

Molecular Medicine

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Podcast Transcript Episode 42

Hello *Mollie Medcast* listeners and welcome back. *Mollie Medcast* is the podcast for the biomedical journal, *Molecular Medicine*. My name is Veronica Davis, assistant editor here at *Molecular Medicine* and I'll be your host for this podcast episode. In this week's podcast I have a special treat for you.

First, as usual, I'm going to take a minute to remind you about what our goal here is at *Molecular Medicine*. Our mission is to publish novel work that's concerned with understanding the pathogenesis of disease at the molecular level, which may lead to the design of specific molecular tools for disease diagnosis, treatment, and prevention. If you're interested in submitting a manuscript to the journal, please visit our Web site for information, www.molmed.org. Alright, so let's get started with this podcast.

The month of February is an important and historic one for science! Thanks to a nifty Web site, todayinsci.com, which is abbreviated for Today In Science History, we can find out what scientific developments occurred on any given day of the year. There were several births (and sadly, deaths) this month, in addition to discoveries and inventions that assist us in scientific development. Today we're going to go through a few interesting and significant events that happened this month.

We'll start with a very important scientist.

I'm sure everyone knows the name and the theory, Charles Darwin, born Feb 12, 1809. It's probably safe to say that Darwin is most remembered for his theory of natural selection – which in the 1930s was widely seen as the primary explanation of the process of evolution. For some, his theory is the foundation of biology. Most understand the phrase “natural selection” to bear the same meaning as “survival of the fittest,” which pretty much means individuals who best adapted to their environments were more likely to survive. But, just to clarify, while the theory has to do with survival, it also encompasses reproduction. After all, if an organism dies without reproducing, its genes will die as well.

Although various celebrations were held in remembrance of Darwin since his death in 1882, the first collective and widely recognized celebrations began in 1909, on what would have been his 100th birthday; 265 scientists and dignitaries from 167 countries met in Cambridge, England, to honor Darwin's contributions that year. Also, the 50th anniversary of the publication of *The Origin of Species* was celebrated by the New York Academy of Sciences at the American Museum of Natural History that year.¹ Today we continue to celebrate Darwin Day on February 12, in order to acknowledge Darwin's birthday, and highlight his contributions to modern science. This year is especially significant, as it's the 200th anniversary of Darwin's birth.

Now onto another interesting fact...February is the month DNA was identified as the hereditary agent in viruses.

According to todayinsci.com, in 1944, DNA was identified as the hereditary agent in a virus, published in a report by O.T. Avery, Colin MacLeod, and Maclyn McCarty. The discovery that genetic information is carried through DNA was allegedly accidental, and came to light while the researchers were “studying pneumococcus to monitor the epidemic spread of pneumonia.” The site also claims that scientists had been searching for the “transforming factor” for almost 20 years, after British physician Frederick Griffith found that extracts of a

pathogenic strain of that particular virus could transform a harmless strain into a pathogenic one. This work by Avery et al. identified the transforming molecule as DNA.² Additionally, DNA was confirmed as a double helix structure during the month of February, in 1953, by Francis Crick and J. Watson.³

Not only was DNA identified, but an important drug was used for the first time in February, decades ago. In 1941, the first injection of penicillin into a human test subject was conducted by Ernst Chain and Howard Walter Florey, who also developed this antibiotic. The patient, Albert Alexander, a 43-year-old Oxford policeman, had scratched his face on a rose bush. Ouch! The scratches turned septic, and were followed by blood poisoning and numerous abscesses. Reportedly, he was “in great pain, desperately and pathetically ill”, and happy to be treated with the new drug. The site adds that according to the attending doctor, the result was that “within four days, there was a striking improvement... he was vastly better... with obvious resolution of the abscesses.” Unfortunately, due to limited available penicillin, treatment stopped, the infection returned, and he died four weeks later.⁴

Lastly, another noted scientist was born today.

Today we celebrate the birth of Dr. Cashmir Funk, a Polish-American biochemist, who made vitamins popular. How'd he do this? Glad you asked! After discovering that certain foods were essential to preventing diseases such as beriberi, scurvy, rickets, and pellagra, he suggested that these unidentified substances were all in a class of organic compounds called amines, which are vital to life, so he named them vitamins (or vital amines, get it?) They weren't actually amines, so the term was modified to “vitamin”.⁵

Interesting, huh?

That's it for this week's episode of *Mollie Medcast*. For questions or comments regarding this podcast, please feel free to send me an e-mail at: veronica@molmed.org, that's m-o-l-m-e-d.org.

If you're taking a coffee break and have a moment, check out our podcast webpage molmed.org/podcast. You can play around with our frappr map and view other *Molecular Medicine* users from around the globe. If you're not shy, you can even include a picture of yourself.

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From Long Island, New York, this is veronica@molmed.org, thanks for listening!

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