



# Caswell **CORPORATE COACHING** Company

*Making good companies even better - worldwide*

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## The CEO and Science



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Bill Caswell is an experienced coach of CEOs and senior executives around the globe. The author of 14 books, Bill has penned the 12-book series *The Respect Revolution* written, by a CEO for CEOs, as a guide to getting your company to *Excellence* and keeping it there.

*The CEO has to keep an eye on the future, that is, be aware of what is happening now in the world, and where it is leading. This is true not only within the CEO's business realm, the political realm, but also in the development realm, which we will call science. The CEO should wonder: "Where is the science conversation taking us, and by extension, where might it be taking my company?"*

As an engineer and a scientist, as a person responsible for inventions well ahead of their time (rotating radar, electronic metronome, in-line density measurement, laser imaging & storage, online banking) my interest in science probably exceeds that of the average leader as I continue to be fascinated with new developments and the increasing pace of those developments. Notwithstanding that, allow me to come down to earth to summarize a few notable scientific developments that have evolved in 2016, which I believe, will have an impact on how we live, run and understand our businesses, and our lives. Thanks to *Scientific American magazine* for providing a wonderful edition devoted to the past year's scientific achievements.

### The Magnitude of the Milky Way

As you all know, we belong to one average star in the Milky Way, called the Sun, but we now learn that we are part of a bigger cosmic entity than we first realized. The Milky Way itself is part of a massive cluster of galaxies that forms one of the largest structures in the universe. It has been named "Laniakea" and consists of well over 1,000 galaxies, each with hundreds of billions of stars, moving along at about 60 km per second. It is presumed to be about 50-million-light years across. (A light year is the distance that light will travel in a year, about 10,000 billion km.)

### Ripples in Space Time

On February 11<sup>th</sup>, 2016, scientists confirmed\* that Einstein's prediction in 1916 of gravitational waves was accurate. (Understand that the gravity we feel each day, is not a force, per se, but rather a ripple in space time as described by Einstein who had a way of looking much further ahead than many other human beings. Space time is a unit of time and distance as they are both dependent on one another. We in our earthly cocoon can think of both space and time as separate, but they are not, just as blood circulation and the heart are inexorably connected.) Not only does this confirmation remove the debate about the existence of gravitational waves, it will enable astronomers to study black holes, supernovae (exploding stars) and neutron stars in entirely new and beneficial ways.

### GPS in the Brain

A pair of Nobel Prize winners opened the door to understanding how our brain system assesses where we are and where we are going by the brain integrating multiple signals related to our position and the passage of time. Firing of grid cells in different parts of the brain produces a map so that, together with "place" cells that identify our location, we (and other animals) can instantaneously build a mental picture of our surroundings.

### Cancer Research

Instead of attacking cancer directly by surgery, radiation and chemotherapy new advances enhance our defences using our natural immune system via three different paths.

#### **Seminars 2016-2017:**

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Ottawa,  
Canada
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Guadalajara,  
Mexico
- **26 Jan.**  
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Ukraine
- **23 Feb.**  
Ottawa,  
Canada
- **12 Apr.**  
Ottawa,  
Canada

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\*A scientific confirmation is a result that any diligent person can replicate readily and get the same result.

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(1) Checkpoint Inhibitors: Cancer cells have a way of defeating checkpoints that allow T-cells to grow, (T-cells are our natural defenders against cancer and other invaders). New drugs, called ‘checkpoint inhibitors’ disable the cancer’s influence on T-cells, allowing T-cells to grow and therefore do their immunity job properly. (2) Dendritic Cell Vaccine: Dendritic cells look for unwanted invaders and introduce them to T-cells and other protectors. By extracting both healthy and cancerous cells from a patient, a vaccine is created that, when used, because of its ‘memory’, will seek out and destroy those same cancer cells for years to come. (3) CAR-T-Cells: CAR-T-cells, that are natural defenders, are enhanced to travel easily in the blood to isolate and destroy liquid malignant tumors. They have wiped out all traces of cancer in as many as 90% of patients with aggressive leukemia.

### **Aging**

New drugs show surprising abilities to keep aging cells healthy. Diets to retard aging have never shown the promise anticipated. However mechanisms within cells, derived from work on anti-diabetes medication appear to have life-extension properties. They are now being tested for anti-aging potential.

### **Automatic Diagnoses**

Now, it looks as if living cells are able to diagnose human diseases and repair environmental damage. Bioengineers have created living cells that can count, add and store data. Presently they are testing ingestible cells that would treat metabolic disorders – a bio-computer, if you will, that we would swallow when needed.

### **Early Humans**

Fossils in a cave near Johannesburg South Africa of 15 individuals, with approximately 100 bone specimens each, take the ‘human’ path as far back as 7 million years. This discovery raises questions concerning our current ideas about the origin and evolution of our species.

### **Conclusion**

Never in the 400-year history of science, has a scientific proof been overturned. Those who express the idea of a war between science and a belief system (such as Trump seems to say) state an impossible absurdity. Today, serious rhetoric of competition between science and beliefs seem to be stronger than ever. Rational individuals, including business leaders, need to stand up to this impossible situation. Information that creates awareness, as provided here for example, is probably the best defence.

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