

# STEM Society Meeting, February 11, 2014

James Emery

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## **1 About the STEM Society and the STEM Society Website**

STEM is an abbreviation for Science, Technology, Engineering and Mathematics. The acronym STEM is commonly associated with K-12 education, but our use of the term is only slightly bound to this meaning. There are over one hundred people on the mailing list, although a much smaller group attends any one meeting. We meet on the second Tuesday of each month at the Trailside Center at 99th and Holmes in Kansas City, Missouri. The meetings are open to all. The start time is 6PM. We make presentations, have

discussions, and have demonstration experiments. These relate to Science, the History of Science, Mathematics, Engineering, Philosophy and Technology at all levels. The topics have ranged from a technical discussion of the mathematics of General Relativity to scientific experiments for young students.

These meeting notes contain links to many other documents, which may be viewed or downloaded by clicking the link. A partial list of documents can be reached by clicking the heading **Documents**. The meeting notes may also be viewed in an archive file which is in the list of documents. Most of the documents are PDF files. They may be viewed or downloaded to the computer by clicking, provided Adobe Reader is present, or another program capable of reading PDF files. There are usually more documents available at the site than are listed under "Documents" because the documents.htm file is not necessarily kept up to date.

**The web site is:**

<http://www.stem2.org/>

**Direct to the documents list:**

<http://www.stem2.org/je/documents.htm>

**Direct to the archive file:**

<http://www.stem2.org/je/archive.pdf>

## 2 The February Meeting Announcement

The February meeting of the STEM Society will take place on the second Tuesday of the month, February 11, 2014, at the Trailside Center at 99th and Holmes in Kansas City, Missouri. The starting time is 6PM. Since we are nearing springtime, perhaps temperatures on Tuesday will be in the seventies. Some of the topics are:

- (1) A Discussion concerning a book on cancer, called **The Emperor of All Maladies**.
- (2) A Discussion of **Bacteriology** With a Microscope Viewing of These Little Beasties.

(3) As always, there may be other impromptu topics, projects, shows-and-tells, new theorems, experiments, book reports, problems and solutions in mathematics, physics, engineering, biology, scientific biographies, and such.

**The STEM Society Website:**

<http://www.stem2.org/>

### **3 Rich Kaufman, Discussion: *The Emperor of All Maladies* by Siddhartha Mukherjee**

Cancer has a very long human history. There is archeological material about cancer from the ancient Egyptian era. There is a story of an Egyptian queen requesting her slaves to cut off her breast to remove a tumor.

Rich gave a very good summary of the latest work on Cancer and some of the recent successes and insights that have been obtained by Molecular Biology. James Watson had stated many years ago the understanding cancer was probably hopeless, but has changed his mind now. Here is a James Watson quote given in the book:

For a period it was thought that cancer was primarily caused by viruses. There is a virus that does cause cancer in plants, the Rouse Sarcoma Virus, but researchers have been unable to find evidence for viral caused cancers in humans. Now it is thought that cancers are caused primarily by genetics and genetic alterations. Oncogenes, accelerator and so and so retarder. Cancer cells appear to be immortal. Normal human cells have a finite lifetime, for example, red blood cells only live a few months. That is why blood for transfusions can be stored for only about a month.

Here is a review of the book from the internet:

”The Emperor of All Maladies is a magnificent, profoundly humane biography of cancer from its first documented appearances thousands of years ago through the epic battles in the twentieth century to cure, control, and conquer it to a radical new understanding of its essence. Physician, researcher, and award-winning science writer, Siddhartha Mukherjee examines cancer with a cellular biologist’s precision, a historian’s perspective, and a biographer’s passion. The result is an astonishingly lucid and eloquent chronicle of a disease humans have lived with and perished from for more than five thousand years.

The story of cancer is a story of human ingenuity, resilience, and perseverance, but also of hubris, paternalism, and misperception. Mukherjee recounts centuries of discoveries, setbacks, victories, and deaths, told through the eyes of his predecessors and peers, training their wits against an infinitely resourceful adversary that, just three decades ago, was thought to be easily vanquished in an all-out war against cancer. The book reads like a literary thriller with cancer as the protagonist.”

## 4 Cécile Lagandré: The Benefit of Trees

The **itree** program is a web based application at:

<http://www.itreetools.org/design.php>

It is a tool to help quantify the cost savings that trees provide.

The following files are a record of the result for the software applied to Cécile Lagandré’s house on Wornall Road.

<http://www.stem2.org/je/Captureitree.JPG>

<http://www.stem2.org/je/i-Design-Report.pdf>

## 5 Bob Kessler: Google Gigabyte City

A day long conference event at the Kansas City Public Library downtown is scheduled for Thursday February 13, 2014 on the the topic of the benefits of the Kansas City Gigabyte City due to the Google Fiber Network installation. There will be local speakers as well as a speaker from the National Science foundation.

We discussed our experiences using the Google networks. One remark was about the supplied modem and router and its loud noise. Some use the free Google installation, which is not the high speedGigabyte speef, but still fast in a conventional sense.

## **6 Kent Smith: Microbiology Demonstration**

Kent talked about the Chinese head of the computer science department at UCLA and his project of using a chinese chewing gum to kill the mouth bacteria responsible for tooth decay. This substance is considered a food so does not require testing by the food and drug administration. Kent was not able to bring his microscope to the meeting, so there was no demonstration.

## **7 A Conversation With Alvin Sykes**

You tube Kansas City Public Library January 30th 2014:

<https://www.youtube.com/watch?v=9YQ-8Lp2sHw>