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GEE WHIZ

An essay read to the Columbus Kit Kat Club, 19 October 2004

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Prelude

As I thought about writing this essay, I asked what an essay was. My memory didn't help much so I looked into the subject. Perhaps some of you have had the same experience and will find the following comments of some interest. The first essayist was apparently Michel de Montaigne (1533-1592), who wrote 107 essays varying from a page and a half to 200 pages and coined the name "essay". Shakespeare's contemporary Francis Bacon (1561-1626) was not far behind. The best-known American essayist was probably Ralph Waldo Emerson (1803-1882). 'Essay' comes from the French verb 'essayer' - to attempt, to try. To try what? To try to reveal something about one's self, at least that was Montaigne's view. Bacon was looking for more, a gross improvement on Aristotelian logic, and his essays were only a part of that quest. Emerson's goal was to "confront life". One dictionary defines an essay as: "an analytic or interpretive literary composition usually dealing with its subject from a limited or

personal point of view".

In this spirit, I will devote this essay to things that I remember as pleasantly astonishing. The title is the result of a search for something catchy that reflected such astonishment. Most of those that came quickly

to mind were either vulgar or blasphemous. Gee Whiz seemed to be the most suitable. It is neither vulgar nor grossly blasphemous, especially by current standards, and seems most often to imply a pleasant or stimulative sort of astonishment. Gee Whizzes are, as I have said, personal, mine may not be yours, and this essay may fail, but it is, after all, an "essay". Perhaps it's a parallel to the recent n.p.r. program entitled "One Man's Junk is Another's Marvel".

I) RADAR

Science and technology have, probably not surprisingly, been great sources of Gee Whizzes for me. One of the first that I remember well was RADAR. When I joined the Navy in WW II, I had a fairly good

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working knowledge of AC and DC circuits, I had built a couple of radio receivers and dabbled with other aspects of electronics. Seven months of Navy service school honed that knowledge and added to it.

There was one very early Gee Whiz. In 1945, around VE Day, I saw my first TV image broadcast by W8XBK and displayed in green and white on a five inch Dumont oscilloscope. The eighth month of electronics school was, however, very different First of all it involved something totally new, radar, and second it was classified at a higher level, SECRET. Doing homework in a secure area and having your notes kept in a vault was a new and amusing experience. The real excitement came, however, as we learned about operational radar.

The first radar we studied was the SC. This air-search radar, which was operational before Pearl Harbor, remained in 1945 the most common air-search radar in the fleet. Most of the components of the SC radar were evolved from conventional radio components. They were different in detail, but the principles were the same. Their heritage from the de Forest audion vacuum tube, which was patented in 1907, was quite apparent. There were no large Gee Whizzes. The twelve inch PPI was the largest cathode ray tube I had ever seen and. in retrospect. the servo system, which made it possible to rotate a 500 pound antenna by turning a small hand wheel and to know exactly where itwas pointing at all times, should have been a Gee Whiz. 1simply didn't recognize it then. It has since become part of another big Gee Whiz, control systems.

The second radar was the surface-search SG. which existed at the time of Pearl Harbor, but was not widely installed in ships of the fleet until late 1942. The SG radar was a huge Gee Whiz! Technically, it operated at the then unheard of frequency of 3000 MHz (amateur radio was still struggling with 56 MHz).

This was possible because two totally new kinds of vacuum tubes, the klystron and the magnetron, were used in the receiver and transmitter respectively. Also, at 3000 MHz, a large pulse of energy does not

simply travel down wires. A whole new way of moving energy from the magnetron to the antenna was required. The new way of moving very high frequency energy consisted of a rectangular copper pipe about 1 Y," x 3", which was called waveguide. With a little more knowledge, a magnetron could be connected to one end of a waveguide system and an antenna to the other. It worked much like water

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pipes and was inevitably known as "plumbing". Really understanding waveguides requires some rather sophisticated mathematics and physics. It was three or for years before I really appreciated how it worked. Microwave plumbing, however, was a real gee whiz. Klystrons and magnetrons are even more complicated. In about 34 years, 1907 to 1941, vacuum tube electronics had gone from de Forest's audion to 10 em RADAR and TV. Since then, we have seen the development of the transistor and integrated circuits. These tiny devices make possible cordless telephones that operate at 2400 MHz and pes with CPUs that run at 3400 MHz, about the same frequency as the SG radar signal. They are also Gee Whizzes, but I saw their evolution and that dulled the astonishment.

The enormous impact of radar on WIN " was another Gee Whiz, but my awareness of it came much later.

In terms of technology, radar, nuclear weapons and the VT (variable time) fuze were three of the most important WW II technical achievements. Remarkably their importance was correctly recognized even before Pearl Harbor and extremely effective independent programs were established to pursue each. This is yet another Gee Whiz.

Intermezzo

The impact of the introduction, to the western world, of Arabic (or Hindu) numbers, zero and the decimal

point is a great Gee Whiz. Without them the scientific developments of the seventeenth and subsequent centuries would have been impossible. If you have doubts about their importance, try dividing XUI (42) by VII (7) to get VI (6) without using Arabic numbers. Worse yet, how does one write 1/3 or 0.25 in

Roman numerals? Think about Newton and Leibnitz inventing calculus without Arabic numbers!

II) Post WW " Reconstruction

The next Gee Whiz is, probably mercifully, non-technical. When World War II ended, Japan and much of Europe were in ruins. In the US, over fifteen million young men were coming home to face an economy that would inevitably be shrinking because of the disappearing demand for war material. In retrospect

what the United States did to avoid or alleviate problems was, in my opinion, remarkable-a huge Gee Whiz! This huge Gee Whiz was built up from a list of smaller items. Here are some comments on two of them.

The first item affected me, and, I am sure, others of you, personally. In early 1946 itwas clear that sometime that year I would again be a civilian and that I should do some thinking about the change in status. One of the first things I learned about was the GI Bill, which, incidentally, was then about eighteen

months old. My immediate reaction was Gee Whiz; I won't have to worry about how to pay college tuition.

I have thought about the GI Bill many times in the past fifty plus years and the reaction has always been a

Gee Whiz, each bigger than its predecessor.

A little research revealed that, rather remarkably, an American Legion committee prepared the first draft

of the GI Bill. The draft was written between 15 December 1943 and 6 January 1944, a period of about three weeks. Vivid memories of Post WW I veteran's problems dictated the major objective, which was avoiding massive post-war unemployment. The Bill was introduced first in the House and a few days later in the Senate. Both houses passed it unanimously, but in slightly different forms. With a little stalling in the conference committee, the final bill was passed in June. Passage was notable because by then 640 other veteran's benefits bills were stalled in Congress. President Roosevelt signed it on 22 June 1944. Six benefits were available and of these the most important and most widely used was probably education and training from which 7.8 M. of a 15.4 M veteran population benefited. The total cost of the

WW II GI Bill was $14.5 B. The Bill succeeded in its primary objective and as an unintended benefit provided the United States with an infusion of educated manpower with which to tackle an increasingly complex world. What started as a "band-aid" turned out to be a growth hormone. All in all, the GI Bill was a huge Gee Whiz!

Jumping ahead, in 1960, fifteen years after the end of WW II, I made the first of many trips to Europe. A lot of visible progress had been made in rebuilding parts of Europe. There were new stores, a few new buildings, some good restaurants and above all an obviously optimistic population, but London and

Frankfurt, among the cities Ivisited, still displayed significant bomb damage. This was not particularly encouraging until one remembered that fifteen years after WI/IJI Hitler was in power and Germany was building a new U-boat fleet A little later, 1972, was the twenty-fifth anniversary of the Marshall Plan of which Iwas still shamefully ignorant That year, Willy Brandt, in a speech at Harvard, paid tribute to the Marshall Plan and announced the establishment of the "German Marshall Fund of the United States". This was a rare sort of thank you, and ignited my interest in the Marshall Plan. It also contributed to the erroneous impression that Germany was the principal beneficiary of the plan. In fact, Britain, France and Italy received more Marshall Plan aid than Germany. Even the Netherlands received about a billion dollars. The wisdom of including Germany as a beneficiary was not much questioned in the US, but some of our allies, at least initially, felt otherwise. In addition to the Marshall Plan, other US programs provided aid to Germany and Japan.

Today Europe and Japan are peaceful democratic parts of the world, a dramatic contrast to the aftermath

of earlier wars, and this already makes an enormous Gee Whiz. Putting post-WI/IJII foreign aid together with the GI Bill makes post-WI/IJII reconstruction in the US, Western Europe and Japan a staggering Gee Whiz.

Intermezzo - Ephesus

In 1984 as an incidental part of an Aegean cruise, Jean and I visited Ephesus. By then we had seen a lot

of famous archeological sites, but Ephesus was strangely exciting - more so than Corinth, Delphi or Olympia. I couldn't figure out why. About six months later the Gee Whiz finally came. The excavations at Ephesus reveal an entire city: dwellings, markets, theaters, schools, a major library, remarkable public toilets, and even the brothels. Other sites showed a building or two, but gave little idea of how people lived. Pompeii, which I have not seen, might well induce a similar reaction.

III) Prolific Authors

Thirty or so years ago one of our Kit Kat members, probably Bill Young, brought Bryan Wallace to several meetings as his guest. I sat with Bryan at dinner on several of those occasions and quickly learned that

he was Edgar Wallace's son. I was and still am a detective fiction nut and extremely prolific authors fascinate me. I knew a little about Edgar Wallace and he became a great topic for conversations with Bryan. I learned that Edgar Wallace had written over 150 books and that he had pioneered dictation as a tool for expediting his writing. Bryan also said that his father had dictated one of his books injust two days. This is obviously the making of a spectacular Gee Whiz! Over the years, I have looked into Edgar Wallace's biography and the Gee Whiz is indeed spectacular. A little of what Ifound what follows.

Richard Horatio Edgar Wallace was born in 1875 in Greenwich the son of Polly Richards and Richard Horatio Edgar Marriott. Edgar Wallace was adopted at age nine days and brought up by a London fish porter [George Freeman]. He left school, as was then common, at age twelve. He did menial jobs until he was eighteen and then enlisted in the army. Wallace developed aspirations to write. While serving in South Africa, he was befriended by the Reverend William Caldecott, subsequently his father-in-law, who helped him to learn the trade. He began to contribute to journals and write poetry. His first book, "The Mission that Failed", which was a volume of poetry, was published in 1898 when he was 23 years old. After his discharge in 1899 Wallace was employed as a newspaper correspondent and editor. His first novel, "The Four Just Men", was published in 1905 and the latest reprint is dated 2001. Edgar Wallace died in 1932. In thirty-five years about 175 Wallace books had been published. He had also written twenty-four plays and countless other pieces. This is already a big Gee Whiz - an average of five books a year for thirty-five consecutive years! Wallace biographers report that he "dictated an entire novel during a single weekend" and that one of his most popular plays, 'On the Spot (1931)" was finished in

four days", much as Bryan had told me. Hundreds of films have been based on Wallace's work including a series of thirty-two that were produced for German audiences. The most remarkable thing may be that

booksellers currently list at least forty-eight Wallace detective stories as in print, mostly with publication dates in the past five years. Actual availability, however, does not seem to be quite that good.

My opinion of the Wallace's mystery stories varies from book to book. The early plots seem excessively contrived. Later plots are better. The dialog is, however, always incredibly good. His skill with dialog impressed Hollywood and Wallace wrote a substantial amount of movie script including the first script for

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King Kong. There are some great lines in the books. One containing some good advice is from "The Clue of the New Pin" (1923): "Mr. Wellington Brown was a born loafer; it is a knack which would prolong many lives in this strenuous age, if it could be acquired."

The Kit-Kat connection makes Edgar Wallace especially interesting. His prolific publication record is uncommon, but he has company in the stratosphere. Georges Simenon (1903-1989) wrote 200+ novels,

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including seventy-six about the career of Chief-Inspector Maigret. Most have been translated into English. At his peak, Simenon wrote 80 pages per day in longhand. In 1932 and 1933 he turned out eighteen complete novels in eighteen consecutive months. During his writing career, roughly 1923-1973, he averaged about four books per year; however, the Maigret stories ran to around 100 pages and many of the others were under 200 pages. Perhaps they should be described more properly as novellas. All of Simenon's books are still in print, in French, as a twenty-five-volume set that sells for $1250!

Tom Clancy provides one interesting comparison with a contemporary author. Clancy's name appears on seventy books 'published over a period of twenty years. Fifty of these acknowledge one or more collaborators and in several cases Clancy and a collaborator are credited with "creation" and someone

else with "writing". The books, however, are massive. "The Hunt for the Red October" ran to about 460 pages about the equivalent of four Maigret novels.

There are probably other authors is the same league as Wallace and Simenon, but these two stand out in my experience. Each time I learn a little more about either author the Gee Whiz gets bigger.

Concluding Comments

The three Gee Whizzes I have considered are all different. Radar was an instant Gee Whiz, but it depended on having some basis for comparison. Radio frequency circuits, transmitters and receivers provided that basis. With that background klystrons, magnetrons and waveguides were truly amazing.

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Edgar Wallace was an almost instantaneous Gee Whiz. I was impressed by the popularity and sheer quantity of his work, but I did not have a good data on other authors as a basis for comparison. A little research, however, verified my impression that publishing five books a year for thirty-five years was a tremendous feat. Edgar Wallace became a real Gee Whiz.

Post \NW II reconstruction was very different. The GI Bill was an instantaneous Gee Whiz, but the rest of it became apparent in bits and pieces. The background that made it really impressive was mainly the post \NW I depression and the interwar rearmament of Germany. In addition to being a Gee Whiz for me, US participation in post-\NW II reconstruction was a great humanitarian contribution of which we should be very proud.

These Gee Whizzes were culled from a list of twenty or so. The criteria were interest, explicability and diversity. I was tempted to include several others from my list. One was control systems, but that seemed a bit much for after dinner. Two others were, black holes and chaos. Common sense suggested that Pat Osmer could do better with black holes and the mathematics of chaos seemed inappropriate for this audience.

Thank you for your kind attention