

FERMINews

 Fermi National Accelerator Laboratory

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LIGHT PIPES SOLVE TALK PROBLEM

Light pipes.

James Wendt, technical specialist, and Ray Hren, senior technical aide, work with them every day. Both men are with the Accelerator Division, but assigned to the Cockcroft-Walton preaccelerator, the place where either protons or negative hydrogen ions are born.

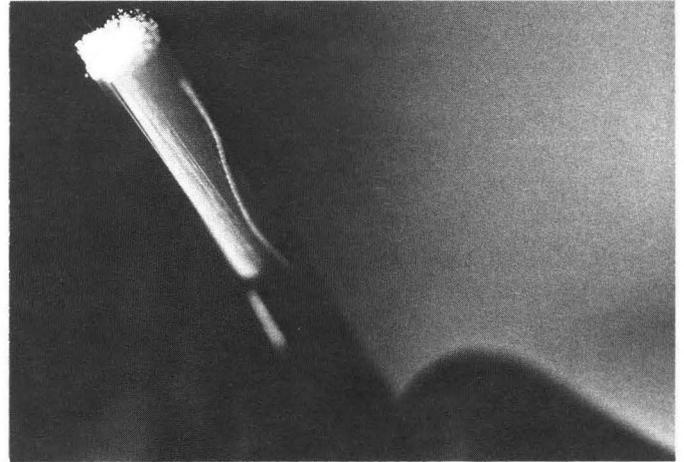
It's frequently necessary for accelerator operators to talk with (adjust) the controls in the dome, the squarish-shaped room standing on four 13' legs in the preaccelerator enclosure. The dome is large enough for the 74-inch tall, lean Wendt to stand upright in. The dome also contains the metal cylinder of hydrogen that gives rise to protons in one preaccelerator and to negative hydrogen ions in the other preaccelerator.

The dome houses the equipment that controls the ion source, and that's why it's necessary for Wendt and Hren to be in touch with it at all times. But it's not that easy.

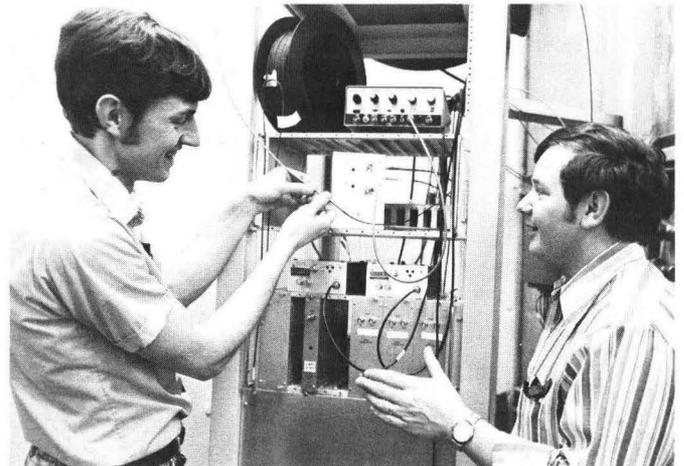
When the Cockcroft-Walton unit is running, the dome is at 750,000 volts above electrical ground. The enclosure it's in--called the pit--is at electrical ground. A wire running from the pitwall to the dome would be a conducting path which would short out the dome. Consequently, if changes in the control settings in the dome are necessary, they could not be made from outside the pit by sending signals through wires.

Another means of communication with the controls in the dome was required. The answer: light pulses sent along ultra-thin filaments of glass--the light pipes.

From the main control room in the cross gallery, accelerator operators can determine if adjustments in the dome controls are necessary. If changes are called for, they send the appropriate electrical signals to a micro-processing computer located outside but adjacent to the pit. This computer, in turn, forwards the command signals to the light



...Delicate slivers of glass carry light pulses that talk...thumb provides size reference...



...Jim Wendt (left) and Ray Hren adjust light pipe running from light transmitters to Cockcroft-Walton preaccelerator dome...

transmitter that converts the signals into light pulses and sends them along the light pipes to the dome. There the pulses are converted back into electrical signals that adjust the ion source equipment.

Their system now uses five light pipes: two for video signals (television monitor pictures) and three for control.

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...450 GeV team, L-R, Mike VanDensen, Ken Sievert, Ed Kessler, Anthony Salvaggio, Hal Satter, Steve Hays, Jack Lockwood,

Wes Franklin, Bob Brooker, David Thasco, John W. Brown, Michael Wilks, Jeff Nast, Dave Opitz and Bill Wickenberg...

It was the team effort--all the way--that made it work and caused Rolland P. Johnson to exclaim "quite spectacular" and John Crawford to write in the main control room log book, "Wow!"

They were both talking about the now highly-heralded 450 GeV run that occupied the Main Ring's final hours before it was shut down for its annual cleaning and maintenance. Crawford, crew chief, wrote, "Wow! Incredibly smooth 450 start-up. Ramp at 0250, beam at 0345, beam to experimental areas at 0500." He recorded his shift summary at 8 a.m., Friday, March 9.

Johnson, assistant head of the Accelerator Division for the 400 GeV Program, after he had reviewed the full run said, "The reliability of the run was quite spectacular. Certainly as good as we do at any other energy." He added the run was "87% reliable as far as equipment failure is concerned." Johnson attributed the run's impressive performance to people who were determined it was going to be successful. He had this to say about:

Frank Turkot's Main Ring Group--"The success of the run is a testimonial to their diligence in improving the Main Ring."

Bill Wickenberg's Power Supply Group--"They gave us an heroic effort in extensively upgrading the power supplies and installing overvoltage protection equipment."

Operations Group led by Jeff Gannon and Jim MacLachlan--"They did much of the hard work in pushing the machine to maximum intensity with minimum extraction losses."

Roger Dixon and his Switchyard Group--"This group was very much involved in the push to higher intensities but with the corresponding responsibility of overcoming extraction problems."

Johnson also said, "That we were able

to do the 450 GeV test was in large part due to the reliable operation of the machine for the past three months. This has given us the time to study the accelerator and the opportunity to take a longer range view of the machine's potential.

"It's easy to see that not only the people I've already mentioned are to be congratulated, but also those associated with the Booster and Linac Groups and the Accelerator Support Groups."

The purpose of the test that ran approximately 80 hours was "to explore the possibilities of operating the machine at 450 GeV," said Johnson. "We also wanted to discover limiting factors relevant to productive operation, searching for clues for future development and for facts to allow reasonable scheduling of the machine for high energy physics." While the main ring was operating at 450 GeV, experiment 258 ran parastically. E-258, located in the Proton-West Area, was the sole user of the beam as physicists there continued their study of pions.

Coming back to the 450 GeV run itself, Johnson told what he and others had learned. "Operation at 450 GeV is basically the same as running the machine at lower energies. Extraction losses still limit the machine's intensity. Some problems are more difficult at 450 GeV, such as magnet ripple on the flat-top, keeping current at acceptable levels in the 13.8 kilovolt feeder cables to the Main Ring power supplies and cooling the magnets in the Main Ring itself.

"If we continue to improve in these areas, operation of the Main Ring can be as good at 450 GeV as it is at any lower energy."

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April 2, 1979

CLASSIFIED ADS - For distribution with the FERMINES of April 5, 1979

FOR SALE: Single shot 20 Gauge, Savage Shot Gun. Used twice. Call 815-786-2235, ask for Dave.

Couch and Love seat, pattern in orange, gold, brown, rust. 2 yrs old. \$275.00. Call 897-5195 after 5:30 p.m.

5-gun cabinet (new) solid pine, walnut finish, \$100.00. Call 897-5195 after 5:30 p.m.

Beauty Shop equipment. Lady Belvedere, Hydraulic chair; matching air con'd. dryer chair. 1 station 4-1/2' mirror, vanity lights-\$375.00. Call Fran, Ext. 3222

1972 Ford LTD Country Squire Wagon P.S., P.B., A.C., Clean interior, good shape, best offer. Call Dick Auskalis, Ext. 4167.

Camera. 4 x 5 Super Cambo with 135MM Convertible Symar Lens, 9 holders. \$400.00. Strobe 1200 Watt second speedatroc with 4 heads and stands. Strob meter cords and umbrella \$900.00. Call Ext. 3041, or 231-8961.

1973 Yamaha MX250 Helmet, tools, hold down straps. Just rebuilt-\$500.00.
Small pet carrying case - \$15.00
Lawn Roller, water filled - \$10.00
HOUSE in Winfield, 6 mi. north of Lab. Over 1900 sq.ft, 1/2 acre lot, 1 year old. Contemporary "A" frame design, \$95,000.00
Call Ed Dijak, Ext. 3654 or 690-1145.

Dinette formica table; spare tire, excellent condition; snow tires 78-15; 2 Schwinn Yellow Stingrays; Honda Motorcycle; Sandbox tractor tire. Call Ext. 3275.

'73 Holiday Rambler, 20' Travel Trailer. Tandem axle, sleeps six. Fully self-contained. All extras. Immaculate. \$3200.00. Call Mike Ext.3371.

Westinghouse Refrig/Freezer, 17 cu.ft. New compressor, Avacado- \$250.00. Maytag portable dishwasher, avacado-\$150.00. Both very good condition. Call Ext. 3381 or 879-0355.

Hanover Park - House for sale. By owner. 15years old, 1900 sq. ft., 1/4 acre lot, 2 garages and low taxes. \$70,600.00 Call 888-4657.

Beech Bonanza - C-35. 225 h.p., I.F.R. Radios. Recent top overhaul and annual. Many modifications. Nice, fast airplane. Call Bill Froemming, Pager 219, or Ext. 4357.

Sony TC-10, car stereo tape player with quick disconnect mounting bracket. \$75.00. Call Rich Parry, Ext. 4438 or 879-8987.

1977 Olds Cutlass. 350 V8; P.S.; P.B.; A.C.; Vinyl Roof; AM/FM stereo; Sport wheels; Like new, only 18,500 miles. Asking \$4995, or best offer. Call Leo Ext. 3996 or 879-7354.

'75 Yamaha YZ dirt bike, excellent condition. Used one season. \$500.00. Call Jay 897-5195 evenings.

...over...

FOR SALE: 2 B78x14 Firestone Tires, 4 ply, 2 bias, 2 Fiberglas, on rims for Maverick. Asking \$75.00. (Tires never used). Call Bill Ext. 3428 or 620-4368 after 6pm.

1972 International Harvester Travelal, A/C, PS, PB, AM Radio, 345 V-8, Snow tires on rims. Asking \$750.00. Call Bill Ext. 3428, or 620-4368 after 6pm.

FOR RENT: In Batavia - clean 1 bedroom apartment in older home. Separate entrance. \$240.00 per month, plus security deposit. Rentor pays electric. Call Greg at Ext. 3428 or 879-1080 after 5 p.m.

WANTED: Person to do yard work-mowing with tractor. Approx 4-5 hrs./week all summer. Pay negotiable. Near Wheaton/Warrenville High School. Call T.Nash Ext. 3993 , or 3822, or 665-6305 after 7 p.m.

Low price, low mileage, low '70s. High MPG, E-Z start, Exc. Mech. Cond. Call Bob Kreml, Ext. 4455.

HELP

WANTED: Housework. Private home in Glen Ellyn. Call 469-6025 evenings.

NOTICE: Good deals on Macrame. All colors and sizes. Special orders taken. Samples on CL14-W or call Rose, Ext. 3833.

I do professional TV, Stereo and other electronic repair. Call Rich Knowles, Ext. 3140 or 859-1259.

FENNER EXHIBIT FEATURES PHOTOGRAPHS

Photographic interpretations by Rich B. Fenner, Fermilab photographer, are now on exhibit in the Central Laboratory gallery, CL-2S.

Fenner shows 19 black and white photographs that span 10 years of his career. His subjects include landscapes, personalities and interesting shots of familiar scenes at Fermilab.

He first became seriously interested in photography in 1965. Prior to coming to Fermilab almost three years ago, he was with the George J. Ball Company in West Chicago, a horticultural marketing firm.

When Fenner is working for himself, he prefers to photograph "what interests and amuses me." And although he admits it's a cliché, his favorite photograph is "always the last one."

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GRADUATE STUDENTS TO MEET LEDERMAN

Graduate students have been invited to meet Dr. Leon Lederman, Fermilab's director-designate, at a reception April 10. It will begin at 6 p.m. in the Users Center.

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REMINDER ABOUT EASTER EGG HUNT

Fermilab's traditional Easter egg hunt will be held April 14 at 1 p.m. in the Village Barn. The event, sponsored by NALREC, is for children ages 2 through 8, who each should bring a basket or bag to put their finds in. The legendary Easter Bunny will stop by for a visit.

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BIRTH

A son, Daniel, 6-1/2 pounds, was born to Stanley G. Orr, Proton Department, and Glenys Orr, a registered nurse in the Medical Office, on Jan. 30, at Central DuPage Hospital. The boy is the couple's first child.

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...From the Fenner Exhibit...

TENNIS CHALLENGE TREE ORGANIZED

A tennis challenge tree has been organized at Fermilab.

Competition will start May 1. Persons who sign up before May 1 will be ranked by the Tennis Committee and will have their names and phone numbers placed on the tree. A player only will be able to challenge a player in the next higher level. If the challenger wins, he or she changes places with the loser on the tree. If the challenger loses, then no change on the tree is made.

After May 1, any person can still join the challenge tree by filling out a tag and placing it at the bottom of the tree.

For additional information and early sign-up, call Helen McCulloch, recreation coordinator, Ext. 3126.

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GOLF SEASON APPROACHES

Golfers who want to join the Fermilab Golf League can sign up today, April 5, through April 13. They should contact Don Fichtel, Ext. 3492, or Darrel Sigmon, Ext. 3434. The membership dues is \$10.00. Membership is open to everyone. League play opens April 30 and May 2 at the Arrowhead Golf Course. Tee-time is 5:20 pm - green fee is \$4.50. * * * * *

SWIMMING LESSONS PART OF POOL PROGRAM

Swimming lessons for children again will be part of Fermilab's pool program. They will be taught by an instructor certified in water safety. Two sessions will be conducted:

Session 1 will be held from June 11 through July 6, with beginning lessons on Monday, Wednesday and Friday from 10 to 11 a.m., and intermediate lessons on Tuesday and Thursday from 9:30 to 11 a.m.

Session 2 will be held from July 9 through Aug. 3, with beginning and intermediate lessons at the same times as session 1.

Children in the beginning classes will be taught how to gain confidence in water, blow bubbles, float, kick, pull and a combination that will lead to a basic swimming stroke. Those in the intermediate classes will be taught how to further develop their basic swimming skills.

For a child to qualify for the intermediate class, he or she should be able to swim 30 feet with a slow, relaxed stroke. They also will learn stroke development, water safety techniques and diving.

Individuals may sign up for swimming lessons at the swimming pool after May 26. The fee is \$15 for each child for one session.

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TENNIS LESSONS TO BE HELD AT FERMILAB

Anyone with an itch to improve their tennis game will have the opportunity in a couple of months. Tennis lessons will be offered from June 4 through July 26 at the Fermilab tennis courts. Lessons for beginners will be held from 5 to 6 p.m. on Mondays; for advanced beginners and intermediate students from 5 to 6 p.m. on Thursdays. Each class size will be limited to eight persons. The fee for eight one-hour lessons is \$25.

Additional classes or private lessons will be held from 6 to 7 p.m. those days.

The classes will be taught by instructors from the Norris Center, St. Charles. To register for lessons, contact Helen McCulloch, Fermi Rec. Coordinator, Ext.3126.

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FERMILAB SWIM SEASON TO OPEN

The 1979 swimming season at Fermilab will begin May 26.

At 9 a.m. that morning, the pool will open. Its use is available to Fermilab employees, visiting experimenters, their families and guests, employees of the Department of Energy office at Fermilab and employees of Advance Security who work at Fermilab.

Season membership to the pool may be purchased from the Personnel Department receptionist, CL-6E, beginning May 1 from 8:30 to 11:30 a.m. and 1 to 4:30 p.m. The rates are \$15 for a single person, \$25 for a married couple and \$35 for a family, the same as last year.

Individuals who do not possess membership tags will be admitted to the pool for a daily charge of \$1.50.

The pool will be open on weekdays from 6 to 8 a.m., but for adults only, no lifeguard on duty; 11 a.m. to 9 p.m. for family swimming, with a lifeguard on duty.

On weekends and holidays, the pool will be open from 9 a.m. to 9 p.m. for family swimming, with a lifeguard on duty.

From 9 p.m. to 6 a.m., the pool will be closed and swimming will be prohibited.

Additional information may be obtained from Helen McCulloch, recreation coordinator, Ext. 3126.

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