

# The Impossible Challenge Manual for Age 14 and Up, Even For Adults

*How to accomplish  
what everyone says you can't*



**Edward Barnard**

# **The Impossible Challenge Manual for Age 14 and Up, Even For Adults: How to accomplish what everyone says you can't**

Book Three of "The Revolutionizers"

Edward W. Barnard

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# Contents

<b>Part I: AI Like You Have Never Seen Before</b> .....	<b>1</b>
<b>Chapter 1. Why Create Bragging Rights</b> .....	<b>2</b>
Secrets from Grade School .....	2
Two Secrets .....	6
Bragging Rights .....	7
Keeping the Boredom Away .....	11
The Impossible Challenge .....	12
What Is Ahead For You .....	12
<b>Chapter 2. Having a Conversation</b> .....	<b>14</b>
The Modern AI Breakthrough .....	14
The Ping Pong Effect .....	14
Visualizing the Ping Pong Effect .....	14
Try This Right Now (5 minutes) .....	15
What the Ping Pong Effect is NOT .....	15
How to Guide the Conversation .....	16
How To Use Physical Analogies .....	16
The Train Wreck .....	16
<b>Chapter 3. Same Skill Different Context</b> .....	<b>17</b>
Publisher Acceptance .....	17
AI Collaboration .....	17
Beyond Traditional Prompt Engineering .....	18
The Competitive Edge in Practice .....	18
Applied Systems Thinking .....	19
Summary .....	19
Questions for Reflection .....	19
<b>Chapter 4. Familiar Techniques Applied Differently</b> .....	<b>20</b>
Universal Crossover Skills .....	20

## CONTENTS

Whiteboard Discussion . . . . .	20
Human/AI Boundary . . . . .	20
Matched Expertise . . . . .	21
Identifying Specific Techniques For Your Use . . . . .	21
Competitive Edge Through Crossover Skills . . . . .	21
Summary . . . . .	22
Questions for Reflection . . . . .	22
<b>Chapter 5. Viewing Differently . . . . .</b>	<b>23</b>
Kung Fu Flashback . . . . .	23
The Slinky . . . . .	23
The Time Travel Pattern . . . . .	23
The Competitive Edge of Multiple Perspectives . . . . .	23
Summary . . . . .	24
Questions for Reflection . . . . .	24
<b>Chapter 6. Example Bragging Rights . . . . .</b>	<b>25</b>
Billy Mitchell and Miss Mitchell . . . . .	25
Interconnected Writing Projects . . . . .	25
Motivation: Tour Guide . . . . .	25
Oddly Relevant Choices . . . . .	25
The Missing Piece: My Failed Attempts . . . . .	26
The Method That Worked . . . . .	26
Model of Large Language Model . . . . .	26
Physical Information Organization . . . . .	26
Summary . . . . .	27
Questions for Reflection . . . . .	27
<b>Chapter 7. Missing the Forest for the Trees . . . . .</b>	<b>29</b>
Road Versus Map . . . . .	29
Summary . . . . .	30
Questions for Reflection . . . . .	30
<b>Chapter 8. Local Memory Refresh . . . . .</b>	<b>32</b>
Oil Exploration . . . . .	32
Joining Cray Research Software Division . . . . .	32
Modern Application of Old Technique . . . . .	33
Summary . . . . .	33
Questions for Reflection . . . . .	33

<b>Part II: Teenage Experience .....</b>	<b>35</b>
<b>Chapter 9. Cross Country .....</b>	<b>36</b>
<b>Chapter 10. Jolene's Story .....</b>	<b>37</b>
Third Grade .....	37
Teaching Versus Demonstrating .....	37
The Beta .....	37
Grand Teton .....	37
Audition .....	37
Experiential Education .....	37
Standard of Judgment .....	38
Summary .....	38
<b>Chapter 11. The Mountain .....</b>	<b>39</b>
The Cliffhanger .....	39
Preparation and Practice .....	39
Guide Your Own Interest .....	39
Alpine Start .....	39
The Teenage Mountaineers .....	39
Trip Leader .....	39
Summary .....	40
<b>Chapter 12. College Spring Break .....</b>	<b>41</b>
The Goal .....	41
Practice Climb .....	41
Crevasse Rescue Training .....	41
Up the Mountain .....	41
What Goes Up Must Come Down .....	41
40 Years... and Back .....	41
Summary .....	42
<b>Chapter 13. Planning, Preparation, and Practice .....</b>	<b>43</b>
Guiding Yourself .....	43
Climbing Mount Rainier .....	43
Planning and Preparation .....	43
Visit the Park .....	43
Physical Preparation .....	43
Practice .....	43
Keep Learning .....	44

Transferring Perspective . . . . .	44
Summary . . . . .	44
<b>Chapter 14. Mastering the Craft . . . . .</b>	<b>45</b>
Deliberate Practice . . . . .	45
Nathaniel Bowditch . . . . .	45
Navigation . . . . .	45
John Harrison . . . . .	45
Extending the Craft . . . . .	45
Summary . . . . .	45

# **Part I: AI Like You Have Never Seen Before**

# Chapter 1. Why Create Bragging Rights

Have you ever heard the expression, “it’s not rocket science?” That saying comes from a long time ago, when we were trying to send people to the moon, using rockets to launch into space. Very few people in the world actually understood how to design rockets. The same was true with computers because they were as large and complex as rockets. People did not get to build million-dollar rockets in their back yards, nor did they get to build million-dollar computers either. We did not learn rocket science in high school, and only got the basics in college. The same was true with computer science.

I needed to explain “rocket science” because I have been doing “impossible” things since I was in third grade, age 7 or 8. I was not doing “rocket science” but I was doing computer science. That should not have been possible for a third grader, but for me it was fun. A hobby.

I do not expect you to take on “rocket science”. That would probably be boring. But I have practice with enjoying impossible challenges as a teenager, and with this book I can show you how.

## Secrets from Grade School

I never told anyone how I do it before, because it sounds like bragging and bragging is not polite. But earning “bragging rights” is awfully fun and, for me, generally involves doing things that other people thought were impossible.

Now is the time to tell you how you can too. I am not here to dumb things down. I could handle the challenge, so I know you can too. I can show you what has been done before (by me) so that you know what is possible. It is that simple, but not that easy.

Artificial Intelligence, AI, is hot right now. Here is a secret. I can help you understand how AI works better than most AI experts. That sounds ridiculous and impossible, right? It takes all of Part I to show, because you have some skills to develop first. After I show you, ask around. Then you will know you did in fact accomplish the impossible. Not bad for a starting point.

How do you accomplish the impossible? I have two secrets for you to follow. By third grade I was practicing these skills as a hobby. First I will show you the skills and then I will name them as secrets to share.

## Third Grade

Dad ran the computer center for SAFECO insurance. He was what is now called the Chief Technology Officer, CTO. He brought me home computer manuals to read. These were the “rocket science” level systems programmers’ manuals.

The following details will not matter, but I still remember reading about the IBM “Tape” operating system, then the “Disk” operating system, then they just called it “OS” for operating system. I remember thinking that seemed pretty lame. I was reading and at least somewhat understanding the manuals. I remember learning about the new “Checkpoint / Restart” feature, and as best I can remember, it was introduced with the “Disk” operating system. I recently asked Claude, and Claude confirmed I remember correctly.



**Adult-level material at an early age.** I mention these details because my situation is far from unique. I have interacted (on social media) with quite a number of people who have detailed, accurate, memories of working with adult-level material at a very young age. Because you are usually the *only* person doing this among your circle of friends, it feels weird. I looked at learning as a hobby, and still do. That habit has served me well. If this is not you, just be assured that I am the right person to share “the impossible challenges manual.”

You can understand why I got bored with the reading assignments in school, in third grade (in 1965). At home I was reading about how computers operated. I was not learning about how rocket scientists and computer scientists used computers. I was learning how IBM designed the computers to be used. I was learning the computer’s point of view rather than the rocket scientists’ point of view. That was a stark contrast to whatever we were reading in class.

I got called down to the principal’s office. I was probably very nervous about trying to explain this to the principal, but I do not remember.

I do remember that, luckily, I was not in trouble. The principal made me a deal. He would supply me Reader’s Digest magazines to read. They are about the size of graphic novels, but regular print like a book. But all the stories and

articles are short, which is good for a third grader. I got to come to the school office once a week and report on what I read. In return for the deal, he expected me to complete all the regular reading assignments in class. I thought that was a great deal. It was so important to me that, 60 years later, I can still picture getting to go to the office for the Reader's Digest magazines.

I now know that I got lucky. This was not normal behavior. But it was normal for me.

## Fourth Grade

During fourth grade I got tested, an old test called the “Stanford-Binet L-M” test. That fact messed me up for the next twenty years, but I did not know that at the time. The Los Angeles school system told me I was unusually smart.

That was great, and I had access to unusually good grade school education. The problem was that, whenever I was in a room, my brain told me that I was probably the smartest person in the room (lie number one), and that therefore I was required to be as smart as everyone else put together (lie number two), and that therefore if I ever fail to get the highest grade in the class, every time, then I am a complete and utter failure (lie number three, the big lie). Lie number four was that every time I could not be the same as everyone else, that was a failing too.

What I just described is now called “Imposter Syndrome.” I did not know it was a problem, and neither did anyone else. Twenty years and many bragging rights later, I finally began to realize what was happening inside my head.



**Imposter Syndrome.** I mention Imposter Syndrome for a reason. It is a remarkably common situation that obviously can begin at a young age. Nobody around me knew this was a problem or that it was affecting **me**.

I could have prevented twenty years of doubts by having just one single conversation with the right person, and following up as I learned healthier ways of thinking. If you recognize my situation, find ways to have that conversation. This situation also commonly happens in your twenties when you feel inadequate to work and life changes. Have those conversations and keep your brain healthy.

That is all in the past now. Let us get back to having fun.

## Summer School

This week, when I told Anthropic's Claude (Artificial Intelligence) what I did for summer school between fourth and fifth grade, Claude freaked out. First I will tell you what I actually did, and then I'll explain why Claude had a problem with that.

I picked two classes. One was something to do with cryptography. Code-breaking sounded fun and interesting. The other had to do with Boolean logic. I thought that might be too hard, but it was about computers, so I tried it. The two classes were the other way around.

The only thing I remember about the cryptography class was that every day (as I recall many years later) was practicing multiplying matrices. One rectangle of numbers multiplied by another rectangle of numbers. Why would anyone want to do that? "Matrix multiplication" was also called a "dot product". I decided there and then and forever, that codebreaking was not for me. I could not handle the math.

The funny thing is, it suddenly made sense during college physics. An airplane in flight, for example, has weight due to gravity. It has lift from the wings. It has drag from pushing its way through the air. It has forward force from the propeller or jet engine. There might be an added force due to crosswind. There might be a spinning force from the pilot showing off.

In class we needed to figure out whether, based on the forces acting on the airplane, that thing was going to keep flying or drop like a brick. Guess what the math looked like? Dot products! Because I had already struggled through weeks of frustration in grade school, I had a head start.

I later found that matrix multiplication was important for computer programming. With supercomputers, understanding how to work with rectangles of numbers was fundamental. Weird but true at the time.

The other class was called "Boolean logic". I had no idea what that was, but I was delighted to find out. I could see how computers worked. That knowledge has remained useful until now. But more importantly, it showed me the importance of being able to actually see, visualize, what goes on inside a computer. I will be showing you that same idea. We will visualize what goes on inside AI.

Figure 1.1, "[Demonstrating binary adder in 5th grade, 1968](#)," shows the computer I built from a *Popular Electronics* magazine project. Mom drove me

around to get the necessary wiring, blinky lights, diodes, resistors, and so on. Dad taught me how to solder the circuits together.



Figure 1.1. Demonstrating binary adder in 5th grade, 1968

Why did Claude freak out? Because in 1967 I was learning how AI works in 2025. Dot products are still too much math for me, but I understand about “rectangles of numbers” and how they get stored and retrieved in computer systems. And that is precisely what modern AI does.

But there was *another* reason for Claude to freak out. Already in third grade, I was learning the computer’s perspective, not the human’s perspective. I was learning how those large mainframe computer systems were designed so as to be of use to humans. Now it is the same thing with AI.

I will be showing you AI’s perspective. That is a useful thing to know because you will then be able to accomplish things others cannot. I will show you what I mean by “others cannot” throughout Part I, but we need to lay down some skills before I can show you the full picture.



**Struggles pay off.** Even when you struggle with something, that struggle may well pay off some time later. The fact that you struggled will have value.

## Two Secrets

I will be showing you examples of these two secrets throughout the book.

### Planning, Preparation, and Practice

Secret 1 is **planning, preparation, and practice.**

I have found that teenagers can accomplish pretty much whatever they set out to do. But it takes planning, preparation, and practice. That means hard work over a relatively long period of time. But if your goal is big enough, and important enough to you, you can probably accomplish it. I will show you exactly what I mean.

### Make the Challenge Fun

Secret 2 is **make the challenge fun.**

I used to work for a company called Cray Research. They used to make the world's fastest computers. Cray Research surprisingly built their first computer with no software. But the second computer needed software like any normal computer does. So they hired one person, Margaret Loftus, to write software.

Margaret, later looking back on her team of 120 people, explained, "I always told people that if you cannot make it fun it is not worth doing." That is an *adult* explaining how they built the fastest computers in the world: make it fun. And we did.

When someone says it has never been done before, I immediately think this might be an interesting challenge. When someone says it *cannot* be done, I think that too might be an interesting challenge. Taking on an interesting challenge is fun! Accomplishing something impossible, or at least never done before, means you get bragging rights. It does not mean you *should* brag, but it does mean you have the right to. Having that right is awfully fun.

## Bragging Rights

Are bragging rights important? Yes. That's the encouragement to do the impossible. That first computer, with no software, is an example.

Seymour Cray, the founder of Cray Research, was quite famous by this point. This was 1976 during my freshman year in college. He was building the world's fastest computer for a very small number of potential customers: government codebreakers, military weapons designers, and so on.

Meanwhile these potential customers were competing with each other for the best brains in the country. Not everyone wanted to work on nuclear weapons design. So they were not just competing for the best brains, they were competing for the best brains with Top Secret security clearances.

That meant competition was very tight. But how do you compete for the best brains in the first place? You make it a place that attracts those very people. Scientists and mathematicians have to want to move there. They are bringing families with teenagers. What are teenagers going to do in the middle of the desert, 30 miles from nowhere? Count scorpions? (The answer is yes, by the way.)

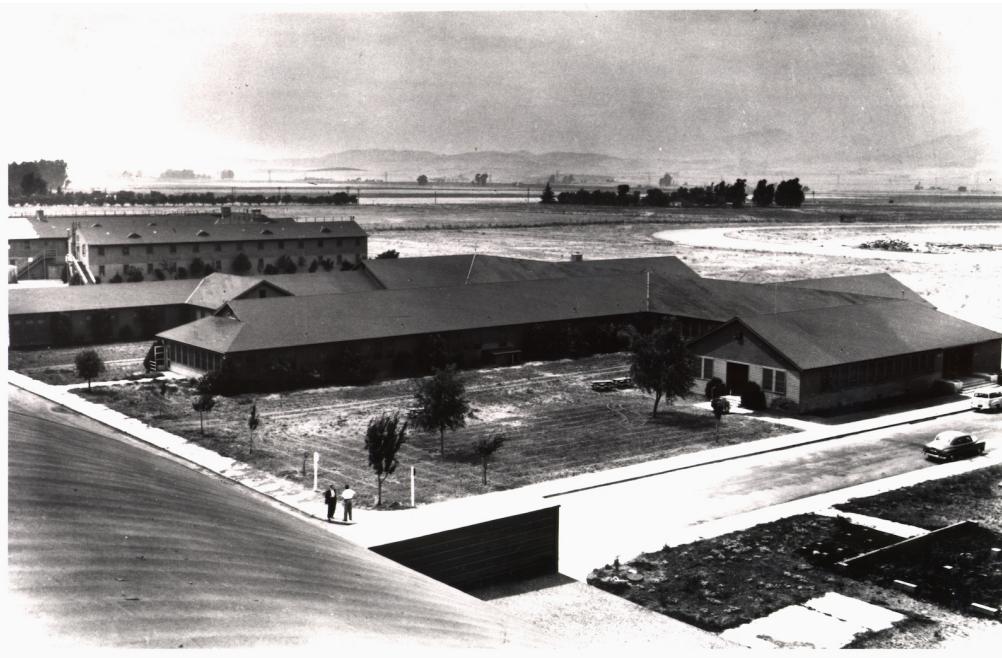
Wartime Los Alamos, New Mexico, was home to the “best brains” in the country. Very few houses were so luxurious as to have bathtubs for the family. Only the highest ranking members of the Top Secret Manhattan Project (building the atomic bomb) had access to such housing. That street became known as “bathtub row”. [Figure 1.2, “Bathtub Row at Los Alamos \(National Park Service photo\),”](#) shows the modern day Manhattan Project National Historical Park.



**Figure 1.2. Bathtub Row at Los Alamos (National Park Service photo)**

Minnesota has the same problem: the world famous Mayo Clinic in Rochester. They are so prestigious that doctors are not allowed to apply to work there. The Mayo Clinic comes to you and offers you a job. The problem comes from moving to Rochester, because Minnesota has a reputation for cold winters. The Mayo Clinic worked with the City of Rochester over the years to make it one of the best places for families to live in the country. The reason was to attract Mayo Clinic staff.<sup>1</sup>

But the government labs in the middle of the desert do not have that luxury. They hit on another strategy: bragging rights. Attract the best brains by being the most prestigious place to work. Have the best equipment. The lab with the best bragging rights had the best chance of hiring the best people. “Bragging rights” was, and is, literally a survival skill for that type of elite operation.



**Figure 1.3. Lawrence Livermore Laboratory, 1952**

Figure 1.3, “Lawrence Livermore Laboratory, 1952,” opened on September 2, 1952, as the University of California Radiation Laboratory, Livermore Branch. It was 111 degrees in Livermore that day. The first telephone directory listed 75

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<sup>1</sup>Only very recently has Mayo Clinic begun to acknowledge its racist past, including establishing all-white residential neighborhoods such as “Pill Hill” for Mayo Clinic staff.

people, which means many families lived there. To me that location does not look like an attractive place to live.

This is why I say “bragging rights” is not a bad thing. Bragging is. It is like being in the Marines. You do not need to say anything beyond being in the Marines. People know.

For the government labs, having the very first (and only, at that point) of Seymour Cray’s new supercomputers meant ultimate bragging rights. Both Lawrence Livermore (northern California) and Los Alamos (New Mexico) wanted “serial number 1”. Each time one of the labs went for funding so they could buy it from Cray Research, the other lab managed to get the proposal shot down.

But for Cray Research, this was a problem. The well was poisoned. They had a computer to sell, no money, and no customers able to purchase it. Seymour Cray flew down to Los Alamos and gave them the computer for six months, for free. Lawrence Livermore could not object to something for free. Los Alamos got the bragging rights.

Figure 1.4, “[Four-family apartment units at Los Alamos, 1945](#),” shows the more typical family housing at Los Alamos. When invited to live in this sort of desolation, you can see why “bragging rights” were so important.



Figure 1.4. Four-family apartment units at Los Alamos, 1945

## Keeping the Boredom Away

That was a boss move, by the way, on Seymour Cray's part. They had no money so they could not even afford to build a second one. Seymour Cray gave away the only one they had, for free.

The second customer walked in, uninvited, and paid cash. The day Seymour Cray signed that contract, it was Margaret Loftus's first week on the job. She was supposed to figure out what sort of software they should put on their new computer.

Seymour Cray stopped by, unannounced, and told her she might want to read the contract he had just signed. It promised an operating system and FORTRAN compiler which did not exist. (We used all-capital letters back then, just like with SAFECO the company.) She stormed around her office for quite a while that afternoon, then told herself to get herself together. She told herself, "Margaret, you left the other job because you were getting bored. You are not going to be bored here!"

Margaret's angry advice to herself fits me perfectly. Take on the challenges

to keep the boredom away. You will be *amazed* at what you accomplish because you got bored. Doing “it” because you are supposed to or somebody told you to is no fun. But get creative because you are bored? Those are the best accomplishments and the funnest memories.

I mean that literally. When you get bored, find something impossible that cannot be done, or at least not done in the time you have available. You will have an awful lot of fun doing it. You will be exhausted. But next time you will have more “been there, done that” confidence. That is what I do quite often.

I realize you might not be a person who gets bored. This is the way it works for me. Find what works for you so as to challenge yourself to get creative.

## The Impossible Challenge

I should have called this book “How to Create Legit Bragging Rights”. After sixty years of practice, I have developed specific techniques to show you. I feel a little bit badly showing you techniques from the 1970s when I was in high school. But I have no choice because that is when I was in high school. The techniques have not changed. You will form the habits of planning, preparation, and practice, just as I did, for the things that are important to you.

I want to start with Artificial Intelligence because that is a bragging right you can begin gaining right now, today. I will have other examples: outdoors, sports, bragging rights within a career, getting into college.

## What Is Ahead For You

First, I placed [Part I, “AI Like You Have Never Seen Before”](#), up front because you probably already use AI all the time. You might already know all there is to know about using ChatGPT, Claude, or other AI abilities, and you are probably right. You do.

But there are ways to use AI, and understand how AI “thinks”, that even the adults do not know. Or if they know, they are not telling. As I write this in October 2025, nobody else seems to know this, and AI searches turn up nothing either. The concepts are simple but mastery comes from deliberate practice and close observation. Your AI journey begins with the next chapter.

Second, I made a career out of creating bragging rights. Some of these were world-class bragging rights, because we really did make the world's fastest computers. Looking back, I realize that I developed those skills while I was in high school.

I gained the **attitude** later on, but I will share that part too. That attitude came from Margaret Loftus and the people around her. If it is not fun, it probably is not worth doing.

When it looks like hard work, and nobody has ever done it before, take joy in the challenge, and make it fun. That is only the *first* part of the attitude. The *second* part of that attitude comes because you have already done the impossible (or unheard-of). At that point you know you can take on the next barrier when others would not think it possible. I find that it is the tough ones that keep the boredom away.

**Part II, “Teenage Experience,”** is my lived experience in high school and college, gaining these “impossible challenge” skills. I will show you how I developed skills and the attitude, so that you can too.

# **Chapter 2. Having a Conversation**

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## **Ancient Bragging Rights**

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## **The Barrier**

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## Visualizing the Ping Pong Effect

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## Try This Right Now (5 minutes)

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## What the Ping Pong Effect is NOT

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### Not Longer Conversations

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# Chapter 3. Same Skill Different Context

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