zero bias – a CQ editorial

BY RICH MOSESON,* W2VU

"Into the Impossible" Remembering Arthur C. Clarke

"The only way of discovering the limits of the possible is to venture a little way past them into the impossible," wrote Arthur C. Clarke in his 1962 book, *Profiles of the Future.* Perhaps more than anyone else of his generation, Clarke—who died on March 18 at age 90—had the ability not only to venture into the impossible but to help make it possible. While he never was a radio amateur, he inspired many of us and it is worthwhile to take some space here to look back at his life and his contributions to our ever-more technological society, many of which relate directly to what we do as hams.

Primarily a science fiction author, Clarke wrote nearly 100 books but is best-known for co-authoring with Stanley Kubrick the screenplay for the movie "2001: A Space Odyssey." In the realm of science *fact*, he is also credited with developing the concept of communication satellites and putting them in geosynchronous orbit (now known as a "Clarke orbit"). Less well-known is that he also suggested using satellites for observing and forecasting the weather, proposed using rockets for conducting ionospheric research, suggested bouncing radio signals off the moon, proposed manned laboratories in space and theorized that solar energy might be used to provide long-term electric power in space.

As a British Royal Air Force officer in World War II, Clarke worked to help develop a system to allow airplanes to use radar to land in bad weather (what we know today as an "instrument landing"). What he learned in the air force about radio wave propagation and the ionosphere led to a letter published in the February, 1945 issue of the British magazine *Wireless World,* titled "Peacetime Uses for V2." In that letter, Clarke suggested using German rockets for probing the ionosphere, noting sardonically that "it will not have escaped your readers' notice that the German long-range rocket projectile known as V2 passes through the E layer on its way from the Continent," adding, "If it were fired vertically without westward deviation it could reach the F1 layer and probably the F2 layer … we can now send instruments of all kinds into the ionosphere and by transmitting their readings back to ground stations obtain information which could not possibly be learned in any other way." In those few sentences, Clarke developed the concept behind *ionosondes*, rockets that have become staples of ionospheric research for the past 50 years.

In the same letter, he noted that "(a) rocket which can reach a speed of 8 km/sec parallel to the earth's surface could continue to circle it for ever in a closed orbit; it would become an 'artificial satellite.' " Such a satellite, he added, "at the correct distance from the earth would make one revolution every 24 hours; i.e., it would remain stationary above the same spot and would be within optical range of nearly half the earth's surface. Three repeater stations, 120 degrees apart in the same orbit, could give television and microwave coverage to the entire planet."

Clarke followed up the letter with a full article published in the magazine's October, 1945 issue titled, "Extra-Terrestrial Relays – Can Rocket Stations Give World-wide Radio Coverage?" This set forth in great detail, accompanied by formulas and diagrams, Clarke's concept of "space stations" at an orbital distance of 42,000 kilometers (about 26,000 miles, later refined to approximately 22,300 miles) that "could be provided with receiving and transmitting equipment (that) could act as a repeater to relay transmissions between any two points on the hemisphere beneath, using any frequency which will penetrate the ionosphere." At this point, he admitted that there was as yet no direct evidence that radio waves could pass into outer space, and again suggested using V2 rockets for ionospheric research, adding, "Alternatively, given sufficient transmitting power, we might obtain the necessary evidence by exploring for echoes from the moon."

The "space station" he conceived "could be provided with living quarters, laboratories and everything needed for the comfort of its crew, who would be relieved and provisioned by a regular rocket service. This project might be undertaken for purely scientific reasons as it would contribute enormously to our knowledge of astronomy, physics and meteorology." He also suggested that long-term power needs in space may be met by advances in "thermo-electric and photoelectric" technology ... in other words, solar cells.

Thus, in the course of two 1945 articles, Clarke set out plans for ionosondes, communication satellites, moon-bounce, solar power, and space stations for scientific research. Plus, nine years later, according to the Arthur C. Clarke Foundation's website, "Clarke wrote to Dr. Harry Wexler, then chief of the Scientific Services Division, U.S. Weather Bureau, about satellite applications for weather forecasting. From these communications, a new branch of meteorology was born…"

Finally, Clarke was familiar with amateur radio and recognized its value, particularly in the wake of the Indian Ocean tsunami of 2004, whose impact he saw first-hand from his home in Sri Lanka. Writing in *Wired* magazine in February, 2005, Clarke noted that "when electricity and telephones—both fixed and mobile—failed in the worst-affected areas, amateur radio enthusiasts restored the first communication links with the outside world. Courageous and resourceful radio hams were at the forefront of relief efforts in the Andaman and Nicobar Islands off the coast of India, Hambantota in Sri Lanka, and many other locations. We might never know how many lives they saved and how many minds they put at ease, but we owe a debt to Marconi's faithful followers." We, too, owe a debt to Sir Arthur C. Clarke. His vision of the future will be missed.

Kosovo

If you take a close look at this month's DX column, you'll see a box announcing that *CQ* has decided to grant "entity" credit for Kosovo as of its independence date of February 17, 2008. This is at odds with the ARRL's decision to withhold DXCC entity status for now, and we wanted to add a bit of explanation. Generally, our "country list" for the CQ DX Awards closely parallels the DXCC list, but when a new entity is added, we look at different "event dates," as the ARRL puts it. We tend to make a new entity's effective date that on which its status changed, while the ARRL tends to use the date on which an entity becomes a member of the United Nations, is issued a callsign block by the International Telecommunications Union, or is added to the U.S. State Department's list of "Dependencies and Areas of Special Sovereignty." This is why we have different effective dates for St. Barthelemy (FJ)—with CQ award credit beginning February 21, 2007, the date its status changed—vs. the ARRL's date of December 14, 2007, when it appeared on the State Department's special sovereignty list.

In the case of Kosovo, our effective date would be February 17, 2008, regardless of when it meets DXCC criteria of UN membership or an ITU call block. Since Russia's strong objections to Kosovo's independence are delaying any UN action for the foreseeable future, the ARRL is hampered by its own rules and has decided to keep the area in DXCC limbo pending UN/ITU recognition. Not being subject to DXCC rules, we decided that the U.S. government's recognition of Kosovo's independence is good enough for us. *73, W2VU*

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