critical in determining what this unidentified agent was that was killing bacterial cells. How? How did d'Herelle show that this was not an enzyme or chemical agent?

What bacterial infection was d'Herelle able to treat in 1919?

Why was phage therapy not available in the U.S when Steff went looking for it?

What are the advantages of phage therapy that Steffanie described?

Phages and penicillin were discovered in the same era. Why was a successful treatment discovered one hundred years ago not being used more widely? What different kinds of bias appear to have played a role?

How does Carl Merrill's story shine a light on the power of politics and funding decisions to restrict scientific research?

#### Chapter 16:

Why do you think Ry Young responded to Steff's email? Why might he have previously been an "anti-phage guy"?

Why did Ry Young ask Steffanie if she had soil from their boots in Egypt that she could send him?

What are the environmental sources that Ry tells Steff he might turn to in the phage hunt?

What does it mean to go on a phage hunt? Why do phages need to be matched to Tom's bacterial isolate?

What role did the FDA play in Tom's case? Why is phage therapy a challenge for FDA approval?

Why did the Navy have a collection of phages against *A. baumannii*?

What do you think of Lt. Commander Theron Hamilton's decision to test the Navy's phages against Tom's bacterial isolate without getting permission first?

#### Chapter 18:

Why is it necessary that the phages be lytic (and not temperate)?

Why use 4 different phages – a phage cocktail – instead of one phage at a time?

What role do gut instinct, intuition and premonition play in this story?

Steff refers to her "strange double life" as a scientist and a wife. When might one support the other? When might they create conflict or tension?

#### Chapter 19:

Why did the team need to turn to another phage lab at San Diego State University to remove more endotoxins from the phage prep?

What are the concerns when determining the 'dose' of phages to be administered?

Why was it considered necessary to treat Tom intravenously with phage therapy? What might the advantages and disadvantages of this approach?

When Steff and Ry comment on the serendipity that “all the planets lined up” in Tom’s favor, do you think that this was a consequence of luck, fate, divine intervention or some other phenomenon?

#### Tom Interlude VI.

What poetic references do you see in Tom’s interlude?

Who might the three wise men be? What do you think the three questions Tom was asked might have been?

#### Chapter 20:

What do the appearance of the orioles on the blood orange tree signal to Steff? How does nature play a reassuring role to her and Tom at different times in the story?

What are the signs that Tom’s kidneys might be failing?

What factors does Chip consider in determining the ideal concentration of phage to administer?

What parallels does Steff draw between Anne Miller’s treatment with penicillin in 1942 and Tom’s treatment with phage therapy?

Why is Steff so distraught after reading the informed consent form when she had read a draft of it already? How would you feel signing a consent form like this if you were in her shoes?

#### Chapter 23:

Why was the phage therapy called a ‘Darwinian dance’? What were Tom’s first symptoms that the phage therapy was working?

What advice did Robert give Steff to help her through her ex-husband’s death? Do you think she is managing to follow his advice? Why or why not?

In the event of his death, why can’t Tom’s organs be donated?

#### Tom’s Interlude VII:

Do you think Tom made a conscious decision to live? Why or why not?

Describe the imagery Tom describes as is coming out of the coma.

#### Chapter 24:

Why do Chip and Steff privately think that they may have killed Tom?

Why was phage therapy temporarily stopped? Why was this decision potentially dangerous?

Why was the pseudocyst draining dark brown liquid like coffee grounds?

At the end of this chapter, why did Chip and Steff decide to re-initiate phage therapy, especially when one of Tom's daughters questioned this decision? What would you have done?

Why is "saying goodbye" so important to us?

#### Tom's interlude VIII:

According to Tom, how was coming out of a coma different from the way it is portrayed in the movies?

What is the evidence that Tom is recovering?

What role does Egyptian symbolism play in this interlude, and others?

#### Chapter 25:

How does Tom's first request upon coming out of the coma—mouthing the word "water" reflect an aspect of the hallucinations that had been his reality for so long?

When Frances quotes from Vietnamese philosopher Thich Nhat Hanh—*No mud, no lotus*—what is she referring to?

#### Chapter 26:

What is the Red Queen hypothesis? How are phages involved?

Why were additional phages needed? What phage came to the rescue?

How has Tom's phage treatment thus far potentially changed the potential for antibiotics to be helpful?

#### Chapter 27:

What do you think the phrase "recovering from death is not a linear process" refers to?

What is post-ICU syndrome and who experiences it?



## Chapter 28:

How might the course of Tom's illness and the length of recovery time potentially been affected if phage therapy had been available sooner in the course of his illness?

How did Tom's story of the Buddha alert Steff to another dimension of healing that needed attention?

How did journaling together prove therapeutic for Steff and Tom individually and as a couple?

Do you think Steff and Tom evolved themselves as a result of their ordeal? Why or why not?

Why is Steff's point that "each of us had our own version of the illness experience as it affected us individually" significant for any family dealing with illness or other trauma? How can this affect physical recovery and more complete healing?

## Chapter 29:

What role did Grand Rounds play in advancing the practical contribution of Tom's case to a broader medical audience?

How did Grand Rounds also serve as a way to bring emotional closure to an experience that had been shared by such a large and scattered group of individuals, including medical professionals and many others?

What societal factors encourage antibiotic resistance and what is suggested as ways we can address the problem as a society?

Compare the HIV epidemic to the superbug epidemic. How are they similar and different? What did Tom and Steff's role as HIV researchers play as they battled Tom's superbug infection?

When Steff says that they 'stood on the shoulders of giants' to save Tom, what 'giants' is she referring to?

What do you think of Steff's comment that theirs is a story of privilege?

Why isn't phage therapy licensed in the U.S. as a result of his case? What additional research is needed to do so?

## Epilogue:

Steffanie predicts a report of the first patient to undergo successful treatment with a genetically modified phage will be published. Why would anyone genetically engineer phages?

In what ways do Steff and Tom consider the epilogue to their story the launch pad for more vigorous—and rigorous—research and general attention to a number of important health issues?

What are other areas of basic science, medicine, healthcare practices and policies, and both mental and physical health that need more attention to protect health and improve medical outcomes?

Do you think that every hospitalized patient should have an advocate? Who should these people be?

What advice do you think Tom would give for surviving 9 months in the hospital?

How do you think Tom's case will be remembered as a chapter in the 'bizarre history' of phage therapy? What do you think Felix d'Herelle would have said about "The Patterson Case" if he were still alive?