

Minnesota MUFON Journal

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Directors Report

By Bill McNeff, State Director, Minnesota MUFON

RADAR AND UFO'S IN THE 1950'S

At the MUFON meeting on Feb. 9th, retired electronic communications specialist Bill Cheney (no relation to the VP) told us about UFOs detected on radar in the New Mexico area in the 1950s.

Bill Cheney was one of the computer pioneers; he joined Remington Rand in 1956, just as they took over Engineering Research Associates, the first computer-building firm in the Twin Cities, to become their Univac Division. He knew Bill Norris, Wally Moe, Harry Wise, and Seymour Cray. Cray liked discrete components better than LSI for some time. Cheney wrote a paper, "LSI or Die!" Cray eventually came around to believing in LSI.

Cheney was in a Air Force unit which constructed three big radars in the SW United States; construction started in 1947. In 1950 operation of the radars began. Cheney was the NCOIC for one of these sites. He supervised a crew of 16 men. These were CPS-5 radars, which had a 75 foot tower with a dish on the top. These radars had MTI [Moving Target Indication] and would ignore clouds, but would show UFO blips inside the clouds. The radar displays were all PPI scopes (Plan Position Indicators) which give a map-like presentation. There was no altitude indication. [However the size of the radar lobe was known, so it could have been inferred that the objects were between such and such altitudes.] UFO blips were picked up frequently.

Said Cheney, "We would vector fighter planes in on these targets, but just about the time that the objects would have been in sight from the planes, the UFOs would invariably take off at 4000 MPH." The objects were however, seen from the ground on many occasions. The shapes reported included globes, discs, and cigars; about half of the sightings were cigars, many with lights along the sides.

During this time Project Blue Book reports said, "There are no confirmed sightings." But these reports were unclassified. Cheney said he submitted reports, not to Blue Book, but up through the chain of command.

When the planes got as close as 20 miles from the targets, the UFOs would accelerate, seemingly instantly, to 4000 MPH. They could be timed because they would travel from one radar's coverage to the next. They experienced dozens of these radar incidents. Cheney's service at the radar sites covered the early 1950s. They were told they were guarding Los Alamos.



Minnesota Mufon Meetings

Sat., May 11th

&

Sat., June 8th

1:30-5pm

New Brighton Family
Service Center, 400 - 10th St.
NW (located 1/4-mile S.W.
of Hwy 694 and 35W.)

PARK FREE!

The building is designated as
non-smoking.

See map on back cover

Note: This building has no
special security or elevators,
so you can come and go as
you please and smoke
outdoors.

Cheney showed us a 4 to 5 inch scar of unknown origin on his upper arm. He said his sister has an identical scar in the same place, and he and his sister are very close. He said, "When my sister has problems, I know it," without getting the information through the more usual channels. Unaccounted-for scars, and psychic abilities, have of course been frequently noted in relation to UFO experiences, so this is a pattern with which UFO researchers are familiar.

**NASA CONCEALS UFO INFORMATION
SAY TOP SECRET INSIDERS
Disclosure Project Internet Initiative**
disclosure@netro.ca Wed, 06 Mar 2002

The Disclosure Project, a nonprofit research and public interest group based in Charlottesville Virginia (www.DisclosureProject.org) has obtained testimony that secret units within NASA have confirmed information on UFOs, extraterrestrial intelligence and related matters.

Donna Hare, Secret Clearance employee of NASA contractor, Philco Ford: "Over the years, I worked in the photo lab... one of the gentlemen I had been friends with pointed my attention to one area of the [satellite photo], I saw a round white dot... very crisp, very sharp lines on it and I said, 'Is this a UFO?' and he's smiling at me I knew he meant it was [a UFO] he said, 'We always have to airbrush them out before we sell them [the photos] to the public.'"

USAF Sergeant Karl Wolf, Top Secret "Crypto" Clearance: "I had worked with the Tactical Air Command at Langley AFB, Virginia, the 4444th recon technical group. I was a photographic technician, with a background in electronics... I was asked to go over to this facility where the NSA was bringing in the information from the lunar orbiter... At the time, I didn't know what the real purpose of this darkroom and this operation and this facility was... so he [an Airman Second Class technician in the room] was showing me how all this worked...and he said, 'by the way, we've discovered a base on the back side of the moon.' He pulled out one of the mosaics [composite photo] and showed this base on the moon, which had geometric shapes...there were spherical buildings... tall towers and things that looked somewhat like radar dishes."

Mr. Harland Bentley: "I have been in a graduate program for nuclear engineering and have been working contracts since 1963: NASA, Department of Energy, and several other electronics firms in the D.C. area. I was at a facility in California doing classified work which I can't say too much about... Our astronauts were doing a loop around the moon in 1967 or 1968 I heard them say they had a bogey [term used to denote UFOs] it was another type of ship. There were portals there that they could see in. They could see beings of some sort. They did not describe these beings, they just took photographs. They just said it was a saucer shaped craft. Then they said, 'There they go,' and they [the bogey] went out of sight almost immediately."

USAF Nuclear Arsenal Security Officer Larry Warren: "I was assigned to the 81st Tactical Fighter Wing in Suffolk, East Anglia. They showed us a film [after an extraterrestrial vehicle landed, hovered, and interacted with Air Force personnel on base], they said, 'We are going to show you a film that might help you put best into perspective what you gentlemen have witnessed.' This film showed structures on the moon - these box kind of things. It showed the astronauts pointing at these box looking things and structured objects moving off the surface of the moon, filmed by Apollo missions."

These witnesses are a few of the over 400 military, intelligence and government witness who have been identified by Disclosure Project Director Steven M. Greer MD. As a group, these government insiders establish clear proof that UFOs are real and that rogue, illegal secret groups within the government and certain corporations have compelling evidence that is being withheld from the public, Congress and the President.

Testimony from top-secret Air Force Sgt. Karl Wolf, NASA employee Donna Hare, Air Force security officer Larry Warren and top-secret intelligence officer Harland Bentley establishes a pattern of explosive evidence being deliberately suppressed within NASA and other agencies.

To Chinese UFO buffs, it's a serious science by CNN's Kristie Lu Stout, 4/12/02
<http://europe.cnn.com/2002/BUSINESS/04/12/hk.Ufology.china/index.html>

HONG KONG, China (CNN) - UFO research is the stuff of sci-fi buffs and conspiracy freaks, but in China it's treated seriously.

Joseph Wong, a lab manager at Hong Kong's City University, is a man of science. His job is to assess the structural performance of buildings. But familiar as he is with hard data, Wong is also a fan of the unexplained.

"If something flies over, there's a very good reason for trying to understand why they're here, why they come to us, what is their relationship between us and them," he says.

Wong is the Chairman of Hong Kong's thriving UFO club -- exploring "unidentified flying objects" or, to the uninitiated, "flying saucers." The club meets once a month to explore otherworldly topics like "E.T. Civilization" and "Alien Kung Fu." Members occasionally meet at a cyber cafe called UFO Station in Hong Kong's Tsim Sha Tsui district. The spot is home to Hong Kong's own version of the X- files.

The dark monitor-lit cafe has UFO books, newsletters, and old news clippings of close encounters - material that UFO club members take very seriously.

A masters in Ufology?

"In order to understand UFO phenomena, we need to have a broad understanding of different disciplines," says Albert So, university professor and Hong Kong UFO club member, "including mathematics, physics, history, philosophy, even some sort of paranormal activities and all that."

Hong Kong's UFO enthusiasts, like So, are not dreamy stargazers, but researchers who see their passion as a science. So much so that they're lobbying for a university degree program in 'Ufology'.

"The graduates of this program will grasp at least all the major knowledge in order to understand UFO phenomena, and also other technologies and any skills related to UFOs," says So.

"After students or friends finish this degree, they may have their own understanding about this universe," Wong adds. "Maybe they will be able to come up with a new universe model, new way of life, or whatever."

It sounds like a tough sell, but it may not be hard to pitch in mainland China, where there is little taboo about discs that glow in the night or theories on visitors from out there.

Flying boats in China

China's state-run media reports on UFO sightings. Even the government's Ministry of Science and Technology treats the topic with respect.

"It seems that people in the East are more open to discuss issues related to UFOs," So says. "Perhaps that is something to do with the culture of the races. In particular, Chinese. Chinese is a kind of race who easily believes in something supernatural."

And they may have been believing for a long time. UFO researchers point to an ancient drawing of the 100-year story of an emperor meeting a flying boat - a compelling artifact in support of UFO study, but not the only one.

"For me, it's not very important whether there is really a UFO that can fly or not," Wong says. "It's when we are investigating this, I think it's the process that actually helps us to understand more about ourselves or our planet."

For club chairman Joseph Wong, the truth may be out there, but the payoff is personal - studying aliens helps to satiate a very healthy, and very human, curiosity.

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UFO hypotheses by Bill Hamilton/Skywatch

In a continuing discussion (debate) with John Rimmer on UFO Updates, Stanton Friedman posted some points regarding UFO hypotheses that I would like to cross-post to the Skywatch list for your information and discussion.

I just extracted the points only from the listing:

1. If no true UFOs (The unknown UFOs still remaining after investigation by competent investigators) represent alien spacecraft, then there should be no difference in the characteristics of these unknowns as compared to the characteristics of the knowns. Test result? The probability that the unknowns are just missed knowns is less than one percent based on a chisquare analysis of the two groups involving six different characteristics. See 'Blue Book Special Report No. 14' somehow not noted in 13 anti-UFO books.

2. If no unknowns represent alien spacecraft, than the better the quality of the sighting because of the duration of observation, the background of the observer, etc the less likely to be an unknown. Test Result? The better the quality of the sighting the MORE likely to be an unknown. Ibid.

3. If unknowns are just poorly observed knowns, seen for only a brief time, than the duration of observation for the knowns should be greater than for the unknowns. Test Result? The average unknown was observed for a longer time than the average known.

4. If unknowns are just poorly observed knowns, than the percentage of sightings listed as unknowns should decrease as the quality of the sightings increases. Test Result? The better the quality of the reports, the _less_ likely to be listed as 'Insufficient Information'.

5. The only reason sightings can't be identified is that there is insufficient data available to pin down an identification. Test result? In the largest study ever done, there was a separate category 'Insufficient Information'. Not enough data to justify any particular explanation. By definition these were not the unknowns

6. If there were really ET spacecraft flying around in the atmosphere, they should surely be observed by radar. Test result? There have indeed been many radar sightings including combined radar visual cases. See J.E. McDonald's congressional testimony.

7. If there were really ET spacecraft flying around in the atmosphere, governments should be very concerned about finding out more about the objects being seen. Test result? Wilbert Smith learned that Flying Saucers are the most classified subject in the

US, even more than the H-Bomb. General Carroll Bolender stated that "Reports which could effect National security are NOT part of the Blue Book system and would continue to be made under JANAP 146 and AF Regulation 55-11.even if Blue Book were cancelled.

8. If alien spacecraft were really flying around one, would expect them to land to make closer observations. Test? Ted Phillips has collected more than 5000 physical trace cases from 70 countries. He considers 2000 to be excellent cases.

9. Surely even aliens aren't perfect and if there are so many craft flying around, some ought to crash. Test? Read 'Crash at Corona: The Definitive Story of the Roswell Incident' by Berliner and Friedman .There were 2 crashes. Len Stringfield listed more than 60....

10. Most sighting reports actually turn out to be secret government vehicles such as the U-2 and SR 71. Test? So where are the fancy 'secret vehicles' observed in the 1940s and 1950s?

None seem to have showed up in the Korean War or Vietnam or the Gulf War. even though the whole point of development of advanced high performance craft would be for military applications. Bruce Maccabee showed that there was no increase in sightings when the U-2 and SR-71 started flying, despite claims to the contrary by the CIA historian.

Bill Hamilton, Executive Director Skywatch International, Inc.

Websites:

<http://home.earthlink.net/~skywatcher22>

<http://home.earthlink.net/~skywatcher12>

<http://home.earthlink.net/~xplorerx>

<http://home.earthlink.net/~xplorerx2>

A Look at Stanton Friedman by Dick Moss, MN MUFON ASD

Stanton Friedman's presentation at the 2001 MUFON Symposium was titled Flying Saucers and the Cosmic Neighborhood.

A classmate of Carl Sagan, Friedman holds a Masters Degree in physics from the University of Chicago. He worked for 14 years as a nuclear

physicist for a number of companies including General Electric and McDonnell Douglas.

Friedman has testified at Congressional Hearings, has appeared at the United Nations, did pioneering work on the Betty Hill star map, has spent time in 19 document archives, and is famous for his efforts in gaining evidence of crashed saucers. His position is that some UFOs are interplanetary craft and that all flying saucers are UFOs, but very few UFOs are flying saucers.

He has participated in the development of two UFO video programs, instigated the Roswell segment on an early Unsolved Mysteries program, and has written two books, Crash at Corona and Top Secret/Majic.

Stan is a dual citizen of the U.S. and Canada and lives in Fredericton, New Brunswick.

After taking what he calls the "SETI cultists" to task for raving about how big the universe is with its billions of galaxies, Friedman suggests that although this sounds impressive, it is meaningless. Perhaps, also, is mention of just our Milky Way galaxy which is maybe 80,000 light years across and 15,000 light years thick with between 100 billion and 400 billion stars. Numbers like these provide no real working context in dealing with the UFO enigma.

His definition of the "local galactic neighborhood" is an infinitesimally tiny region of about 54 light years away from us in all directions and containing about 1000 stars of which 46 are a lot like our sun. More of these are visible from below the equator than from the northern hemisphere. The nearest star is about 4.5 light years away and the nearest sun-like star about 11 light years. The stars in the local neighborhood are not uniformly distributed in either space nor by age. Some are a billion years older than our sun.

An example of how astronomers keep changing their notions is exemplified by descriptions of Venus, which was once touted as having a warm tropical moist atmosphere. They now think that its atmosphere contains sulfuric acid and is hot enough to melt lead.

Cosmic isolationists often fall back upon the so-called Fermi Paradox. Enrico Fermi had reasoned that it shouldn't take long, relative to the neighborhood's age, for a developed civilization to

colonize the entire neighborhood. Fermi asked, "So, where are they?" His implication, by extension, was that nobody is out there. The SETI Cultists have put their own twist on this by saying that there are lots of civilizations capable of sending radio signals, but none are capable of interstellar travel. So, we must keep listening for signals.

The result is that astronomers keep trying to demolish the notion of alien visitations. Their debunking consists of four basic techniques.

1. What the public doesn't know, they will not tell us. Carol Sagan, for example, frequently cited the tabloid Weekly World News as his source for UFO data. He never mentioned UFOs: A Scientific Debate, which he co-authored, nor anything from The 1968 Congressional Symposium on UFOs.

2. Don't bother me with the facts, my mind is made up. In 1955 Air Force Secretary Donald Quarles misrepresented their own study thusly, "I feel certain the unknown 3% could have been explained as conventional phenomena or illusions if more complete data had been available." This was a flat-out lie because Table 2 showed that 21.5%, and not 3%, were unknowns, separate from the 9.3% listed as Insufficient Information.

3. If you can't attack the data, attack the people. Scoffers repeatedly claim that only country bumpkins see UFOs, or that people who lecture about flying saucers are only in it for the money.

4. Do your research by proclamation, not by investigation. For example, statements that astronomers, scientists, and meteorologists never see UFOs, or that UFOs only land out in the country, or that no respectable people are abducted are representative of strategies meant to mislead.

Friedman is a critic of the famous Drake Equation, which is supposedly a scientific technique for predicting the number of civilizations in the universe. His objections as to its reliability hinge on the following. We have actual data on only one civilization, namely ours. The Equation ignores evidence that Earth is being visited. It ignores migration and colonization. There is no talk of the problem as to who speaks for Planet Earth? The SETI guys can't find a good reason for our neighbors to visit us. The SETI guys often refer to the huge amount of energy needed to get here, but how little is needed to send signals. The SETI guys

seem to assume that radio is THE ultimate means of interstellar communication.

Friedman thinks that a rational strategy to find colonizing traveling civilizations would be to look for a sun that is both older than ours and that has a close companion. Zeta 1 and Zeta 2 Reticulum provide a good example. These are two sun-like stars in the southern hemisphere sky that are less than one light year apart and 37 light years from our sun. They are a billion years older than our sun.

Some continue to claim that one of the stars is actually a double star system, which would obviously place a serious roadblock in the way of having stable planetary orbits.

But, it turns out that neither Zeta 1 nor Zeta 2 is a double star system. It happens that Alan Hendry, head of Field Investigations for CUFOSS at one time, had seen a footnote in an article by French astronomer Dr. Bonneau stating "unpublished information, Zeta Reticuli is a double." Hendry, without checking with Bonneau, published an article in Fate magazine alluding to this "fact" and that the Betty Hill Star Map was therefore meaningless. Upon contacting Bonneau, Friedman was told that the footnote was wrong and had been the result of a flaw in a new technique to check on possible double stars.

The Hill Star Map originated, of course, as the result of Betty Hill's hypnotic regression in which she drew the map and told of her "conversation" with the aliens about its meaning. Despite knowledge that the Zeta system has no double stars, there continues to be misinformation written about it.

This has been an extremely condensed version of Stanton Friedman's 1991 presentation at the MUFON Symposium in Irvine, California. Some of it is paraphrased and some of it is given verbatim. As always, many of the supporting details are omitted due to space limitations. These summaries are written in the spirit of briefly informing readers of some of the results obtained, and issues confronted, by those who investigate the UFO phenomenon.

Anyone wishing to read the entire 12-page narrative of Friedman's presentation, along with those of the other speakers, should obtain a copy of the MUFON 2001 International UFO Symposium Proceedings

from Mutual UFO Network, PO Box 369, Morrison CO 80465-0369. Include a check for \$27.50.

What Does the Jonathan Reed Case Teach Us?

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The readers of the Minnesota MUFON Journal are probably well aware of the strange controversy raging in the UFO community in recent times. It is the story of Dr. Jonathan Reed - a psychologist in the Pacific Northwest, who alleges that he had a close encounter with an ET. Far from an ordinary CE4 case, this event began when the alien killed his dog, and subsequently Reed, in turn, killed the alien. He took the dead alien home and preserved it in his freezer. The story continues on with the account of how he was subsequently harassed by dark forces within the government, to the point where his career was wrecked and his very life threatened. In the end, all evidence in the case, was confiscated by these dark forces, and the body of the alien itself, also apparently disappeared.

In the end, the Reed story is a story of fear, anger and darkness. But even more than that, it is a story that has sharply divided the UFO community into camps of believers and disbelievers. As such it is with a great deal of wincing and trepidation that I have observed Minnesota MUFON wallowing in the Reed controversy.

As I originally learned of this entertaining and spectacular story, I was both skeptical, and annoyed. I at first wondered "who do they take us for?" "Who could possibly believe a story such as this?" However, after listening to an excellent presentation by Bob Schultz of Minnesota MUFON, I decided that, no matter how improbable it sounded, it was necessary to keep an open mind. Bob's presentation was both unsettling and convincing. It grabs your attention, and makes you question the very foundations of the political system we call our own. In Bob's presentation and in the tape of the Reed talk which Bob played at the last CSETI meeting, I found myself learning a lot - about the idea of the Shadow Government, about the anomaly community, and about truth claims in general.

Is the story true or false? I certainly don't know. But either way, the ramifications of this case reach deeply into the UFO community. So let's imagine

what the implications are for either case - true or hoax.

If the story is true, what does it say about the nation in which we live? In short, if the Reed case is true, then is a powerfully damning commentary on our society. It shows that we live in a nation in which the bill of rights has become a mere facade. It also demonstrates that the pursuit of the deepest truths behind the ET/UFO/Anomaly phenomenon is, in fact, a harshly forbidden endeavor. It tells us that, while we can dig all we want, we are strictly forbidden to actually hit pay dirt. The truth would appear to be limited to only those chosen few who are within the circle of those who seem to run the western world - apparently from behind the scenes.

The message is chilling. And it can do nothing less than instill a sense of outrage in any who hear it. To make matters worse, past abuses, often occurring within our nation's government - often covered up in the name of national security - tend to make Dr. Reed's account seem plausible. Yet at the same time, one must view the account with a healthy discernment. While terrible if true, we really do not know that it is. So "Reed" on...

What if the Reed case is indeed a hoax, and a truly spectacular one, at that? What are the implications of this tale, and of the effects it has had on the UFO community. For me, there are several reasons why this is just as chilling as if the story had been true. The first is the magnitude of such a hoax. There would have to be multiple people involved in the plot, and the more people involved, the greater the chance of the beans being spilled. There are several aspects of the "hoax" that would require a great deal of money to carry out, such as the very complex phone system that Dr. Reed apparently uses to escape tracking. These would suggest that Dr. Reed has access to significant monetary resources, perhaps apparently from some wealthy but hidden financial source.

The second chilling aspect of this case is the sheer darkness of the tale - and if it is indeed made up, what this says about someone's imagination. It is a sinister account, worthy of Chris Carter (author of the X-Files). It appears designed to instill outrage, fear, and sympathy. It has a deeply emotional appeal which digs deep beneath our critical veneer, to the emotional core within each of us.

Above all, this case seems designed to divide the UFO community. The final chilling aspect is the

willingness of one faction within the anomaly community to believe the story, while another faction equally strongly condemns it. This suggests that it may be succeeding. True or false, it has split anomaly researchers like no case so far.

Yet perhaps, out of falsehood truth can emerge. In the spring of 1997, during the controversy surrounding the Phoenix lights sighting, a comment was made on the Art Bell show to the effect as we get closer to the truth, the more, and bigger the hoaxes will appear. If the Reed case is a hoax, then we may be seeing just such an indicator. Perhaps, then, the anomaly community is really getting close to the truth. Perhaps the Reed case is a last ditch effort by those behind "The Cover-up" to lead researchers astray.

Whether true or false, the Reed case is difficult to ignore. The issues it portrays are those to which most of us in the UFO community are sensitive, and it punches these buttons with precision. At once mysterious and suspenseful; emotional and analytical, it has something for everyone who hears it. But at the core, its message appears to be an emotional one. It captures a deep, primal sense of menace - of an impending evil. And it strikes a chord in skeptic and believer alike.

Whether true or false, as a story it couldn't have been designed better. It is a powerful agent of fear and division - seemingly designed precisely to split the UFO community. And alas, from what I have observed, it seems to be working.

A New Form of Matter

Author: Patrick L. Barry, Dr. Tony Phillips, Science@NASA

http://science.nasa.gov/headlines/y2002/20mar_newmatter.htm?list457205

Scientists have created a new kind of matter: It comes in waves and bridges the gap between the everyday world of humans and the micro-domain of quantum physics.

March 20, 2002: It's not often that you get to be around for the birth of a new kind of matter, but when you do, the excitement is tremendous.

"To see something which nobody else has seen before is thrilling and deeply satisfying. Those are the moments when you want to be a scientist," says

Wolfgang Ketterle, a physicist at MIT and one of the first scientists to create a new kind of matter called Bose-Einstein condensates.

Nobel prize-winning scientists used lasers and magnetic fields to create a new form of matter.

Bose-Einstein condensates ("BECs" for short) aren't like the solids, liquids and gases that we learned about in school. They are not vaporous, not hard, not fluid. Indeed, there are no ordinary words to describe them because they come from another world -- the world of quantum mechanics.

Quantum mechanics describes the bizarre rules of light and matter on atomic scales. In that realm, matter can be in two places at once; objects behave as both particles and waves (a strange duality described by Schrodinger's wave equation); and nothing is certain: the quantum world runs on probability.

Although quantum rules are counter-intuitive, they underlie the macroscopic reality we experience day-to-day. Bose-Einstein condensates are curious objects that bridge the gap between those two realms. They obey the laws of the small even as they intrude on the big.

BECs form when the atoms in a gas undergo a transition from behaving like the "flying billiard balls" of classical physics to behaving as one giant matter-wave.

A BEC is a group of a few million atoms that merge to make a single matter-wave about a millimeter or so across. In 1995, Ketterle created BECs in his lab by cooling a gas made of sodium atoms to a few hundred billionths of a degree above absolute zero -- more than a million times cooler than interstellar space! At such low temperatures the atoms became more like waves than particles. Held together by laser beams and magnetic traps, the atoms overlapped and formed a single giant (by atomic standards) matter wave.

Says Ketterle: "Pictures of BECs can be regarded as photographs of wave functions" -- that is, solutions to Schrodinger's equation.

Working independently in 1995, Eric Cornell (National Institute of Standards & Technology) and Carl Wieman (University of Colorado) also created BECs; theirs were made of super-cold rubidium atoms. Cornell and Wieman shared the 2001 Nobel

Prize with Ketterle "for the achievement of Bose-Einstein condensation in dilute gases of alkali atoms, and for early fundamental studies of the properties of the condensates."

Bose-Einstein condensates were predicted by Indian physicist Satyendra Nath Bose and Albert Einstein in the 1920's when quantum mechanics was still new. Einstein wondered if BECs were too strange to be real even though he himself had thought of them.

Now we know Bose-Einstein condensates are real. And Einstein was right: they are strange.

For example, notes Ketterle, if you create two BECs and put them together, they don't mix like an ordinary gas or bounce apart like two solids might. Where the two BECs overlap, they "interfere" like waves: thin, parallel layers of matter are separated by thin layers of empty space. The pattern forms because the two waves add wherever their crests coincide and cancel where a crest meets a trough -- so-called "constructive" and "destructive" interference, respectively. The effect is reminiscent of overlapping waves from two stones thrown into a pond.

A picture of overlapping Bose-Einstein condensates shadows reveal an "interference pattern" -- a tell-tale sign of wave behavior.

"That means ... we have the remarkable effect that an atom (in one BEC) plus an atom (in another BEC) gives no atom. It's destructive interference," says Ketterle. "Of course we didn't destroy matter, it just appeared somewhere else in the pattern, so the total number of atoms is conserved."

Not all atoms can form Bose-Einstein condensates - - "only those that contain even numbers of neutrons plus protons plus electrons," says Ketterle. Ketterle made his BECs from sodium atoms. If you add the number of neutrons, protons and electrons in an ordinary sodium atom, the answer is 34 -- an even number suitable for Bose-Einstein condensation. Atoms or isotopes of atoms with odd sums can't form BECs. Strange, but true.

One of the most extraordinary aspects of Bose-Einstein condensates is that they are quantum creatures big enough to see. And there lies much of their promise. Many of today's cutting-edge technologies -- smaller, faster computer chips, micro-electro-mechanical systems (MEMS) and

quantum computers -- lie in the twilight zone between the quantum world and the macroscopic world. Scientists hope that studying BECs will advance those technologies and create others.

Ketterle is already experimenting with one: a pulsed atom-laser.

"In an ordinary gas, atoms move around randomly, they flit around in all directions. But in a BEC, all the atoms march lock-step," Ketterle explains. "They are just one single matter-wave propagating in one direction."

Atom-lasers are akin to light-lasers, which are beams of photons that likewise "march lock-step." But there are differences: For instance, atom-laser beams have mass so they will bend downward in Earth's gravitational field. Light-laser beams are massless; they bend, too, but the effect is very small. Furthermore, light-lasers pass through air with ease. Atom-laser beams will be substantially scattered by air molecules.

Atom-laser pulses produced in Ketterle's lab - the curved shape of the pulses was caused by gravity and forces between the atoms.

"Atom lasers need a vacuum to retain their properties," notes Ketterle. As a result they won't be used in the same way as light-lasers. They won't improve CD players or supermarket scanners, for instance. But atom-lasers will doubtless find uses of their own -- "like better atomic clocks [which will improve spacecraft navigation -- a boon to NASA], atomic optics or very fine lithography," says Ketterle.

Who knows where BECs will lead? After all, humans evolved on this planet with solids, liquids and gases all around, and we're still figuring out innovative uses for them. With Bose-Einstein condensates... we're just getting started.

Editor's Note: Ketterle's ongoing research is supported in part by NASA along with other agencies.

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Discovery of new star type may defy fundamental physics by PAUL RECER, AP Science Writer

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WASHINGTON (April 10, 2002 3:56 p.m. EDT) - A pair of bizarre objects found by an orbiting X-ray telescope may represent a new class of star and may contain a new form of matter, defying current theories of particle physics and astronomy. Observations of the objects, called RXJ1856 and 3C58, found they were too small and too cold to fit the pattern of neutron stars, which are collapsed, very dense stars composed of neutrons, an extremely heavy, elemental particle.

At a news conference Wednesday, astronomers announced that RXJ1856 has a temperature of about 1.2 million degrees, too cool for a neutron star, and a diameter of about 12 miles, too small to fit the standard model for neutron stars. This evidence "points to a star composed not of neutrons, but of quarks in a form known as strange quark matter," said Jeremy Drake of the Harvard-Smithsonian Center for Astrophysics, the lead researcher for the RXJ1856 observations.

Quarks are elemental particles that make up a neutron. The quarks in an ordinary neutron are of two types -- up and down. Drake said that data from the X-ray telescope suggests that RXJ1856 is composed of up and down quarks, plus another particle called a strange quark. Strange quarks are much denser than up or down quarks. The group of quarks could have evolved from neutrons that were collapsed by the extreme density and mass of the star, Drake said.

A team led by David Helfand of Columbia University observed 3C58, the neutron star remnant of a famous supernova, or exploded star, and found that its temperature was less than 1.8 million degrees, far below the predicted value for a neutron star.

"This cool temperature," said Helfand, "violates the standard theory for neutron stars and raises fundamental questions about the matter in 3C58."

"It appears that neutron stars aren't pure neutrons after all -- new forms of matter are required," said Helfand. Michael Turner, an astrophysicist at the University of Chicago, said the two observations suggest the objects "may be new members of the stellar family tree." He said they appear to be less dense than black holes or white dwarfs, two other exotic objects in the universe, but are clearly different than neutron stars.

"It is possible that all of the stars we call neutron stars may be strange stars such as those observed by Drake and Helfand," said Turner. He said, however, that the observations will have to be confirmed by others.

Field Investigator Update: April 2002 - More Triangles and "Something Happening"

By Craig R. Lang - MN MUFON FI Coordinator

During March and April, we have had a number of new fly-by and maneuver sightings reported to Minnesota MUFON. Among them was a triangle sighting, which occurred during the wee hours of Saturday April 20. In this event, the witness was outside, late at night, watching a very spectacular northern lights display [CL Note: the northern lights put on a good show even within the Twin Cities - meaning they must have been truly spectacular].

At nearly 2:00 AM while watching the skies, the witness suddenly observed a triangular shaped object moving rapidly from East to West. He described it as a "flying wing". The "aircraft" had no fuselage or tail. It appeared to him to be a dark, but translucent, apparently solid object. He also observed what seemed to be many lights (reminding him of small Christmas lights). The object flew nearly overhead, at about 50 degrees elevation, traveling in a straight line. It was eventually lost to sight in the trees immediately to the West of him.

In another case, a sighting witness approached me during the break at a recent MUFON meeting, to tell me about a UFO sighting she had had. Late at night, she was out on her back porch when her

attention was drawn to an object high in the southern sky. As she watched, the object moved from East to West. This object was again, a dark triangle with lights on the edges. It flew low over the treetops, yet made no sound.

While none of these sightings are all that spectacular individually, they are very similar to the large number of triangle cases we have received in the last few years. There is a high degree of consistency between these reports, suggesting a well-defined, but very mysterious phenomenon. Yet, these reports are also very ambiguous. The sighting is usually late at night, by one person. Often the object is traveling in such a way that it should have been observable by many others, such as by a large number of commuters on a nearby freeway. Yet we rarely receive more than one report. Additionally, the witness is often (but not always) an experiencer, having had many other UFO and contact related events in their lives. These combined factors suggest that there may be more to the triangle sightings than a simple fly-by of a technologically advanced but still nuts-and-bolts craft.

In addition to the sighting reports described above, I have noted that an increased number of experiencers have begun coming forward to tell about their encounters. And among these, it is possible to discern a sense of imminence - that something major is about to happen. This was mirrored by Whitley Strieber, on the show Dreamland, a couple of weeks ago, when he made the comment that "something big is happening". There is a sense of immediacy, the fork in the road, the gathering storm that many experiencers tell me about. What is it? I don't know.

David Jacobs, in his book "The Threat" makes reference to a time called "The Changes". It is a time described by many abductees when significant world-shaking events will occur. Many in the UFO community believe that this is a time of trial, and perhaps a time of fundamental shift in our society. One can only wonder what this shift might be like. Dr. Jacobs presents a very dark scenario, whereas Bryant and Seebach, in their book "Healing Shattered Reality", portray a far more pleasant picture. But, in all cases, the transition time is portrayed as a time of trial - often with a powerful religious/spiritual overtone. So, what's happening? Again, I don't know. But from what experiencers tell me, we might find out very soon. If any experiencers reading this column have any

information on these upcoming "Changes", please feel free to contact me. I would very much like to learn more about this emerging theme.

If you have any further updates on events discussed in this column, or know of any information that might bring to light other sightings or encounters, please contact Craig Lang (phone: 763-560-1532, email: crlang@mm.com), or contact Minnesota MUFON through our website:

<http://www.mnmufon.org>

Also, stay tuned to this column in each newsletter as we discuss more local and regional sighting cases.

With each event, the opportunity to become involved in UFO studies continues to expand. For those wishing to become a field investigator themselves, classes are conducted as sufficient interest is indicated. We try to hold classes approximately three times per year, and hope to hold the next one this spring. If you are interested, and feel that you have the necessary time, energy, and objectivity to be a UFO investigator, please contact Craig Lang. If you have not already done so, you also will need to join MUFON as a field investigator trainee and purchase the MUFON field investigators manual.

We need as many active investigators as possible in our effort to better understand the UFO phenomenon. For those who decide to pursue the study of this strange phenomenon, there will always be enough mystery to go around.

International MUFON Symposium 2002 Announcement

The 2002 International MUFON Symposium is being held in Rochester, NY on July 5-7. Full details can be found on the mufon.com website including registration information.

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