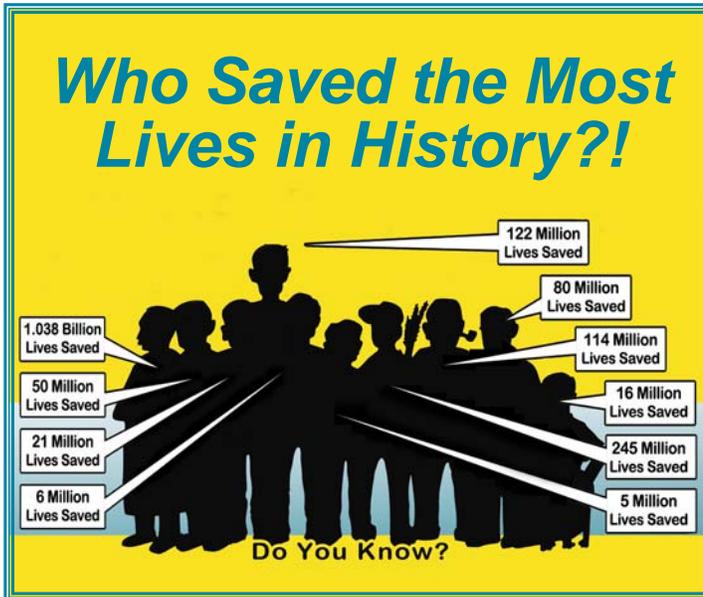


If Someone Saves Your Life, is it too much Trouble to Take the Time to Learn His or Her Name?!



NAME THAT SCIENTIST!

From the Top 10 List of Lifesaving Scientists
Inside this Issue

Think the Life of a Scientist is Dull?

-  Who was shot at by machine guns?
-  Which scientist's eureka moment came in a tent?
-  Who felt like "a carpet bag salesman trying to promote a crazy idea for some ulterior motive"?

Think a Famous Scientist's Life Lacks Adversity?

-  Which scientist lost a son to spina bifida?

Scientists with Unusual Jobs –

-  CSI, top this! Who performed 3,639 autopsies?

Why are Top Lifesaving Scientists Unknown to the American Public?



By Billy Woodward, author of *Scientists Greater Than Einstein: The Biggest Lifesavers of the Twentieth Century*

The book and the website began with a simple question: Who saved the most lives in history? Oddly, the names our survey produced did not match those on the lists of greatest scientists. A Google search yields two popular lists:

- Time Magazine's Top 20 Scientists and Thinkers of the 20th Century
- *The Scientific 100: A Ranking of the Most Influential Scientists, Past and Present* by John Galbraith Simmons

Time's list includes two lifesaving scientists. While great, they don't belong in the top 20. Jonas Salk created the polio vaccine, a monumental achievement that has saved more than a million lives. But it is dwarfed by John Enders' discoveries. His team made the crucial step that allowed Salk's success, for which Salk credited him. So did the Nobel Prize committee - they awarded the prize to Enders' team in 1954 "for their discovery of the ability of poliomyelitis viruses to grow in cultures of various types of tissue." What's more, Enders created a new team that created the measles vaccine. Talk about reducing a healthcare bill to near zero - before its advent, 90% of American children got sick with the measles (over a million a year); now less than 100 do. Oh, and worldwide it has saved more than 113 million lives.

Alexander Fleming is also on the list for discovering penicillin. But Alexander Fleming did not discover the drug, penicillin. He discovered the mold, penicillin, and ten years later not a single life had been saved, nor was there

a drug, nor was Fleming trying to make it into a drug. It was Howard Florey's team whose arduous work turned penicillin into a lifesaving revolution. Even Fleming labeled his acclaim, "The Fleming Myth."

On the Scientific 100 list physicists predominate. There are 10 physicists listed in the top 20 scientists of all time and only 1 lifesaving scientist (the excellent choice of Louis Pasteur at number 5).

Inexcusably missing from both lists are:

- ✓ Fritz Haber (the first synthetic fertilizer): over 2 billion lives saved
- ✓ Norman Borlaug (the Green Revolution in agriculture): over 245 million lives saved
- ✓ Edward Jenner (the first vaccine, for smallpox): over 122 million lives saved
- ✓ John Enders (father of modern vaccines): over 114 million lives saved
- ✓ Howard Florey (the first antibiotic): over 80 million lives saved

These five are amongst the Top 10 Lifesavers in history. Even without using quantifiable criteria (the basis of good science), each created a new paradigm and all except Jenner, who lived long before Alfred Nobel, received a Nobel Prize.

Most telling amongst both lists, not a single lifesaving scientist is listed whose discovery occurred after the 1960s. Fifty years seems to be completely ignored. How can there exist such a large collective ignorance by the media and the public? It appears that the science media bases their choices not on quantifiable evidence, but on fame. There is nothing wrong with fame, but how can we make famous those deserving it?

MVP - Top 10 Lifesaving Scientists

- 1 **Fritz Haber** - 2.7 billion
Synthetic fertilizer
- 2 **Karl Landsteiner** - 1.038 billion
Blood groups led to transfusions
- 3 **Norman Borlaug** - 245 million
High yield wheat
- 4 **Abel Wolman** - 173 million
Chlorination of water
- 5 **Edward Jenner** - 122 million
Smallpox vaccination
- 6 **Bill Foege** - 122 million
6% vaccination strategy eradicated smallpox
- 7 **John Enders** - 114 million
Measles vaccine
- 8 **Howard Florey** - 80 million
Penicillin, the first antibiotic
- 9 **Gaston Ramon** - 58.5 million
Diphtheria and tetanus vaccines
- 10 **David Nalin** - 51.3 million
Oral rehydration therapy for cholera/diarrhea

How the Book and Website Began: Would I Bother to Learn Gertrude Elion's Name?

Gertrude Elion awakened my dormant sense of gratitude in 2005. Two years earlier a Rheumatology doctor told me, "Your presentation is atypical." Not what I wanted to hear, for that meant nothing he was prescribing was alleviating my pain from gout. For two years I had continual, nagging, at times stabbing pain. It affected every joint in my body. My posture changed, my gestures changed, my daily activities changed. I resigned myself to having pain for the rest of my life.

Then one spring afternoon, after many courses of drugs, I was lying outside on the ground, when a light breeze wisped past. Astonished, I realized that pain had so overridden my nerves that I had not felt the wind on my skin in two years. Now, suddenly, that light breeze on my skin was sensual beyond belief. As time passed I began enjoying life again. Then I reveled in it. I could pet a dog, take a walk, or lean against a wall in casual reverie. I could think.

After two months my self-immersion subsided, causing me to reflect. As a child it was normal to get sick, then well, and to have no gratitude for the healing. But as an adult, if someone saved my life, would I bother to learn his or her name? Shame overcame me. My new sensual life was due to a little white pill - allopurinol. Did it really come from the pharmacy? I got up off my duff and through

the efficacy of the internet I found that allopurinol did not originate from a faceless gigantic drug company. My new pain-free life, without gout, came from the ardent research of two Nobel Prize winning scientists - Gertrude Elion and George Hitchings.

Moving my shame from myself to society, I wondered if society would bother to learn the names of its lifesavers. In fact, who did society say had saved the most lives in history? Five university librarians failed to find the answer. That was odd. Should not the biggest lifesavers in history be the most famous scientists? Was our society so self-absorbed as to lack gratitude?

And so I began a survey. And what fantastic scientists we found! And their scientific breakthroughs are no less astute and required just as much genius as those that society has fostered upon us as worthy of acclaim.

Now every morning when I take my allopurinol pill I remember my two heroes. And in my little display case, next to my signed photographs of sportsmen, I have a signed photo of Gertrude Elion. And I am ever so grateful to be living a modern pain-free life!

Avian Agronomists



Note the small roots, lack of branches, and thin trunk. All the tree's energy is concentrated in seed output. We must breed more trees like this.

A ScienceHeroes.com Cartoon

It Was Revolutionary...

Without the 80 million tons of nitrogen consumed annually (from chemical fertilizer), the world could sustain no more than four billion people, two billion fewer than inhabit the Earth today.

- Vaclav Smil, Professor, University of Manitoba

We could hardly believe our eyes on seeing that bacteria could be killed off without, at the same time, killing the patient. It was not just amazement, it was a revolution.

- Lewis Thomas, Dean of Yale Medical School, describing the impact of penicillin

War of Science Physics v. Life Sciences



Reason #4

Physicists are more popular than Life Scientists:

BIGGER EXPLOSIONS!

Answers to NAME THAT SCIENTIST!



Bill Foege was shot at more than once during the Biafran War in Nigeria.



David Nalin had his great insight in a hospital tent set up to handle overflow from a missionary hospital in eastern Bangladesh.



Howard Florey hit the road trying to find a company to produce penicillin, but was continually put off until the U.S. government strong armed some companies.



Norman Borlaug's son, Scotty, was born while he was working in Mexico. He flew back and saw him one time, before he died.



Karl Landsteiner's main job was as a pathologist, not a researcher.

Gertrude Elion - Discoverer of 3 Life Saving Drugs! (1918-1999) Saved Over 5.4 Million Lives

When Gertrude Elion was a freshman in college her beloved grandfather became ill with stomach cancer. "I remember how shocked I was at his change in appearance," she said. "It was the first time I really understood how awful disease could be. I wondered how this happened to people. In the hope that I could do something to combat disease, I decided to become a scientist."



She went on to win a Nobel Prize and to become the first woman to head a major research laboratory. Read her remarkable profile and that of George Hitchings at ScienceHeroes.com.

It was the 1930s and she met resistance. Back then there was discrimination against women. It took World War II, when millions of men went off to war, for her to finally get a research job. But once given a chance, she quickly proved herself. She teamed up with the head of the lab, George Hitchings to start what became known as 'rational drug design.' Previously, most drugs were discovered by screening one drug after another, hoping to elicit a positive reaction. Instead of that brute force method, they sought to create new molecules with specific structures which would disrupt specific disease processes at the cellular level. Doing so, they created not one, but three lifesaving drugs: 6-MP, Imuran, and allopurinol.

Fascinating Elion Facts:

- In 1941 Elion graduated with a Masters in Chemistry from NYU, the only woman in her class.
- That same year, her fiancé became ill and died of bacterial endocarditis, an infection of the lining of the heart. Penicillin, which would have cured him, only became available two years later.
- She never married, and later referred to her discovered medicines as her "children."
- Gertrude Elion and George Hitchings received the Nobel Prize in Medicine in 1988.

Read a science hero's chapter today!

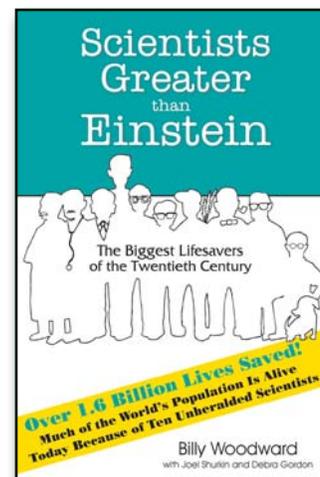
Chapter PDF files available to the media via email: Billy@ScienceHeroes.com

- ✓ Al Sommer (Vitamin A supplementation)
- ✓ Akira Endo (statins)
- ✓ Bill Foege (smallpox eradication)
- ✓ David Nalin (ORT)
- ✓ Norman Borlaug (Green Revolution)

For the first time ever, an extensive survey has been undertaken to discover who saved the most lives in history. The answer – **health scientists** – and they have had more impact upon humanity over the past 150 years than any other scientists.

Ten chapters illuminate in rich detail a scientist's formidable research. In-depth interviews with the four living scientists are full of surprises, adventures, intrigues, and even feats full of danger. These ten scientists have saved over 1.6 billion lives. Is one of them yours or one of your loved ones? **Are you grateful?**

- Biostatistics by Amy R. Pearce, PhD
- Published by Quill Driver Books



Next issue: *Lifesaving scientists have had more impact upon humanity than any other group of scientists!*

ScienceHeroes.com is an educational website that tabulates the number of lives scientists save.

- ✓ Browse the profiles of more than 100 lifesaving scientists
- ✓ See our innovative *Read 1000 Science Stories* program designed for students
- ✓ Quizzes, cartoon makers, and much more!

See our real time Odometer, counting lives saved

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