“The same solar instruments at Sandia that pursue new energy options for mankind in the daytime, at night explore the absolute frontiers of knowledge about the universe,” says half-time astronomer Crawford MacCallum (1271). That’s because three steerable dishes at the Distributed Receiver Test Facility (DRTF) can work around the clock: catching the sun’s rays by day and the stars’ rays at night. “What’s more, the size of the mirrors and the imaging capabilities of the optics designed for the sun happen to be ideal for looking at gamma radiation from the stars,” says Crawford.

Looking for evidence of ultrahigh-energy — about 100 GeV (10^11 electron volts) — gamma rays is a team headed by Carl Aklerlof, visiting particle physicist from the University of Michigan. The group’s project is funded by his university, whose funding in turn includes a DOE contract, and by development grants from the state of California.

**Difference Between Day, Night**

Carl’s “graveyard” shift is possible at DRTF with a bit of sleight of hand — and the use of a “cherry picker.” Come the end of their normal working day, the solar energy people can simply shut off the heat engine in the bipod at the center of each of the two 11-metre dishes and go home. Then Carl’s team comes on site and hoists an additional mirror with its supporting structures across from the center of each dish. This arrangement allows a double-mirror bounce to collect and focus the dim light. Then Carl adds a hexagonal set of seven “light amplifiers” (photomultiplier tubes). This allows the concentrated light signal to bounce onto a forward-facing detector so that a “snapshot” can be made — with some lasting electronic circuitry — of the gamma-ray shower (see “Team Baskis in the Glow”).

And, presto! An instant astrophysics lab in Coyote Canyon ...

**Getting Off the Ground**

Carl’s experiments are just getting off the ground. Last summer was spent on development and physical installation of the equipment. The most time-consuming aspect was hooking up coaxial cables that run from the photodetectors to microcomputers in a nearby trailer. Also, a purple (red plus blue) filter was installed to eliminate background light from city lights and airplane traffic. (The week schedule revolves around moonless nights.)

Working with Carl are four colleagues from the University of Michigan: physicist Don Meyer, graduate student Robert Tschirhart, and undergraduates Scott Horner and Brian Arbic. Then there are physicists from the University of California at Riverside: Timmy Timmer and Al Zych, and graduate student Jan Siemieniewski; and from Jet Propulsion Lab at Pasadena: Bill Wheaton. Carl’s daughter Karen also lent a helping hand: Crawford MacCallum’s the Sandian connection — who did some computer modeling of the shower’s pulse shape.

**Gamma Stargazing:**

**On Graveyard Shift at Solar Power Tower**

AD ASTRA PER ASPERA (“to the stars the hard way”) is not just the motto of Kansas; it’s been Carl Aklerlof’s modus operandi (pardon all the Latin). Here stargazer Carl has been swung up to the top of the solar collector, where he installs an ultraviolet light filter. The other 11-metre dish is off on the right. Carl’s team spent the summer ankle-deep in mud laying cables; fall’s cloudy nights have also slowed down the work.

**Two Easy Pieces**

**New Base Decal’s Ready For the New Year**

Time has expired for the Sandia decals on vehicles having access to the Base. “We’ll be throwing the old decals away,” says Gene Smit (3411), program coordinator. “And the new ones will be phased in early next year.”

This month, Sandians in Albuquerque will be receiving renewal letters via interoffice mail. New decals will be assigned and returned through interoffice mail in January. (Retirees and surviving spouses will be notified by letter, also in December, and should receive their decals by March.)

**Painless System**

The new, two-piece decal is made of a material that’s substantially more durable than the one used up to now.

The decal’s a handsome one, too, with black and Sandia-blue lettering on a reflective silver background (see photo on Page Four). The Badge Office will continue to be the hub of decal activity, and will use a new registration system that’s “designed to be painless,” says Gene.

- The date expiration tab — with the first batch stencilled for use until 1990 — is a separate sticker and the only segment that need be renewed every three years.
- The registration form has been simplified to allow registration of multiple vehicles. The same form will be used for decals and temporary passes.
- Transferability: Any Sandian with authorized

(Continued on Page Five)
Antojitos

"Boring, Darned Fact: He Was an Engineer" It's the test pilots who get the glory, not the design engineers -- or so says an article in the late, lamented Science 85: "The odd thing is that most engineers don't seem to mind their status. This is partly because of self-selection -- it's not a field that attracts raging egotists -- and partly because they're so rational that they realize why they don't make good copy or good television. In explaining their work, they rarely say anything comprehensible, let alone interesting, and they have not mastered the drawl (of the test pilots). They wear short-sleeved shirts and ties -- frequently hideous ties -- instead of manly flight suits dappled with official patches. They don't really do anything that anyone can appreciate. They work not in bold strokes but something goes wrong. And there are always too many of them sharing the credit.

"In the soul of a true engineer, the only thing that really matters is being allowed to tinker in peace on something until it works. [And even failures are useful because] it's always good to do something bad every now and then so nobody tries to do it again for a long time."

Well, that's how we "engineering lab" folks are perceived out there. Reasoned rebuttals only, please.

Speaking of Rebuttals A couple of items in last issue's spelling quiz attracted enough attention to assure us that the column does get read; that's good. We learned that by slipping up a bit; that's bad. First, current Tech Writing style hyphenates "electro-optic." Good idea; avoids misreading the word as "blue-troop-tic." Second, "discrete" is correct if you mean "able to keep a prudent silence"; for example, "the illicit lovers were discreet about their affair." Since such sentences seldom work their way into Sandia Tech Reports, the other spelling, "discrete," is likely more useful; "discreet" means individually distinct, a separate entity, such as in "discrete bits of data."

Today's Quiz Rank the following days based on the volume of AT&T long-distance calls made: a) Valentine's Day; b) Father's Day; c) Christmas Day; d) Mother's Day; e) an average weekday.

Wonder If They Griped About the Pension Plan Bob Colgan (3153) found this little ditty (to be sung to the tune of "Rock-a-Bye Baby") in the south Yorkshire village of Ripon during one of his several trips to Ireland. Like many other English towns, Ripon had a poorhouse in the 18th and 19th centuries.

Hash-a-bye baby, on the tree top, When you grow old, your wages will stop; When you have spent the little you made, First to the poorhouse and then to the grave.

Supervisory Appointments

TED SCHMIDT to manager of Reactor Development and Applications Department 6450.

Ted worked at the Labs during 1964-65 as a classification analyst, and then left to complete his education. Since his return to Sandia in 1969, he has worked in reactor studies organizations in Tech Area V. He worked on the design of SPR III (a fast reactor), was responsible for testing of nuclear weapon on fissile components, and has performed in-plant fast-reactor safety experiments.

In April 1976, Ted was promoted to supervisor of Reactor Source Applications, the division that operates the pulsed reactors for the Labs. Since then, he's headed the Reactor Applications, Post-Accident Heat Removal Studies, and ACRR Reactor Safety Experiments divisions. In recent years, his work in reactor coolability programs has included extensive interaction with foreign scientists.

Ted has a BS in EE and a MS and a PhD in nuclear engineering, all from the University of Arizona. He was an officer in the U.S. Army, stationed from 1961-64 at Sandia Base with the Atomic Weapons Test Group.

He is a member of the American Nuclear Society and has participated in its Standards Committee for Research Reactors.

Ted's spare time is spent on family activities, travel, skiing, and racquetball. He and his wife Janice live in NW Albuquerque. They have three children.

JAMES LEE to supervisor of Simulation Physics Division 1231.

James has worked in X-ray source development programs since he joined the Labs in November 1980 as a member of Simulation Technology Division 1232. His work has been in Simulation Technology Labs projects, including developing an electron beam diode for Saturn, and studying the drift transport of intense electron beams in an applied magnetic field.

He has a BS in physics and math from Iowa State University and a PhD in experimental high-energy physics from Chicago.

James is a member of the American Physical Society. He spends his spare time on music and fishing. He and his wife Kathleen have three children and live in the NE Heights.

The Look of Music

Spraint is a cool column, so smooth it must be glass. Lemon peels face, arms, and hands with sharply pointed spires. Taste has shape, sound has color.

Syneestheses are people with a brain condition that leads to a hallucinatory welding of senses. And the poetry of their perceptions, neurologist Richard Cytowic suggests, may be a matter of relating to the world in an evolutionarily older manner.

"Syneestheses are "living cognitive fossils," Cytowic says. "They have a more fundamentally mammalian way of perceiving."
**HE CAME RIGHT DOWN 'F' STREET ...** Twas the day after Thanksgiving, when the parking lots were empty and not much was stirring on Base, only a skeleton crew of Sandians. Santa Claus got his Percherons close enough to the LAB News building (814), so our wish lists are taken care of ... Then he went on to KAFB's Mini-Mall to give children rides in his wagon.

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**Special SWAT Pin Earned**

Lt. Pam James of Sandia Livermore's contract security force becomes the first woman at the Labs to pass the rigorous Special Response Training 3 course at the Central Training Academy in Albuquerque.

The course is the third and final level for DOE security people on the SWAT (Special Weapons and Tactics) team, which is trained to handle hostage situations and terrorist confrontations at national laboratories and other DOE installations.

Pam described the 11-day conditioning program as "physically and mentally tough." The trainees begin each day with a mile-and-a-half run. That's followed by a battery of calisthenics and then another run of the same distance. Then they go to class, which is no time to sit down with a textbook but rather a series of physically demanding exercises.

The requirements to pass the intensive course include qualifying with a .45 calibre pistol on both standing and moving targets, going through an obstacle course while shooting, training on rough terrain, and qualifying with the MP5 submachine gun.

According to Pam, the most critical and trying part was simulated hostage rescue (using dummies as targets), in which all trainees — using live ammunition — attacked a "shooting house." Their goal was to neutralize or kill the " kidnappers" and yet leave the "hostages" unscathed.

"Rescue requires a lot of mental concentration and shooting skills," Pam recalls. "We must hit the right targets precisely in the critical spots."

The course was taught by instructors from the Central Training Academy and specialists from the Los Angeles Police Department. Those who pass receive a certificate — and a special weapons and tactics pin from the DOE that becomes part of the authorized uniform wear.

Pam joined the contract security force, now Advance Security, at Sandia Livermore three and a half years ago. She started out as an inspector, then moved up to tactical sergeant and day-shift sergeant. On March 28 of this year she was promoted to lieutenant in charge of all personnel on the day shift.

She first became interested in police work at Cal State-Hayward, where she attended for two years and where she majored in criminal justice. Since beginning work for Sandia's security contractor, Pam has gone through two previous SWAT training courses at Albuquerque, plus a bomb detection course at Baltimore, Md. Originally from Hayward, where she spent her high school years, she is now a resident of Tracy. Her older brother is also in police work.

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**Congratulations**

Mike Ferrario (8152) and Sandy Mondor (8264), married in Livermore, Nov. 22.

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**Sympathy**

To Lutz Dahlke (8444) on the death of his father in Corvallis, Ore., Nov. 4.

To Olivia Rohrbach (81860) on the death of his father in Lodi, Calif., Nov. 12.

To Ed (8442) and Cindy (8302) English on the death of his father, her father-in-law, in Coeur d'Alene, Idaho, Nov. 16.
Events Calendar

Dec. 5-6 — Annual Holiday Bazaar, 10 a.m.-4 p.m., Sandia Preparatory School gymnasium (520 Osuna Rd. NE), 294-4405.

Dec. 5-12 — “Waterworks,” juried watercolor exhibit by the NM Watercolor Society; 9 a.m.-6 p.m., Thompson Gallery, UNM Union Bldg., 227-2331.

Dec. 5-12 — “Earth and Fire, an Elemental Art Show” by Sue McQueen; 7:30 a.m.-10 p.m., Union Gallery, UNM Union Bldg., 227-2331.

Dec. 5-7, 12-14 — The Christmas Kid,” by Joe Paone and Karen Babb, a story about the magic of growing up; 7:30 p.m. Fri., 6 p.m. Sat., 2 p.m. Sun. & Sat. matinees; Albuquerque Little Theatre, 242-4750.

Dec. 5-15 — Richard III,” Shakespeare’s tale of murder and betrayal for power; 8 p.m. Fri.-Sat., 6 p.m. Sun.; Vortex Theatre (Buena Vista & Central), 247-8600.

Dec. 5-21 — “Keeping Score,” musical comedy; 8 p.m., Fri.-Sat., 3 p.m. , Sun.; Second Story Arts Center (behind Albuquerque Little Theatre), 242-4750.

Dec. 5-31 — Exhibit, “From the Weaver’s View: Indian Baskets of the American West,” 9 a.m.-4 p.m. Mon.-Fri., 10 a.m.-4 p.m. Sat., middle gal- lery, Maxwell Museum of Anthropology, 277-4404.

Dec. 5-Jan. 5 — Exhibit, “Tiger, Tiger,” photographs of animals of India; 8 a.m.-5 p.m., NM Museum of Natural History, 814-8872.

Dec. 5-Feb. 2 — “Maysa, Treasures of an Ancient Civilization”; 11 a.m.-5 p.m. Tues., 1-9 p.m. Wed., 11 a.m.-9 p.m. Thurs.-Fri., 10 a.m.-5 p.m. weekends; Albuquerque Museum, 243-7255 or 242-4600.

Dec. 5-July 31 — Exhibit, “Maysa: The Image from the Western World”; 9 a.m.-4 p.m. Mon.-Fri., 10 a.m.-4 p.m. Sat.; main gallery, Maxwell Museum of Anthropology, 277-4404.

Dec. 6 — Keller Hall Jazz Series 1986, “The Jazz Composers’ Orchestra”; 8:15 p.m., Keller Hall, 277-4402 or 842-6659.

Dec. 7 — Showtime at the Kimo, On Stage Series: “Arnold and the Night Visitors”; 8 p.m., Kimo Theatre, 848-1374.

Dec. 7 — Children’s fashion show, 3-4:30 p.m., free, South Broadway Cultural Center, 848-1320.


Dec. 12-13 — Classical concert, NM Symphony Orchestra, performing selections from Monteverdi and Adams, featuring the NMSU Chorus, and Lillian Kalir performing Beethoven’s Piano Con- certo No. 4 in G Major, Op. 58; 8:15 p.m., Popejoy Hall, 842-8565.

Dec. 15-19 — Feature film, “One Magic Christmas”; 3:30 p.m., free, South Broadway Cultural Center, 848-1320.

Dec. 16 — NM Museum of Natural History Lec- ture, “Hiking the Continental Divide” by Mary Swer, New Mexico Forestry Department; 7 p.m., Kimo Theatre, 841-8856.

Dec. 16-Jan. 4 — “A Christmas Carol,” adapta- tion by Barbara Field from Charles Dickens; 8 p.m. Tues.-Sat., 2 p.m. matinee Sat. & Sun. (special 1 p.m. & 6 p.m. performances Christmas Eve); Kimo Theatre, 243-4500.

Base Decal

access to Kirtland Air Force Base who buys a car with a decal from another Sandian can continue to use that decal after notifying the Badge Office.

• A call to the Badge Office will be sufficient notice of decal destruction. Signed statements will no longer be required.

• Permanent license plates will be required for all vehicles before any decals are issued for them. Vehicles on temporary registrations will use temporary passes.

• Bicycles will no longer be registered or issued any decals; this change is in accordance with KAFB directions.

• In the future, the registration renewal notice won’t be a blank form. Instead, a computer-generated printout will be sent to each registered Sandian, who will only have to mark changes — additions or subtrac- tions of vehicles, as necessary. And, at renewal time, only the date expiration tab needs to be placed on the vehicle.

• A new on-line computer system, ADNET, will support the decal registration program.

For Appearance’ Sake

Looks may not be all, but they do count when the guards at the gate have to squint at the decals in the poor light of dawn or twilight. And the large ID numbers boldly stencilled on the middle of the decals will be a visible improvement over the tiny numbers that used to be stamped on the right-hand corner, a spot that often peeled.

• KAFB has also approved placement of the decal on the lower-left part driver’s side of the wind- shield — for those of us having cars with bumpers that make decal attachment difficult.

Speaking of attachment. The old decal will have to be removed completely before the new one is stuck on the lower-left bumper or windshield. Careful scrap- ing with a razor blade, followed by cleaning to get rid of dust, dirt, and oil, should do the trick. As long as the surface temperature is above 50 degrees F; the new decal should go on easily — and stay on without peeling.

Questions Answered

Phil Rivera (3437) will administer the new system. If any problems or questions arise, call Phil or his staff at the Badge Office on 4-3666.

Any retirees or surviving spouses who have not received a renewal notice in the mail from Benefits by the end of December should either write to Division 3543, F.O. Box 5800, Albuquerque, N.M., 87185, or call 844-7433 or 844-3545.

Retiree Deaths

Roger Williams (689) July 8
Cecil Johnson (73) July 9
Ethel Horner (97) July 18
Karl Lindell (80) July 19
Fred Drummond (77) Aug. 2
Gilbert Oliver (81) Aug. 6
Richard Sanchez (78) Aug. 10
Chester Iverson (64) Aug. 11
Bruce Scott (85) Aug. 13
Felix Padilla (70) Aug. 16
Theodore Payne (73) Sept. 5
Walter Sims (74) Sept. 7
John Carter (72) Sept. 24
Truman Daniel (72) Sept. 25
Elliott Harris (59) Sept. 26

Sympathy

To Frank Whiston (7483) on the death of his mother-in-law in Clovis, Nov. 19.
To Bob Colgan (1535) on the death of his moth- er-in-law in Albuquerque, Nov. 21.

NEW TWO-PICE DECAL has a silver background, with the ID number and KAFB let-tering in black and the border, thunderbird logo, and SNL let-tering in Sandia blue. The tab (on left) is a separate piece: First one will have “90” — not “87” — stenciled on it for year of expiration. Next (three-year) renewal will require only an updated tab.

Here are a couple of current volunteer opportuni- ties for employees, retirees, and family members. If you would like more information, call Karen Shane (4-7268).

NATIONAL AUDUBON SOCIETY’S annual Christ- mas Bird Count program, conducted throughout the U.S., Canada, and the Caribbean, is looking for nov-ice and experienced birders for one or two hours. Birds they see, recording numbers and species. Data are used in scientific research on the early winter distribution of bird populations. Experienced bird- ers will lead the three counts this year: Corrales, Dec. 20; Bosque, Apocalypse, Dec. 21; and Sandia Moun- tains, Dec. 27.

KNME-TV has set aside Wednesday evening, Dec. 10 (5:30-11 p.m.) for “phone friends” from San- dia to accept pledges during its on-air fund-raising telethon.

Welcome

Albuquerque
Harry Cincotta (3426)
New Mexico
Paul Baca (2634)
Texas
Stanley Harrison (7831)

Congratulations

To Mary Ann and T. D. Raymond (1124), a daughter, Rebecca, Nov. 3.
To Jeanette and Joe (9231) Chavez, a son, Chris- topher Joseph, Nov. 7.
To Helen and Del Owyoung (1124), an adopt- ed son, Jonathan, 11 mos. old, arrived in America Nov. 15.
To Maureen and Dave (7832) Hendrick, mar- ried in Albuquerque, Nov. 15.
To Cheryl Laird (3425) and Steve Wilde (9214), married in Albuquerque, Nov. 22.

Words That Run and Run

You’ll have heard it all before — get a word processor and you’ll never know how you lived without one.

Harrassed secretaries at the company I once worked for told me that IBM and Wordstar were no blessing for them, mixed or otherwise. The boss quickly became aware of the ease with which alterations could be made, and so put off editing his illogical streams of consciousness until after the first printing. Well, writers can suffer from indiscipline too. I call it "processommebage." Editors tell me that authors who had refrained from pitting and apostrophe suddenly became rainbow thumbs. Their sen- tences, once as small and clean as workhouse plates, turned into great Proustian crockeries. The joy of their writ- ing, once so unfading, became blurred with muttered authorial opinions.

It’s the temptation to insert that gets you: the urge to indulge in some idle hobbyhorsing with an amusing but irrelevant note. Word verbs and adverbs can seem to retain that seductive quality they once had, back in the poetry days. For some reason, the green screen can make you forget that plain words are best. Because not only is alteration easy, it’s luminous. I mean fun!

Ted Nord, New Scientist
University Team Basks in the Glow of Cygnus X-3

Carl Akerlof’s team has picked a star to watch: Cygnus X-3, a double star that’s roughly 217,360 trillion miles away. Some people believe that it’s one of the three most luminous objects in the galaxy.

“We’re interested in it as a source of high-energy gamma rays [radiation with wavelengths at the shortest end of the electromagnetic spectrum] that emanate from the universe,” says Carl.

But gamma rays themselves don’t reach the earth. And peering at the faint glimmer of Cygnus X-3—at the far edge of the galaxy—is not easy. Not enough energy is liberated from its gamma rays to be readily picked up at a ground-based lab.

That’s because the gamma rays are converted into an electron-positron pair about 10-15 kilometres above the earth. A repetitive multiplication process results in emission of more gamma rays—that are then reconverted into electron-positron pairs. In the end, millions of electrons and photons build up.

Bluish Light

The resulting Cherenkov radiation—electromagnetic cascades or showers—is a bluish light in the visible portion of the spectrum. That’s not to say that the researchers are buffeted in a bluish glow. Very sufficient to read the LAB NEWS by. Far from it. According to Carl, the plate is empirical to the faintness of a clock with an LED display on the face, as seen from earth. It simply has to be amplified electronically, as much as a quarter-million to 10 million times, just to be detectable with instruments.

Cherenkov radiation is a conical wave of light produced by an electron traveling faster than the speed of light in the local medium: air. (It can be compared to the blue glow energy being given off as light — seen at the bottom of Sandia’s Annual Core Research Reactor in Area V after it’s fired.)

What complicates things is that nature is responsible for a competing process: cosmic ray showers that are proton-initiated and also produce Cherenkov light. In this case, there’s a large flux of protons and perhaps heavier nuclei, also very energetic, that enter the upper atmosphere. There the charged particles collide with oxygen or nitrogen molecules to create pi-mesons, most of which last a relatively long time. (In the cosmic rays, the neutral particles instantly decay into gamma rays and then produce their own showers only a few kilometres above the earth.

There are thousands of these cosmic ray showers for every gamma ray shower that Carl and his fellow researchers are looking for.

Ray of Hope

The best chance Carl has to find out which of the two sources he’s tapping is to look for characteristic signatures — trails in the sky. Three measurements are made: pulse amplitude, pulse width, and time of arrival.

The dishes are aimed at Cygnus X-3 using established maps of the sky. The dishes’ angular resolution permits measurement of gamma-ray arrival directions to 1/10 of a degree.

Two of the dishes, each 11 metres in diameter, are set up to do the looking for Carl by functioning—literally—as another pair of eyes. Since the dishes are set apart by 40 metres, they act as stereoscopic (depth) detectors. They receive separate data on the time of arrival and on the angle of approach of each flare.

Gamma-ray showers point back directly to their stellar source (tracing the direction of the original gamma rays, which are not scattered by intervening variables—including variations in signal quality. Interstellar gas and dust clouds in the galactic spirals can obscure the signals.

But repetitive patterns—cycles—are useful. For example, the earth’s rotation modifies celestial mapping coordinates in predictable fashion. And, Cygnus X-3 is suspected to be a neutron star with a normal star orbiting around it. Therefore, the X-rays (the next longer wavelength in the electromagnetic spectrum) that are also known to emanate from it have a 4.79-hr. cycle that corresponds to the second star’s eclipsing of Cygnus X-3.

At heart is a theoretical controversy. Some physicists such as Carl think of showers from Cygnus X-3 as the product of known particles, i.e., gamma rays entering the earth’s atmosphere. This is the simple, tidy hypothesis. Others have suggested something much more exotic: that emanating gamma rays from Cygnus X-3 are from a neutron star orbiting around it. Therefore, the X-rays (the next longer wavelength in the electromagnetic spectrum) that are also known to emanate from it have a 4.79-hr. cycle that corresponds to the second star’s eclipsing of Cygnus X-3.

For example, simultaneous data from three detectors, Carl can use trigonometry to find the position of the two stars.

In time, a third imaging detector, mounted on a smaller, seven-metre collector located 200 metres away, will improve the timing of some of the gamma rays. By having timing data from three detectors, Carl can use trigonometry to find the position of the two stars. (Because proton-initiated cosmic rays often come closer to the earth than do gamma rays before showering, both dishes would not spot the same shower unless they were “cross-eyed.”)

In time, a third imaging detector, mounted on a smaller, seven-metre collector located 200 metres away, will improve the timing of some of the events. By having timing data from three detectors, Carl can use trigonometry to find where the gamma rays are coming from — and so reject data that could not be coming from his star.

In fact, as an additional reliability check on data, Carl would like to see more cooperation between pairs of labs located at roughly the same longitude. That would allow even more correlations from additional sets of widely spaced high-tech “eyes.” For example, simultaneous data from Tucson and Albuquerque would help to create more certainty that he’s dealing with something extraterrestrial—and not electronic glitches.

Data from the heavens are very noisy. That is, the signals are embedded in extraneous information, a kind of visual static. The data usually have to be filtered very heavily before they can be analyzed. In order to pull out the hidden patterns in space and time, the statistics are, by necessity, complex.

Stargazers have to account for all the chang-
Divers in the Desert

Area III doesn’t look like much of an environment for scuba divers. A few weeks ago, though, there they were — conducting a most realistic rescue diver training operation at the Water Impact Test Facility.

Test items are dropped from a 300-ft.-high drop tower at the facility into a 120-ft. x 188-ft. man-made pond that’s 50 feet deep in at least one spot. Before tests, divers — all members of Coyote Canyon Test Complex Dept. 7530 — set up underwater photography equipment and other instrumentation needed for the tests. Afterward, they’re back in the water to haul test items and other equipment to the surface.

The rescue training exercise — the first conducted — was to demonstrate what emergency action is required should a diver become trapped under water, perhaps as a result of getting tangled up in a net or a cable. Trainer Morys Hines of Watersports, Inc., and his assistants — diver “victims” Jim Fisher and Darlene Maxwell — demonstrated what needs to be done in case of a life-threatening situation. UNM Hospital’s Lifeguard I helicopter arrived on the scene to transport the “injured.” Sandia’s Medical and Security organizations also participated.

Sandia Area III diving team members: John Russell, Kevin Babb, Luis Abeyta, and Dennis Floyd (all 7531), certified rescue divers; Dennis Gutierrez and Rob Tachau (both 7535), certified open-water divers. Mike Gallahan, a contract employee, is also a certified rescue diver.
Crownpoint Rug Auction
Offers Colorful Look at Unique Art Form

It's very apparent when you visit the Crownpoint rug auction: Free enterprise is alive and well in Navajoiland. It's supply vs. demand every six weeks as buyers become proud owners of rugs painstakingly woven by Navajo women (or occasionally) Navajo men.

Buyers compete for rugs that catch their eye; sellers go home with proceeds from the sale of their rugs. Top-quality rugs usually bring top prices, though an occasional bargain slips through.

If you're at an auction, the first thing you'll see at the auction site (the Crownpoint Elementary School) is a long line of Navajo weavers waiting to consign their rugs. The weavers wait patiently with their brown paper bags or gunny sacks until they reach the table where the rugs are checked in. Then, out of the bags and sacks come rugs of every description, color, and size — sometimes one, sometimes many.

Crownpoint Rug Weavers Assn. officials tag each rug; information on the tag includes an ID number, the weaver's name and "hometowen" — a site somewhere on the Navajo reservation, such as Two Grey Hills or the Desert Ruins, Chalky, Black Mountain, Many Farms, and Window Rock. Then the rugs are placed on long tables at the back of the school gymnasium, where they can be inspected at close range by auction-goers.

Rug viewing begins at 2 p.m., the day of the auction, and continues through the afternoon until the last of the rugs is consigned and the auction is about to begin. Viewing is a very important part of the day's activities, especially if you're a would-be buyer. This is your chance to look at details: the fineness of the weave, wool quality, dye, size, and whether the rug looks good from a distance, but not so good close up.

Close-up Inspection Important

During the auction, you'll be thankful you took the time for a close-up inspection of the rugs: when they're displayed on stage during the sale, you view them from afar. About all you can determine at that point are pattern and colors — and most please the eye. If you bid on something you didn't inspect beforehand, you may be disappointed when you pick it up later in the evening. (When I attended a recent auction, the person sitting next to me was the winning bidder on a small Two Grey Hills rug that he didn't look at ahead of time. He bid on the Two Grey Hills name and the reputation of its weavers for quality rugs. When he picked up the rug, he says, "It was apparent that he bought a "learner's rug"; the quality wasn't what he expected to find. The rug looked good from a distance, but not so good close up.

After you've inspected the rugs, there's no need to go out for supper before the auction. Starting at 5 p.m., the Weavers Assn. starts serving food from the kitchen next to the gymnasium. You can choose from a variety of menu selections at nominal prices, with tacos at $3.25 — or $1.75 for a half taco — are the biggest sellers.) You'll eat in a room across the hall at Liliputian tables, with chairs to match; after all, this is an elementary school!

After supper, it's back to the gymnasium, where the auction will be held. If you intend to get in on the auction action, you'll need to register and pick up a numbered card to wave at the auctioneer when you start bidding.

At 7 p.m., sharp, the auction begins under way. By this time the rugs have been stacked on chairs and on the floor at the back of the stage. Auctioneer Herman Coffey of Belen, homespun as they come, explains he's been presiding at the Crownpoint auction for "some 20 odd years," and has never missed a one. He warns you to be "fast on the draw" (in waving that bid card if you're after a particular rug, because rugs are sold every 30 seconds, on average. Coffey recalls that he's sold as many as 640 rugs at a single auction. "On nights like that," he says, "you might be around here until 3 or 4 in the morning."

(The night I was there, 217 rugs were for sale, and the auction ended at 10:25.)

Coffey sets a minimum price on each rug to start the bidding, and tells you the name of the weaver and where she (or, in rare instances, he) is from. Coffey knows his rugs and is likely to throw in some of his own observations, e.g., homespun wool, vegetable dye, tight weave, etc. From then on, it's up to you and the others in the audience. If you want to bid on a rug, hold your card at Coffey's and his "watchers" to show you're willing to buy the rug at the price asked. That price changes quickly (upward) if several people are after the same rug, so you may wave that card several times before you're the winning bidder.

Throughout the evening, Coffey keeps the crowd smiling with his patter. Some examples:

When the bidding gets very competitive between a couple of people, and he's coaching for the next — and higher — bid: "Don't set there and look at me — bid! It's only money."

When he coughs, and has to stop talking for a second or two: "You know, I got the dissembler here a while back, and don't know if I'll ever shake it."

If you buy a rug during the auction, you can pick it up and pay for it anytime (cash, credit cards, traveler's checks, and good checks cheerfully accepted). Take your bid card to the check-out table at the left-front of the gym, and your rug appears like magic. Fork over the payment and you're on your way into the starlit Crownpoint night clutching your newest heirloom.

Always on Friday

The Auction: Background, Facts You Should Know

The Crownpoint Weavers Assn. formed more than 20 years ago, sponsors the Crownpoint Rug Auction, held every sixth Friday night at the Crownpoint Elementary School. Only 20-40 rugs were for sale at the first auctions in the 60s; the average price was around $20. Now, hundreds of rugs are for sale each time; prices at a recent auction ranged from $20 to $2100.

Weavers from all over the Navajo reservation converge at Crownpoint the day of an auction. Auctioneer Herman Coffey puts it, "This is free enterprise at its best. The weaver owns the rug until it's bought, and collects the price paid for it at the end of the evening." (A small percentage of the purchase price goes to the Weavers Assn. for administrative expenses.) An average auction "take" is between $32,000 and $35,000.

To get to Crownpoint, take 1-40 west to Thoreau (pronounced "Three"). Head north on Rt. 57 for 24 miles to Crownpoint. (The entire trip is about 130 miles, one-way.) Once in Crownpoint, you'll pass the hospital on your left. Turn right at the next stop sign. About two blocks away, you'll see the elementary school — site of the auction — on your right.

Rug viewing starts at 2 p.m., and you can buy supper starting at 5. The auction begins promptly at 7 and continues until the last rug is put up for sale.

Rug auction dates for the coming year:

Dec. 12, 1986
Jan. 23, 1987
March 13, 1987
April 28, 1987
June 5, 1987
July 1, 1987
Aug. 25, 1987
Oct. 9, 1987
Nov. 20, 1987

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Are you chronically fatigued even though you get a full night's sleep? How about insomnia, or sudden weight loss (or gain)? Have you lost interest in your love life? Are you irritable and unable to sit still and concentrate? Do you have unexplained headaches, backaches, stomach pain, nausea, or indigestion? Have you lost your appetite? Has your energy level been low? Do you feel listless, emotionally flat, or empty? Are the things you've typically enjoyed just not any fun anymore? You may be suffering from depression, a common mood disturbance that too often goes ignored or untreated. Sometimes people recognize their symptoms and are afraid to do anything about them, or they feel too down in the dumps to take action.

Depression can cause a whole array of symptoms (and none of them mean you're going crazy). In fact, depression is as common as a cold. Serious depression probably affects one person in five at some time in his/her life. It's a condition that can affect people from all walks of life at any time — infancy to old age.

Perhaps you dread coming to work in the morning or spending time with your family or friends. You may have experienced not only a general slowing down but also a lack of interest in your responsibilities. You may have lost interest in your appearance. Perhaps small things have begun to bother you. You've even begun to have problems with your memory and find it difficult to concentrate, and you're wondering what's wrong with you. Perhaps you saw your family doctor who prescribed medication to help you sleep or to decrease your anxiety, but now you feel even worse because the problems persist.

People get depressed for many reasons. One common reason is major change. For example, in the past year or so, have you lost a loved one through death or divorce or the breakup of a relationship? Have you had a career or financial setback, charged jobs, or moved to a new house? Have you had health problems, such as surgery or a heart attack? Perhaps your favorite boss has retired or your friends have moved away. Maybe you are facing stronger-than-usual conflicts with important members of your family or with friends. Maybe you're expecting a baby or are taking on the responsibility of caring for aging parents.

Whatever the case may be, important life events, or even the accumulation of small hassles, can have an impact — leaving you feeling overwhelmed by your own life's circumstances. As a result, you're helpless, hopeless, and lost — that's depression.

What you're left with is low self-esteem, which translates into exaggerated self-blame and feelings of guilt. You may even wonder whether things are ever going to get better.

Now, the good news: Depression can be treated. You do not have to struggle with the problem alone.

Treatment methods include individual counseling, group therapy, and, in some cases, anti-depressant medication. In fact, there's a whole range of methods and approaches that can help people learn more about their problems and how to handle them effectively.

Yes, I know that seeking professional help from a psychologist or psychiatrist is the subject of a lot of old-fashioned prejudices and superstitions. But those come from fear and a lack of information — more bluntly, from ignorance.

I invite you to call me (6-0021) for further information. It's the first important step in taking care of yourself and feeling good again.

This is the first in a series of "Can We Talk?" articles by Sandra's clinical psychologist, Arlene Price.

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**Medical Corner**

**‘Can We Talk?’ No. 1, or How’s Your Mental Health?**

By Arlene Price (3330)

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**Our Town**

**TLC’s a Day Care Home for Sick Kids**

It's 7 a.m., you're getting ready for work, and your five-year-old says he hurts. Your babysitter won't take care of sick children, day care centers won't admit them, and Grandma lives 1200 miles away.

You can't take another day off because your supervisor is ruminating about unscheduled vacations. What do you do? Finding help with sick children is one of the hardest child-care problems facing working parents.

"The increase in working parents has not been matched by an increase in community support," says Lila Zurrillo (2656). "For the most part, these families are left to work out their own problems with nothing but reprimands and guilt."

Lila found a solution in TLC House, a licensed child care facility for mildly ill children ages 2-10 that opened Sept. 1. TLC House (located just behind Presbyterian Hospital at 1016 Silver SE) is operated by the YWCA and Presbyterian Hospital. The staff is trained by YWCA for day care and by Presbyterian Hospital for health care. But TLC House staff members have one other important qualification — they love children. That helps when parents are feeling anxious or guilty about leaving their sick child with other caregivers.

"I'm impressed with TLC House," says Lila. "I'd like to see more people use it. Yet many parents aren't aware of exactly what help is available or where it can be found."

**House, Not Hospital**

"We have successfully meshed medical and day care in one facility," says Barry Boulard, TLC director. "It's one of the few in the country that is actually in a house, not in a hospital. It's a non-threatening environment for the children. They recover faster."

The nurses don't wear white uniforms. There is a structured day care program with arts and crafts activities appropriate to the child's age group.

"Children — even with sudden illness — are encouraged. "It takes at least 20 minutes to admit a child who isn't registered," says Kathy Byers, TLC charge nurse. TLC House will send a registration package upon request. Reservations can be made up to 24 hours in advance and are on a first-come, first-served basis. For hours, call TLC House at 841-1693. Descriptive brochures can be picked up in the LAB NEWS office in Bldg. 814.

TLC House can care for 22 children. The cost is $15/day or $2/hour, and includes fruit and vegetable juices. The hospital provides soup for $1 or a full meal for $2. Parents can also bring snacks or lunches.

There are five rooms in the house, with space enough to put children with contagious illnesses in separate rooms. "Children with measles are the only ones we really can't take," says Kathy.

All children are examined by a TLC nurse before they are admitted. Immunization records are required. Children who are not toilet-trained will not be admitted. If medications are required, a qualified staff member will administer them according to your physician's prescription requirements.

There are costs for children who do not feel well enough to play or who need to rest, and trained child care workers make sure that every child is held and cuddled with lots of TLC.
Take Note

Saned Harens are appearing in a performance of "Amarth and the Night Visitors" at St. Timothy's Lutheran Church (211 Jefferson NE) on Dec. 6 and 7 at 5 p.m. Dick Schoorl (800) and wife Lois are having a 25th wedding anniversary this Dec. 6. His wife Lois will be singing and dancing in this musical fantasy written for children. Dick will sing the role of King Melchior. Jenic has the role of the mother.

Ken Frazier (316), author of People of Chico, will be available for discussion and book signing on Dec. 7 from 2-4 p.m. at Book Fair (501 Wyoming NE).

Currently on display in the Bldg. 802 lobby are watercolors and Chinese brush paintings by artist Faith Perry (on leave of absence from 325). The paintings will hang there until Dec. 15. Faith and her husband Richard's Restaurant & Gallery (310 Central NE), and work appearing in the juried NW Watercolor Society Show at UNM's Thornton Gallery. Faith must have been very busy, because she's also participating in Weens Artfest in the Agricultura Building at NM State University on Dec. 7.

The next meeting of the New Mexico Network for Women in Science and Engineering, Albuquerque, is scheduled to be Dec. 10 at 6:30 p.m. at the home of Patricia Traylor (5255), 3408 Holiday Ct. NE. Ruth David (7121) will speak on "Nebraska Test Site: An American Giant." Also that night, the New Mexico Tech. Corp., will discuss "The Rio Grande Research Corridor." The cost is $5 and includes a social hour and dinner. Call Jenice Negin (314) or 302-Ellen (6330) on 4-2475 before Dec. 7 to reserve a seat.

The 1986 Marine Corps Reserve "Toys for Tots" program will collect donations of new toys for kids on Dec. 8 from 7-8:30 a.m. at each of the gates to Area I. The Advisory Staff of the program is Eugene McPeek (3434), a staff sergeant in the Marine Corps Reserve. For more information, contact Eugene on 4-3155.

Save the Children, a private organization that helps needy children through community development, is asking for help this holiday season. Central to Save the Children's approach is the identification and implementation of activities that benefit all the residents of a community—children and adults alike. Since most of Save the Children's efforts are directed toward these activities, the sponsors are asking for donations of toys, clothing, books, personal items, and food this holiday season for New Mexico Indian Nations. All donations will be fully eligible for the tax deduction for the season of some of the less fortunate children.

For more information on how to help, call Jim Trujillo, Director of New Mexico Indian Nations Program, on 262-2197.

Sedarino Woman's Club will hold its Christmas celebration on Dec. 9 at 11:30 a.m. at the Continental Inn (600 Pan American Freeway SW). Special Christmas entertainment will be provided. Cost is $8.25. Call Madrida Choate on 296-3604 to make reservations.

SERF is offering classes in beginning and intermediate conversational Spanish, and a course called "Genesimos of the World: Appreciation and Investment." The Spanish class meets Tuesdays and Thursdays from Jan. 6 to 29. The class meets 7:30 p.m., intermediate level 8:30 p.m. Cost is $110 and includes two free hours of books. The postponed class is an 8:30 a.m. session from 7 to 8 p.m. from Jan. 15 to Feb. 5. Cost is $35. For more information or to sign up, contact the Recreation Office on 4-8456.

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**CLASSIFIED ADS**

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**CLASSIFIED ADS**
TOMORROW’S A BIG DAY, as Mr. and Mrs. S. Claus put in an appearance at the C-Club for the kids’ annual Christmas party. The fun begins at 10 a.m., when “Good Vibrations,” a singing group from West Mesa High School, entertains with holiday tunes. A hilarious clown troupe performs a skit from 10:30-10:30, and then makes balloon animals for par-
ty goers the rest of the morning. From 10:30 on, kids have a chance to tell the jolly old fat man in the red suit all about their wish lists for Christmas. It might not be a bad idea to put in a word with Mrs. C. as well, because there’s a bow in the throne and all that.

Other entertainment includes cartoons on the Club’s projection TV from 10:30-noon, when the party finally shuts down. Popcorn, soft drinks, coffee, and doughnuts are available to stave off hunger pangs. Admission is $1 or a can of food, all of which will go to the Salvation Army. Members’ kids only, please; bring your membership card to show at the door.

YOUR ONE AND ONLY chance to enjoy that Sunday brunch bargain this month is Sunday, Dec. 7. The budget-buﬀer buﬀet, served from 11 a.m. to 2 p.m., features ham, sausage, baron of beef, scrambled eggs, hash browns, the best green chile in the state, and much more. And all this bounty goes for the unbelievably low price of $4.95 for adults, half price for kids under 12. Bring the whole family and enjoy. Call the C-Club office (265-6791) right now for reservations.

OK, SINGLES, here’s your opportunity to get a rollicking start on the holidays! This month’s min-
dec on Dec. 10 is a good old-fashioned Christmas party with the nicest bunch of people you’d ever care to meet. Very special prices prevail for beer, wine, and munchies from 4:30-6 p.m. What’s so special? All of the above are free during those hours — can’t get more special than that! The DJ, Dunn’s Dance Machine, plays from 5-9. Come on out and enjoy a great party.

THERE’S A PARTY for everyone at this time of year, and the Thunderbirds are no exception. These folks whoop it up from 1-4 p.m. on Sunday, Dec. 14. All kinds of snacks and beverages are available, along with a no-host bar. That renowned group, the Bob Banks Trio, provides the music. Knowing those Thunderbird sponsors well, we’re predicting a bunch of singing once everybody gets limbered up! Here’s your chance to wish all these good folks the merri-

C-CLUB MEMBERSHIP CLERK Suzan Baldomaro is snowed under these days with 1987 Club membership cards. She’ll be mailing the cards this month to all employees who pay their dues by payroll deduction. If you don’t receive your card in the next several weeks, give the Club office crew a call so they can check out their address records.