



The Rocket Boys of NIH

How the National Institutes of Health
Gives Hope and Health to Kids
and the World



U.S. Department of Health & Human Services • National Institutes of Health

**Dedicated to researchers young
and old who dream of a better,
more healthy world.**

A special thanks to Terence Boylan
for sharing his story.

Thanks also Drs. Richard Mandel
and Sam Joseloff for bringing
the rocket letters to light.



center for
scientific review

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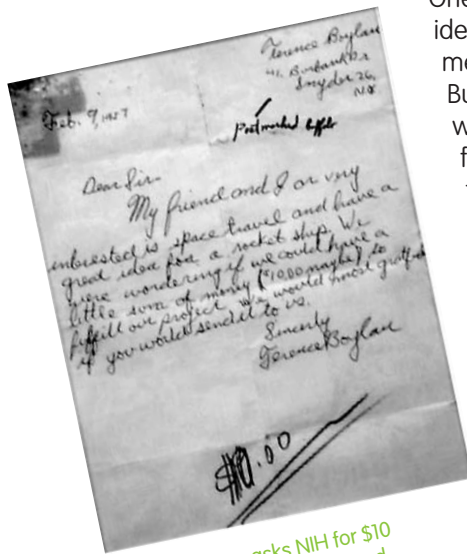
The Rocket Boys Ask for Help

Terence Boylan and Bruce Cook had a dream. They wanted to soar past the clouds and explore space. It was a big dream in 1957. No one had done it before. And Terence was just 9 years old. His friend Bruce had to use a wheelchair to go anywhere.



They made plans for a shiny rocket that could carry a mouse into the sky and bring it back safely. But they didn't have the money to buy the aluminum they needed.

One cold winter night, Terence got an idea. He went to his father, who was a medical researcher at the University of Buffalo in New York. Terence asked him where he got his research money. His father didn't ask him what he was up to. Dr. Boylan was busy with papers from work. He simply said his money came from the National Institutes of Health (NIH). Dr. Boylan went back to his papers and Terence got a pen.



Terence Boylan asks NIH for \$10 to build a rocket with his friend.

On February 9, 1957, Terence wrote to NIH in Bethesda, Maryland. The little white envelope came in a big bag of mail. Applications for funds were piling up at NIH. A vaccine for polio had just been made, and millions of children were now safe from this terrible disease. People everywhere had great hope. Scientists from all over wanted funds to find new cures for other deadly diseases.

The Rocket Boys Move NIH

Did anyone have time to open a kid's letter? Yes, and it bounced on waves of laughter through the NIH Division of Research Grants. A rocket ship! Two kids wanted government research funds! NIH had never seen such a request before.

The letter finally landed in the hands of Dr. Ernest Allen. He was Chief of NIH Grants. He was a man who had done great things. He helped create the process NIH uses to find the best grant applications. It's called "peer review." NIH asks groups of smart scientists from far and wide to help find men and women with the best ideas for curing diseases. NIH then gives these researchers the money they need. Peer review groups have done great jobs. Millions of men, women and children are alive and healthy today because these groups looked through piles of requests and found the best ones.

Despite all he did to make this happen, Dr. Allen wanted others to take credit. He was a kind man who really believed in NIH and the future. When he looked at Terence's letter, he didn't laugh. He saw a big dream, and he wanted to help. Dr. Allen took the letter to the next meeting of the National Health Advisory Council.

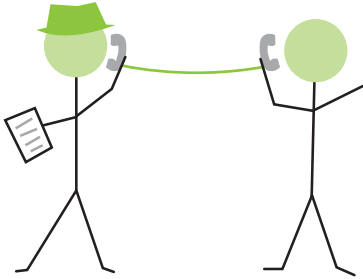


NIH Reviewers Today

Famous men and women in this group reviewed grant applications and told NIH which ones looked like the best ones. Dr. Allen read Terence's request to them. Everyone in the room agreed it wouldn't help fight a disease. NIH couldn't give NIH money for a rocket. But everyone saw the rocket boys had promise. So

they passed a hat and collected the \$10 Terence and his friend needed. They hoped something good would happen one day. No one could have guessed what really happened.

The Phone Rings for the Rocket Boys



Terence's father, Dr. Boylan, found a reporter on the phone. Words flew fast. All he understood was that the reporter was rushing over to talk about an NIH grant. Dr. Boylan thought it was one of his, because he was a well-known kidney researcher.

When the reporter came, Dr. Boylan got a big surprise. The reporter wanted to talk to Terence. He

had just become the youngest person to get an NIH grant! Terence ran next door and got his friend Bruce. Together, they answered the reporter's questions. "We want to get down to work," said Terence. "As soon as the money gets here we'll go ahead." Dr. Boylan sat in the corner and smiled.

The next day, the newspaper printed the news: "Boy Rocket Ship Builders Obtain 'National' Funds." The article had a large photo. Bruce's face shined like a full moon, as Terence held one of their model rockets.



Buffalo Courier-Express,
March 14, 1957
Photo Courtesy of Buffalo State
College Archives

Rocket Troubles

Terence and Bruce built a new rocket, but the metal they used was too heavy. Their rocket wouldn't fly far. The rocket boys were in trouble. Everyone at school knew about their dream. If they didn't launch soon, everyone would laugh at them.

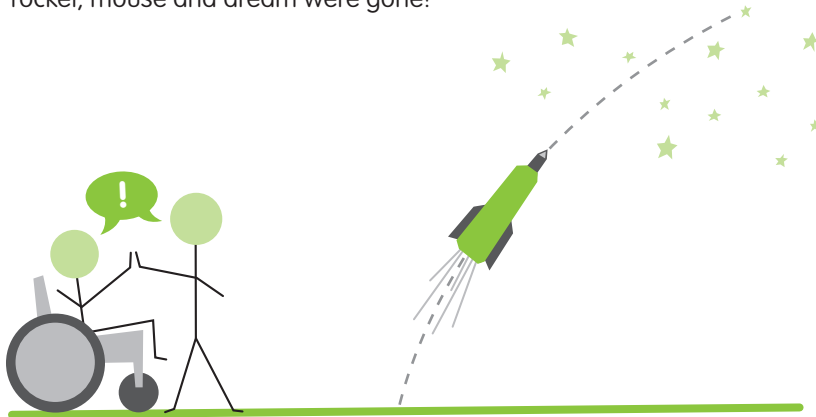
Terence didn't give up. He went to his father's laboratory. He dug in the trash and found some cardboard tubes. They were strong but light. They were just what the rocket boys needed. Terence and Bruce found other parts at the grocery store and the hardware store.

Bruce kept an eye on Terence, who did most of the work. Bruce had a disease called cerebral palsy. It paralyzed his legs and one arm. But Bruce had a dream to soar as big as Terence did. Bruce also knew something about rockets. Sometimes he helped Terence solve big problems.

Shooting for Stars

After a small test rocket worked, Terence and Bruce built a big one. It was 4 feet high with long metal fins. They placed a hard plastic capsule on top. Padding, food, and water went inside for their mouse. They then attached a parachute and capped their rocket with a funnel from the hardware store. They were ready to shoot for the stars.

Their rocket blasted from their backyard. It shot into the sky and soared past where birds fly. It became a speck in the sky. Then, it disappeared. Everything went quiet. Terence and Bruce hadn't expected this. Their rocket, mouse and dream were gone!



The Phone Rings Again

Someone from Clarence, New York, called. He had seen the parachute float down and picked up the capsule. Terence had put his phone number inside. The rocket boys couldn't believe it. Clarence was a town that was miles away!

Terence's parents drove the rocket boys to Clarence that afternoon. They found their mouse was alive and not hurt. Their experiment was a success! They drove back home and put their mouse back into its little home. The rocket boys never dreamed their rocket would go so far and surprise so many people.

The Rocket Boys Move NIH

Dr. Allen at NIH never heard how well the rocket flew. But the rocket boys' dream had touched him. It made him think about other kids and their future. Lots of work needed to be done to cure diseases. What if future scientists got started when they were kids? Dr. Allen decided to establish the first NIH program to educate kids about health and science.

Today, NIH has an Office of Science Education to get kids started in science. A summer program brings young people from across the country to its Bethesda campus. They work with some of the best scientists in the country. NIH also developed teaching tools that it gives free to teachers from kindergarten to 12th grade.

What Happened to the NIH Rocket Boys?

When Terence got older he cleaned test tubes for his father during the summer at the Mount Desert Island Biological Laboratory in Maine. When he was 12, he did his own experiments! Terence later went to college. He planned to go to medical school and hoped to be a researcher like his father one day.



Terence Boylan

But that day never came. Terence also loved to write songs and sing. His voice soared like his rockets. And his songs were built like his rockets. They were clever and powerful.

One day, he was singing at the Village Gate coffeehouse in New York City. The music critic from the New York Times newspaper heard him. The next day, Terence found his name in the newspaper again. The reporter loved his songs, and soon a music company gave him a recording contract. Before he knew it, Terence was traveling across the country giving concerts.

Terence's friend Bruce had a harder time. He suffered from many problems due to his disease, cerebral palsy. It's a disease that some babies and young children get. It affects muscles and body movement. It can sometimes affect the brain. But all the time Bruce struggled, he could still remember the bright day he and his best friend soared further than anyone believed they could go.

The Importance of Doing Something

Terence never forgot his friend Bruce. And he never forgot the need for research to help others who suffer. Terence spent many hours reading about medicine and talking with doctors. One day, he decided to do more.

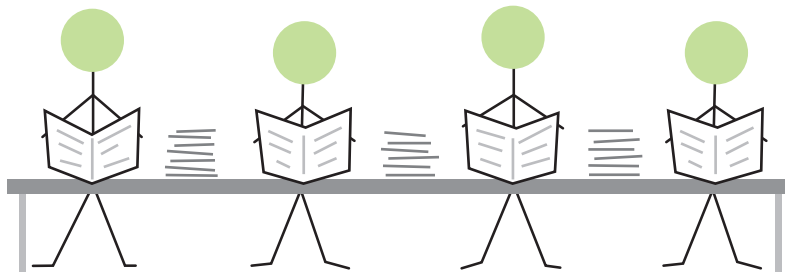
Terence set up a foundation that has helped support over 1,200 medical students and young researchers. His foundation also funds research at the laboratory where he worked as a kid. Because he was so helpful, the Mount Desert Island Biological Laboratory made Terence the Chairman of its Board of Directors.

No doubt his father and Bruce would be proud. Dr. Allen and all the reviewers who put money in the hat for the rocket ship would be proud, too. Their belief in the rocket boys really paid off.

NIH Is Still at It

Men and women who study medicine and behavior from across the country and the world still send their best research ideas to NIH. Over 70,000 applications now come to the NIH Center for Scientific Review each year.

Groups of reviewers still read them to find the best ones. There are just a lot more reviewers now. About 17,000 of them volunteer to be reviewers for the Center for Scientific Review. Over 10,000 more scientists help NIH make its important decisions. Reviewers spend 1-3 months reading and rating applications. They don't really do it for the money, which isn't much. They do it for a bigger reason. They believe like Dr. Allen and his reviewers did: Good things can happen if NIH can find and fund the best researchers.



Your Hope for Health

Using peer review groups, NIH supports more than 325,000 researchers across the country and around the world. Their research is fighting cancer, heart disease, diabetes, AIDS, drug addiction, and many other diseases.

NIH started reviewing and funding research in 1946. Since then, this research has paid off just like the \$10 NIH reviewers gave to the rocket boys.

An average person in the U.S.A. in 1946 could expect to live about 67 years. Today, you can expect to live 10 years longer! And many will live even longer. Fewer people are dying from cancer, heart attacks, stroke and other diseases. NIH has played a big role in all these advances.

So every time you go to a doctor or drug store you may be touched by what happened years ago when NIH reviewers picked up an application and agreed it was a good one.



NIH Reviewers in 1946



A researcher helps a patient at the NIH Clinical Center

And if you get sick years from now, you'll have more hope. Because NIH reviewers and scientists are hard working—just like the rocket boys—to do something that has never been done before.

Things Have Changed

Mouse Safety: NIH will no longer let researchers use animals in ways that can hurt them if it is not necessary. Rocket girls and boys today use eggs instead of live animals.

Rocket Safety: The rocket boys could have hit an airplane! It is now against the law to build rockets that can go as high and far as the rocket boys did. We also know more about the dangers of the chemicals the rocket boys used. Kids today must use less toxic rockets and more imagination.

If You Have a Great Idea: Talk with your teachers and parents. They can get you started. One day you may soar as an NIH Scientist and help lots of people!



Children learn about NIH by rating fun, made-up research applications at the Center for Scientific Review

Learn More on the Web

NIH Children's Page: <http://health.nih.gov/result.asp/134/24>

Child and Teen Health: <http://health.nih.gov/search.asp/24>

NIH Office of Science Education: <http://science.education.nih.gov>

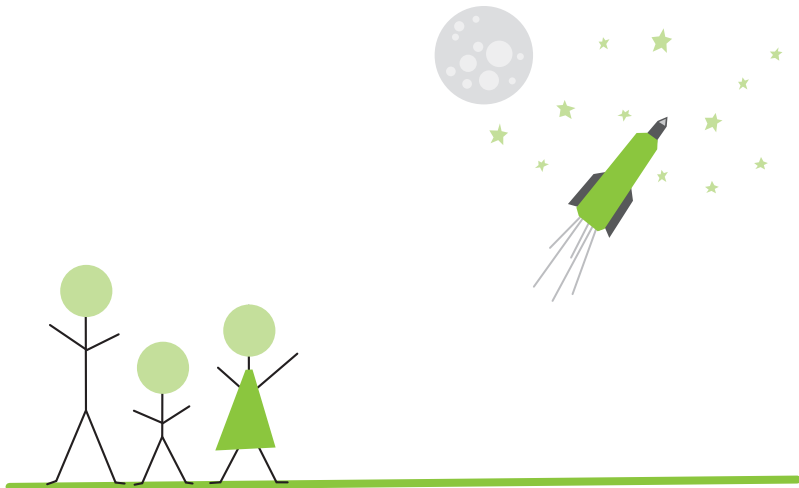
The Rocket Boys: <http://www.csr.nih.gov/rocket>

CSR Peer Review Video: <http://www.csr.nih.gov/Video/Video.asp>

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