



Hands Across History



A joint newsletter for the White Sands Historical Foundation and the White Sands Pioneer Group.

Volume X, Letter IV

November 2014

White Sands Missile Range Hall of Fame Welcomes ARL's Hoock And Trammel

By Laura Almaraz, WSMR *Missile Ranger* Newspaper

White Sands Missile Range will induct Dr. Donald W. Hoock, Jr. and Joseph L. Trammel into its Hall of Fame on November 18 during a luncheon ceremony at the installation's Frontier Club.

Induction into the Hall of Fame is the highest honor White Sands can bestow upon an individual locally. The Hall of Fame was established in 1980 to recognize those who have made outstanding contributions to White Sands during their tenure on the range.

White Sands Missile Range has elected two former U.S. Army Research Laboratory civilian employees to its Hall of Fame for 2014. One is a physicist who helped develop computer software still in use today to model obscurant smoke, dust, and haze effects. The other was a security team leader who continues to serve as a spiritual leader to the WSMR community after his retirement.

Dr. Donald W. Hoock, Jr.

Effective training entails simulations of possibilities encountered during combat. It is essential to be able to identify and prepare for possible equipment disruptions. Such disruptions can happen due to natural or man-made causes.

The Soviet Army in central Europe planned to use smoke and obscurant munitions that would blind the U.S. Army's sensors and prevent long-range standoff capability. While working with the U.S. Army Research Laboratory at White Sands Missile Range, Dr. Donald W. Hoock, Jr. helped coauthor a computer program that helped deter the Soviet Army's smoke tactics.

For several years, a model Hoock coauthored was the lead project of the U.S. Army Atmospheric Sciences Laboratory's Atmospheric Effects division. The Combined Obscuration Model for Battlefield-Induced Contaminants model was coauthored by Hoock in 1983. COMBIC predicted the effects of dust, smoke, and obscurants on U.S. Army target acquisition and surveillance systems. It was adopted by the Army war gaming community and remains today the primary model used in Army war gaming simulations to model obscurant smoke, dust, and haze effects. It provides model-



Dr. Donald Hoock, Jr.

ers with "predictions of temporally varying visibility and transmission loss information for dozens of specific types of modeled battlefield obscurants."

Hoock's work did not stop with COMBIC. Although the model provided general information about the cloud position, other important concepts were not well understood. The evolution of obscurant clouds, the behaviors of obscurant clouds in a complex terrain, such as urban environments, and the way light traveled through spatially variable smoke plumes were poorly understood.

A year after the completion of COMBIC, Hoock began working on an extensive research program to gain a better understanding of obscurant clouds. Between 1985 and 2004 he led a major research effort involving 11 coauthors and publishing over 32 papers and reports covering these research areas.

The research resulted in the "development of a breakthrough cloud visualization algorithm, termed STATBIC, the Statistical Texturing Application to Battlefield-Induced Clouds. The model helped understand the unpredictable

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British Officers Once Pulled ‘Hardship’ Duty at WSMR

EDITOR’S NOTE: Did you know White Sands Missile Range once had British officers assigned to the range as liaisons for testing? The Dec. 18, 1964 issue of the range’s *Wind and Sand* newspaper had a front-page article about the transition of one officer to another in that assignment. The exchange ceremony was to take place on Christmas Eve. Here are highlights from the article ---

Lt. Col. Terence F.S. Southgate, recipient of the British medal for heroism, will be the new British liaison officer. He will succeed Lt. Col. Kenneth G. Willstead, who has been at WSMR since August 1962.

Colonel Willstead will report to London for assignment with the Ordnance Board. The Ordnance Board is a tradition-rich British institution with a history dating back to 1414. A tri-service organization (army, navy, air force), it is responsible for the safety and reliability of any weapons system involving equipment that contains explosives.

Colonel Southgate reports to WSMR following an assignment with the Royal Armament Research and Development Establishment.

Both men began their careers in 1939 as cadets in the officer school at Shriveham.

Upon graduation, Colonel Southgate was assigned to a searchlight regiment (air defense) in Leicestershire. “Trudging through the snow to join the troops, he made a quick estimation of the situation and still vividly remembers it - “By Jove it was cold.”

Shortly thereafter he went into France with a British Expeditionary Force and remained there until after Dunkirk and his unit’s withdrawal through Brittany.

While in an assignment with another searchlight regiment, Colonel Southgate volunteered for a military intelligence mission to learn about German anti-aircraft defenses. He was attached to Bomber Command of the Royal Air Force as an air gunner, but his major task was for military intelligence. During the assignment he took part in operations over most of the major targets in Germany and for his

services received the Military Cross.

Since the war Colonel Southgate has had various assignments in Britain as well as overseas tours in Iraq, Hong Kong and Australia.

Colonel Willstead was first assigned in Britain – with an antiaircraft unit in the Midlands.

Next he went to France with the British Expeditionary Force to work for a searchlight regiment in the Royal Artillery. And there he was when the Germans broke through the Allied lines in June of 1940.

“The whole setup became utter chaos” is what Colonel Willstead best recalls about the situation.

Everyone became infantry, and his unit threw its equipment into road barricades as it started its withdrawal to Dunkirk. Once at that harbor city the troops started to dig in for what might be their last stand. But it wasn’t. The day came when a British armada of small craft dotted the harbor, there to help evacuate their forces. That was the most wonderful sight I’ve ever seen,” said Colonel Willstead.

“And how can I forget the chill of wading through the Channel waters to get aboard a herring drifter, or the long tension of the five-or-six hour ride back to Britain,” he continued.

“I am very proud to be able to say I was there,” said the colonel, “but I’d sure hate to go through it again.”

Of his tour of duty at White Sands Missile Range, Colonel Willstead said, “Both myself and my family have enjoyed being here immensely. I have felt myself part of the post and have been honored by the friendliness, hospitality and cooperation I have received. This was the nicest ‘hardship’ tour I have had.”

If you would like to help the WSMR Historical Foundation in 2015, please contact the board of directors at the address below or by emailing Jim Eckles at nebraska1950@comcast.net

Statement of Purpose and Membership

The “Hands Across History” newsletter is published by the White Sands Missile Range Historical Foundation and the White Sands Pioneer Group (WSPG). Both nonprofit organizations aim to preserve the accomplishments of White Sands Missile Range.

The newsletter is intended to keep members of both groups informed about current events and share information of common interest. The edi-

tor is Jim Eckles. He can be contacted by email at nebraska1950@comcast.net or at either address below.

Membership to either organization is open to anyone who shares their goals. However, details of membership (dues, etc.) differ between the two groups. For more information, please contact the appropriate organization and we will send it via the Post Office or email.

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characteristics of real battlefield clouds, like those with non-repeating variations in shape and concentration that may have holes. These unpredictable characteristics “produce significant performance variations in target acquisition, tracking, designation, weapon homing, and design aspects for low observables of electromagnetic systems propagating or detecting radiation through or near them.”

Hoock was awarded the Department of the Army Research and Development Achievement Award for his work on “High Resolution Radiative Transfer Visualization of Smoke and Dust Clouds” in 1992.

He retired from the U.S. Army Research Laboratory at WSMR in 2012. He passed away in 2012.

Joseph L. Trammel

Joseph Trammel’s hard work and dedication were evident during his 42 years of service as a government employee. His selfless contributions have left a long lasting impact on each organization he has worked with including the WSMR community, the Department of the Army, and the Department of Defense.

Trammel led the Security and Counterintelligence effort for the U.S. Army Research Laboratory at WSMR for almost 30 years. As Security Team Leader, his job was to protect ARL technology in support of the Soldier on the battlefield. During this time Trammel’s duties included establishing, executing, and maintaining an effective security, counterintelligence, special access, and other sensitive access programs for ARL.

Trammel’s expert security operation functions made countless critical projects possible. Amongst the high-pro-



Joseph Trammel

filed projects that were possible because of his expertise was the Improvised Countermeasure Equipment (ICE), an IED countermeasure that was used in Iraq and Afghanistan.

Not only did Trammel help protect the Soldier during combat, but he also ensured the safety of those on the installation. In 2012, Trammel took on additional duties as the ARL Foreign Disclosure Officer for over a year. He planned and coordinated ARL-WSMR’s participation in Annual Antiterrorism Force Protection and Continuation of Operation Exercises. He also “trained and managed the ARL-WSMR Crisis Action and Crisis Management Teams, which proved invaluable during the wildfires that threatened WSMR in 2010.”

In 2010, Trammel saved the life of a fellow employee who failed to show up for work. Trammel was unable to contact the employee or the emergency contacts by telephone. He drove about an hour to the employee’s home and summoned emergency services to meet him at the individual’s home. Upon arrival, the individual was found unconscious and barely breathing due to health complications. They were able to revive the employee and transport him to a hospital in El Paso, Texas, where he recovered.

Trammel received the Department of the Army Civilian Award for Humanitarian Service for his “compassion, concern for others, and composure under pressure.”

As an Ordained Pastor, Trammel continues to lead the Gospel Congregation at WSMR since 1985 and holds Bible Studies twice weekly. He has been continuously involved in the installation chapel’s activities including seasonal plays, concerts, and Summer Bible School.

When the installation military chaplain was not available or the position was vacant, Trammel served as the community’s spiritual leader. Trammel has also selflessly dedicated his own Family time to personnel working during Christmas Eve providing them their holiday meals.

Trammel retired from the U.S. Army Research Laboratory in 2013 and lives in Las Cruces.

Some Readers Can Still Attend

Our readers who only receive the paper version of *Hands Across History* will receive this issue too late to sign up the induction luncheon. However, those receiving it electronically will have time to call in their reservation.

To attend this year’s induction, please call the Protocol Office at 575-678-1949 or 575-678-1038 and make a reservation with your credit card number by Nov. 9. No payment will be taken at the door. Menu selections are Green Chile Chicken Enchiladas and Barbeque Brisket for \$18.

A reception will be held immediately after the induction at the White Sands Museum. Cake and coffee will be served.

After this induction, there will be 52 men and women in the WSMR Hall of Fame.

Book Jogs Memory For One Old Timer

By Bruce Kennedy

Hi, Jim. I just finished reading *Pocketful of Rockets*. Talk about a trip down memory lane....so many names that I recognized or knew. I enjoyed the couple of references you made about ASL (Atmospheric Sciences Lab).

The balloon flight we released in 1968 was under the direction of Harold Ballard, one of ASL's leading scientists. The instrumentation was developed and fabricated by Texas Western College's Schellenger Lab. By the way, they also were involved in developing a balloon-borne acoustic microphone that could detect low frequency sound.

One of the instruments on the balloon contained a minor radioactive source emitting beta particles to measure atmospheric density at extremely high altitudes. I coordinated the use of the source, promethium 147, with the Nuclear Effects Lab and Jim Oaks, the WSMR radiation safety officer.

Well, as you stated in your book, the payload drifted to California and was lost. I was at the telemetry tracking site at the Springerville-Eager airport when the balloon passed overhead. We had arranged a radar track from Fort Huachuca, but the balloon drifted too far to the west and they lost track. Thus, the balloon was lost.

Poor Jim Oaks: he had to prepare mountains of paperwork because of the lost radioactive source.

Eventually, the payload was found by a four-wheeler group during an off road excursion about six months later. The holder for the promethium was intact, but the very thin membrane holding the material in the holder had burst and the material was missing. More paperwork for Jim.

Prior to the first Pershing launch from Blanding, Utah, Vernon Norvell, field chief of the telescope section, and I went on a field trip up there to select two locations for tracking telescopes. We found two sites, one about 10 miles southeast of the launcher and the other about 30 miles away

just over the Arizona border.

The Mitchell cameras were attached to 96-inch refractor telescopes which were mounted on each side of an M45 gun mount. Operators visually tracked the missile from launch to loss of image.

I don't remember if it was the first launch, but one of the missiles had some sort of malfunction. A helicopter was dispatched to pick up the film from each site and fly the film to WSMR for immediate processing and analysis. I was told that the film images showed the malfunction and was very valuable to project engineers.

By the time the Athena project started I was working at ASL. Because the missile was unguided, ASL meteorologists were on site to provide wind profile data to the project. As you stated in your book, rockets are highly sensitive to cross winds during launch.

I was fortunate to attend the festivities when JFK visited the range. Of course, our telescope group supported every firing as required for all tests.

About one week before the President arrived, the range conducted dry-run hot firings of most of the missiles. I don't remember if the Zeus was launched.

You mentioned firing one missile against the side of a mountain. That was the Honest John, and the impact point was the side of the mountain just north of IGOR T-7 at Nancy site. The warhead contained white phosphorous bomblets that produced white puffs of smoke on impact.

I assigned a mobile telescope to be positioned just north of highway 70 to track and photograph the flight and warhead action using a 70mm camera and color positive film. They produced fantastic images of the warhead skin falling away and the bomblets coming out of their holders. The munitions smacked the side of the mountain and started a brush fire. Success.

Then, on the firing for JFK, the Honest John launched (which was always very spectacular), headed toward the mountain, and went over the target and kept going over the top of the ridge. OOPS.

That wasn't the only boo-boo that day. The two TALOS missiles were set up to ripple fire at two QF-80 drones, each puffing smoke for visual acquisition. One missile fired, then the second took off. One or both missiles malfunctioned or were destroyed right after launch. One rumor was that one malfunctioned and range safety destroyed the good missile by mistake.

Your research for the book was obviously very extensive. I particularly enjoyed your commentary about escorting visitors, reporters, etc., to the range. What a broad spectrum of individuals you encountered.

You mentioned escorting some folks to the Sunol mine. Those guys were myself, Leon Metz, Jerry Crouch, and I think George Helfrich came along. You also took us to



Navy Talos missile launch.

see **More Honest John**, page 5

More Honest John

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the rock house in Bear Canyon. I also attended your tour of Chalk Hill, Garrett's ranch site, and the visit with Rob Cox. Bill McNew and his wife, Vergie, also attended, and Bill wasn't too happy about Leon's interpretation of the Fountain affair.

As you know, the salt flat was extensively used for missile testing way before NASA used it for a landing area. The Honest John project planned to launch into the area and deploy small sub-munitions. The little balls were painted orange so that they could be easily found against the white sand background. Then they would survey the balls to determine the pattern.

The project asked if it would be possible to locate a telescope in the impact area to photograph high speed imagery of warhead function. We set up a couple of tracking

telescopes in a designated safety area but close enough to get good pictures.

Acquisition by the operator was very difficult because launch was a great distance, and the burn time was short. We missed a few tracks but captured enough to provide the project with valuable information on the warhead function.

It might have been the very last Redstone launch that we supported with our telescopes. The project had one special request. Could we get close enough, within safety limits, to focus in on and record the oxygen vent valve.

Of course we could and did. That particular mission counted down to zero, then started the alphabet...a.b.c.d... all the way to z, then aa.bb..cc.cc....no ignition. We recorded several minutes of the vent valve, good images. I don't remember if they ever fired the darn thing.

You mentioned the accuracy of the Pershing. We were asked if we could track an incoming warhead fired from off range. The answer was no because the technology at that time wasn't good enough to slave the system with radar.

Then they asked if we could record the impact. The answer was yes provided they could give us the impact coordinates, the time of impact, and the radius of safety. They did, and we deployed four telescopes to the area. We had post engineers survey the impact site and erect a large target for our telescopes to focus on.

I was at our control station relaying the countdown and plus count to our trackers. At the appropriate time I said "cameras on," and the operators flipped the switch on their FASTAX cameras. At the impact time they observed a large splash of dust in their field of view. A look at the images the next day showed the splash and target in the same frame from all telescopes. And that was the Pershing I.

As I said earlier, your book took me down memory lane. Even though I retired in 1988 (early retirement age 51) I still sometimes dream about running field tests at White Sands. Would I do it all over again? Yes indeed. I am sure you would too.



Honest John firing in 1964 at LC-33, a year after the President Kennedy "oops."

Novels Using White Sands Missile Range

By Jim Eckles, Editor

Alien invaders, gun battles with mafia mobsters, secret science experiments, Communist spies, and looting priceless artifacts are all subjects of some of the novels set at White Sands Missile Range. Over the years, I've collected quite a few and thought I would provide a list of some. I am sure there are many others I've missed.

Of course, there are many more non-fiction books dealing with White Sands Missile Range but we hardly have room to list them all.

New Mexico writer Michael McGarrity started his Kevin Kerney series of mysteries with *Tularosa* that is set at the missile range. In the story Kerney is led to WSMR to look for a missing young soldier. He meets Capt. Sara Brannon who is assigned to White Sands and they work together through a plot involving buried artifacts from the 19th century. McGarrity probably got the artifact idea from the Victorio Peak legends. In later books Kerney and Brannon marry.

The Executioner: Wednesday's Wrath by Don Pendleton is a completely different kind of law and order novel. It is just number 35 in a long, long series starring Mack Bolan who is on a one-man mission to eliminate mafia types. Bolan brings his war on the mafia to White Sands to rid the missile range of an assortment of bad guys.

Mount Dragon by Doug Preston and Lincoln Child is a kind of action thriller with overtones of the horror genre. In the story, there is a super secret research facility out in the flats toward the north end of White Sands. The place conducts genetic/medical research and things get out of hand.

Mount Dragon came out in 1996. In 1995 Public Affairs was contacted about Preston visiting WSMR so he could write a piece for *New Mexico Magazine* about the missile range. When I contacted Preston, he explained his article was to be about the flora and fauna, the environment of White Sands, and not the military mission of the place. His wife Christine, a professional photographer, would also be along to take pictures.

They wanted to see as much of the mountains and deserts as possible in a three-day period. To maximize their time, I arranged for us to "camp" for a few nights at Hardin Ranch in the San Andres Mtns. This eliminated the long drive back and forth from town each day and gave us time to experience sunsets and sunrises from spots in the boonies.

At the end of April when I met the Prestons, Doug was rapidly gaining national attention as the coauthor, with Lincoln Child, of the techno-thriller-horror novel *Relic*. The book reached even more people when it was turned into

a feature motion picture that was released in 1997. One website states there are now over a million copies of *Relic* in print worldwide.

This was in addition to his journalistic efforts for magazines such as *The New Yorker*, *National Geographic*, *Natural History*, *Smithsonian*, and *Harper's*. Also he has produced some non-fiction books. My favorite is *Cities of Gold: A Journey Across the American Southwest in Pursuit of Coronado*. The "pursuit" was accomplished on horseback and the book chronicles a thousand-mile ride across Arizona and New Mexico trying to follow Coronado's original route.

We spent a very pleasant three days hunting wildlife, flowers, historic spots and vistas on White Sands. They got an earful about the missile range and I learned a little about the life of a best-selling author. The feature article appeared in the October 1995 issue of *New Mexico Magazine*.

Later Preston told me that when he visited WSMR, he and Child already had much of *Mount Dragon* done and that the villain was going to be named "Eckles." He said that after the visit he talked to Child and they decided to change the villain's name so I wouldn't be hassled.

It shouldn't be surprising that Trinity Site has a bunch of books attached to it. Probably the most famous piece of fiction is *Stallion Gate* by Martin Cruz Smith. The quasi-spy, romance novel doesn't get rave reviews but Smith did visit WSMR and Trinity Site in preparation for writing the book.

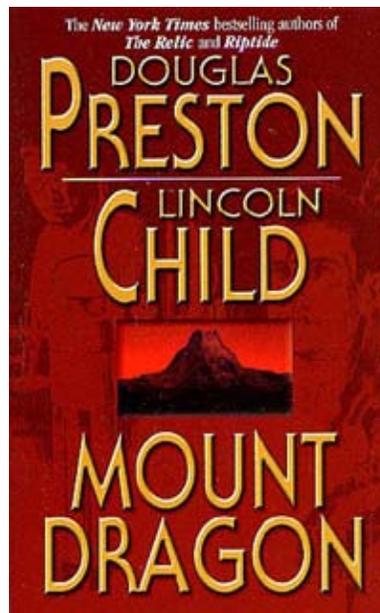
He visited Trinity soon after his best-selling novel *Gorky Park* was the talk of the town. Los Alamos officials sponsored his visit and accompanied him to the site. Major General Fulwyler was commander then and wanted to meet Smith as well. So he and I went to Stallion to escort the group around the test site.

One thing I distinctly remember about Smith was that he made sketches of various spots. He explained that he liked to draw places instead of photographing them because it helped him remember them better.

The Trinity Factor by Sean Flannery is a pretty straight forward spy novel where a Communist infiltrator, in the end, tries to sabotage the Trinity Site test. The logic is that if the test is a failure, it will put a big dent in U.S. atomic bomb development.

Just as the spy reaches to pull out the wires on the bomb on the tower, it explodes.

In 1981, science fiction writer David Houston published *Tales of Tomorrow – Invaders at Ground Zero*. The novel was written as a public disclosure and claims there really was an east shelter manned by medical personnel during



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Alien Invaders — CONTINUED FROM PAGE 6

the Trinity Site test. What happened there was supposedly buried in secrecy by the government.

The story line is that an alien spacecraft crashed near the bunker just hours before the test. The doctors responded and found a dying creature. Unknown to them, the alien was dying because he was infected with a virus-like entity that could jump from one species to another and control the individual's actions. The microbes possessed a "group intelligence" and communicated with each other.

Just as the alien died, the virus jumped to one of the humans. As the virus tried to take control, it killed its human host and jumped to another and then another. In the end the humans figured it out, but were dropping like flies. Finally, a man and woman were infected, realized it, and isolated themselves from everyone else.

In a heroic act they walked to Ground Zero and sat under the tower. They heard the countdown knowing the explosion would not only kill them but kill the virus as well and prevent it from taking over the earth.

Beloved New Mexico mystery writer Tony Hillerman used White Sands in his book *The Blessing Way*. The book doesn't have any action take place on the missile range – Joe Leaphorn doesn't visit. By the way, this is the first in Hillerman's series and Jim Chee wasn't around yet.

The book was published in 1970 and depends on the WSMR firings from Utah to the missile range at that time. The plot has spies set up to steal military secrets from the test flights.

Fire On The Mountain by Edward Abbey is a fictionalized version of what happened to rancher John Prather when McGregor Range was established by Ft. Bliss in the 1950s. Doesn't sound like it has anything to do with WSMR, but Abbey changed the location to White Sands Missile Range.

The plot is about the noble, lone rancher fighting to keep his land when the big, bad government wants to take it away. It is a well-written book and because of its theme gets some play in college literature courses.

Because Abbey set the book at WSMR, since 1962 people have been asking where the ranch is located on the missile range.

Also, there are some books/publications that don't fit into the standard novel form. A good example is *X-Files: Firebird*. Yes, it is based on the old TV program called *X-Files*. *Firebird* is a Topps comic book and deals with an alien creature secretly kept at White Sands Missile Range.

Finally, there is *The White Sands Incident* by Dr. Daniel Fry. It was originally published in 1954 and Fry claims it really happened, that it is non-fiction. Of course, that is hog-

wash. But it isn't exactly a novel either. It reads more like the text from some sort of a modern day prophet predicting doom and gloom.

In the book's introduction Fry says, "Believe it or not, on the evening of July 4, 1950, I had the experience of seeing, touching and riding in an unmanned, remotely controlled space capsule which landed near the White Sands Proving Grounds outside the city of Las Cruces, New Mexico." As he describes it later in the book, the space ship lands just south of the main post area about where the golf course is now.

According to Fry, he worked for Aerojet at White Sands. On July 4 he missed the bus into town to watch the fireworks. The sun had already set when he decided to take a walk down toward the 100K static test stand. On his way he detoured to the west and was surprised to see "an oblate spheroid about thirty feet in diameter at the equator or largest part" land just 100 feet from him.

As he approached the ship and tried to touch it, a voice rang in his head, "Better not touch the hull, pal, it's still hot!"

The premise for this book may have come from the classic science fiction movie *The Day the Earth Stood Still* which opened in 1951. The themes are very similar. Fry goes on to tell about his ride in the spaceship and his conversations with the alien controller of it. But most of the book is a

preachy message about how the world must reform itself or nuclear destruction is inevitable.

In the famous movie starring Michael Rennie and the wonderful Patricia Neal, the alien robot Gort will do the annihilating if earth doesn't change its ways and find peace. Fry's alien says we'll naturally blow ourselves up if we don't change.

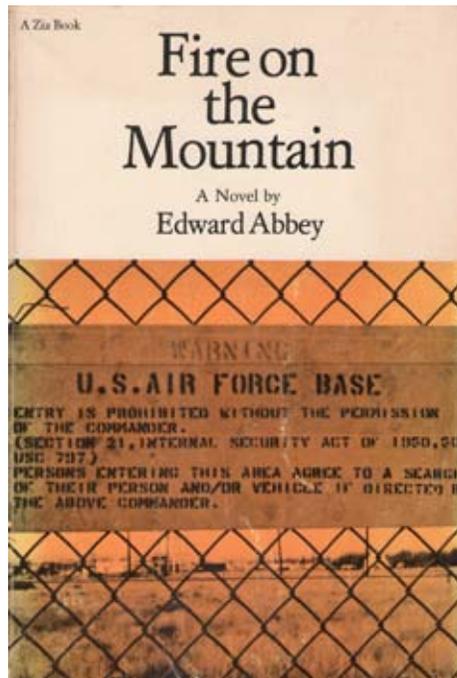
The bottom line here is that Fry wrote an allegorical tale using such best-selling models as the Bible. In fact, much of his message is rehashed biblical wisdom.

Fry even sets himself up as a modern-day prophet. The clearly superior and wise alien tells Fry, "your conduct has pleased me" and "your mind is of the type we hoped to find."

The alien, whose name is A-Lan, eventually tells Fry he can't "hide his light under a bushel." He urges Fry to

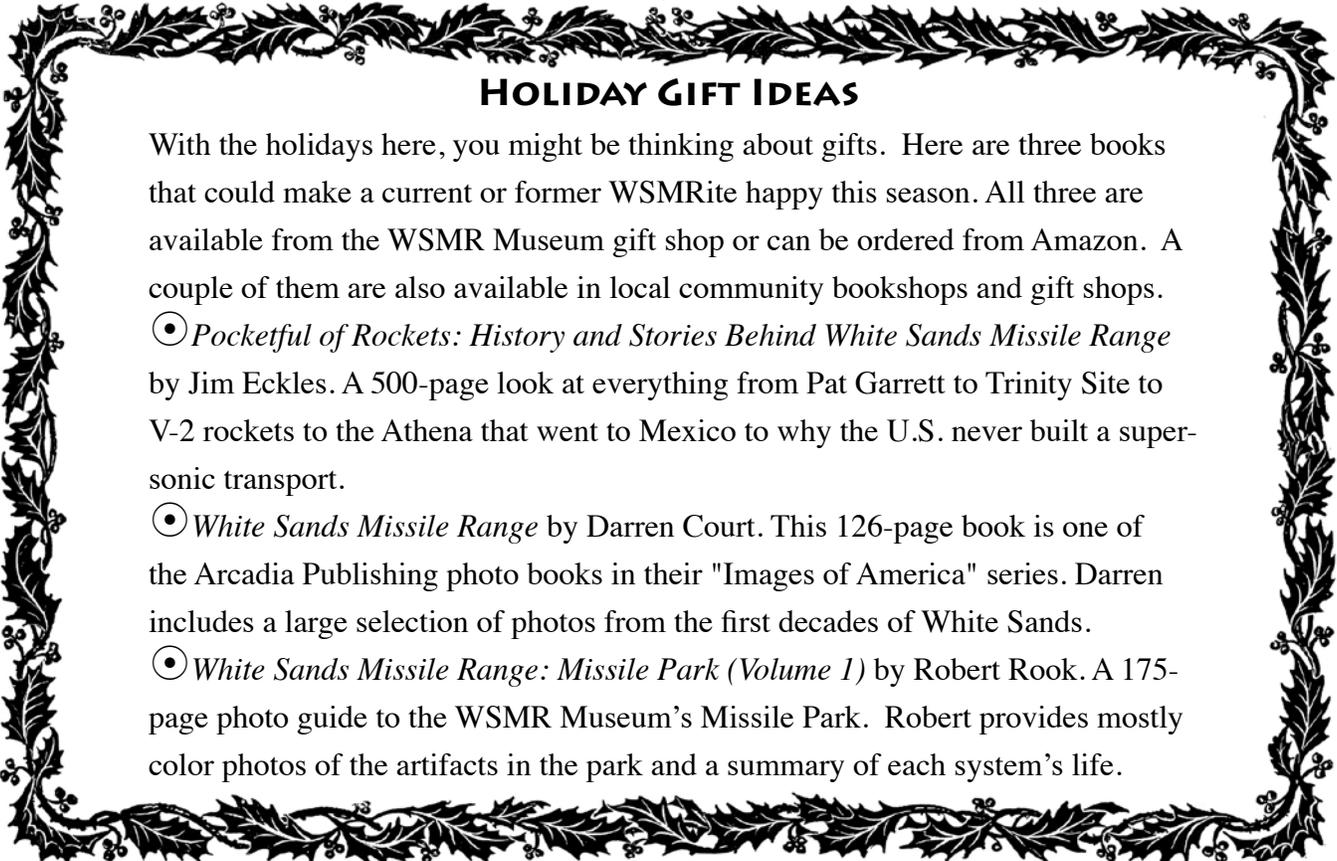
get out there and spread the word. Sounds kind of familiar doesn't it? Fry certainly sets himself up as the chosen one.

This is all well and good but dressing up the old Christian themes in new space garb can only be interesting for a while. But Fry presents this material in the context that he really met an alien and that he really flew in a space ship. In fact, there are people out there today who cite his adventure as proof that aliens have actually been visiting earth.



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HOLIDAY GIFT IDEAS

With the holidays here, you might be thinking about gifts. Here are three books that could make a current or former WSMRite happy this season. All three are available from the WSMR Museum gift shop or can be ordered from Amazon. A couple of them are also available in local community bookshops and gift shops.

☉ *Pocketful of Rockets: History and Stories Behind White Sands Missile Range* by Jim Eckles. A 500-page look at everything from Pat Garrett to Trinity Site to V-2 rockets to the Athena that went to Mexico to why the U.S. never built a supersonic transport.

☉ *White Sands Missile Range* by Darren Court. This 126-page book is one of the Arcadia Publishing photo books in their "Images of America" series. Darren includes a large selection of photos from the first decades of White Sands.

☉ *White Sands Missile Range: Missile Park (Volume 1)* by Robert Rook. A 175-page photo guide to the WSMR Museum's Missile Park. Robert provides mostly color photos of the artifacts in the park and a summary of each system's life.