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FERMI NATIONAL ACCELERATOR LABORATORY

FermiNews

Fermilab

December 19, 1985

MEMORANDUM TO: Fermilab Staff

FROM: Leon M. Lederman

SUBJECT: Problems, Priorities, and Prospects

In the waning days of the good year 1985 it may be useful to review the Laboratory's major problems, its priorities, and its future prospects. Obviously this is a pleasurable task, otherwise I'd wait for after New Years.

Our problems in the near term are generally related to the tasks ahead in exploiting the enormous capital and human resources invested in the TEVATRON. This requires an accelerator which is reliable and which makes steady progress toward the design parameters for both fixed target and colliding modes. This also requires detectors which will be completed in a timely manner. It requires beam lines which work perfectly and with steadily improving services to the experimenters where these are clearly Fermilab's responsibility e.g. computing, electronics, engineering, etc. What is so briefly listed above represents a set of formidable technical and scientific challenges. We did have a great Lab party and a TeV I dedication ceremony and that was good PR and proper recognition of work well done, but if anyone thinks our job is over -- WRONG! Just to illustrate: we need to increase the luminosity of the antiproton collider by one million times! We are under pressure to raise the basic intensity of the TEVATRON to 3×10^{13} protons per pulse and we must raise the proton energy from 800 GeV to very near 1000 GeV, higher if possible. The overall reliability factors from Cockcroft-Walton to the user's target must also be improved.

These problems suggest our priorities in a natural way. The general goal is scientific results. We get these by continuing to invest resources, whatever it takes, to bring our facilities to the point where the experimenters will make discoveries in spite of themselves...with a little bit of luck! Anything we do which is not related to achieving physics results over the next five years or so must have lower priority. Hopefully there will be resources left to look at the longer-range future.

What are the longer-term prospects? There are continuing challenges to improve the facilities in more dramatic ways: even higher antiproton intensities, a new booster-type ring for better performance, lower cryogenic temperatures, CDF and DØ upgrades, continued evolution of beam lines and fixed-target experiments, advanced concepts in computing and in particle detectors; we should be on the absolute cutting edge of technology wherever this has scientific pay-off. We are limited only by our imagination, our inventiveness, our boldness...oh yes, and our budget. Looking

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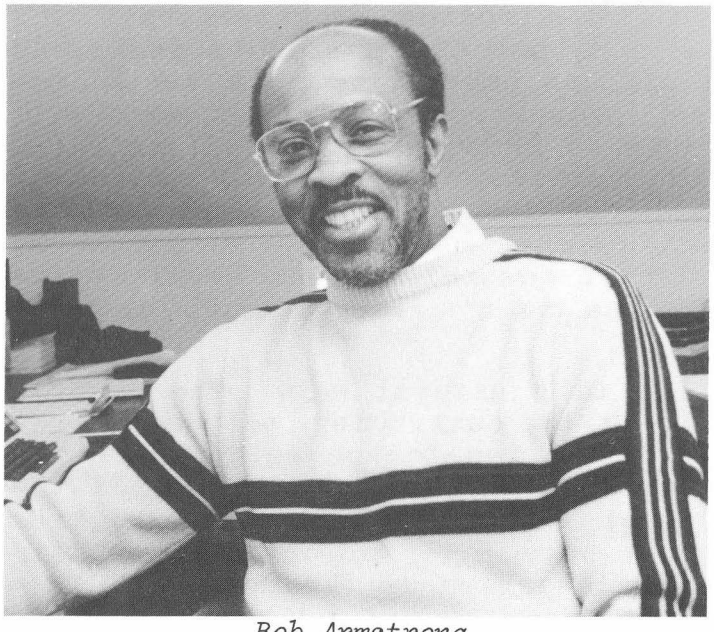
beyond these prospects there looms the SSC and, of course, a large question mark. We are burdened by the uncertainties in a unique way - no other laboratory in history has had quite the same relationship to the future as set out by the national community. Will it happen? Will it happen at Fermilab? We do know that the surest way to insure negative answers to both questions is to be anything less than spectacular over the coming years. As an institution already noted for its technical proficiency as well as for its wider cultural and social concerns, we stand on the threshold of scientific immortality. We must not fall short. If TEVATRON doesn't do great physics, says Mr. and Mrs. Taxpayer, why should we invest in SSC? And certainly why put it at Fermilab? These are severe questions to ask just before the holidays so we now turn on the bright lights: Fermilab is on top of the world! We have the world's highest energy fixed-target program, the highest energy collider until well into the 1990's. No other laboratory on this planet is so prettily situated. Our scientific and technical staff is superb, the very best. The enthusiasm and high spirit of the supporting staff is unequaled anywhere. Our user community is talented and dedicated (they had to be, to suffer through the years of TEVATRON construction!) The combination makes our near future rosy indeed. The middle distance future needs work too, but can be equally bright - and our distant future? There, dim and murky perhaps, but we definitely make out visions of dancing sugar plums.

I want to wish the Fermilab staff a glorious Holiday Season and a healthy, peaceful New Year.

Armstrong Takes on New Role in Communications Upgrades



Bob Armstrong

Chuck Anderson, Head of Facilities Management, has announced a reorganization of Security Services.

Bob Armstrong has been assigned to Facility Operations & Engineering (FOE) where he will bring his background in communications to bear on Fermilab's increasingly complex communications needs. Rudy Dorner will assume direct responsibility for Security, while continuing as Fermilab's Emergency Coordinator.

"As Fermilab continues to grow," Anderson said, "the Lab's communications network continues to expand and diversify. Bob will add an extra dimension to the existing FOE team which will be undertaking the difficult task of developing a data and communications system for the Lab.

"Bob will also coordinate the installation of our new paging system, and he'll perform communications-related tasks Lab-wide."

According to Associate Director Bruce Chrisman, "Bob has served well as Fermilab's Chief of Security since 1976, and has brought Fermilab recognition as a leader in innovative and effective security."

Jim Finks, head of the Business Services Section, added, "I'm confident that Bob will bring the same degree of professionalism to his new position as he has shown in the past. We wish him the best in his latest endeavor."

Keyworth Interview Provides Upbeat SSC Comments

The November 1, 1985, issue of Science & Government Report *(SGR), "The Independent Bulletin of Science Policy", carried the transcript of an interview conducted by SGR editor and publisher Daniel S. Greenberg with George A. Keyworth II, the President's Science Advisor and Director of the Office of Science and Technology Policy (OSTP). The following excerpts from that wide-ranging interview, reprinted with the kind permission of SGR and Mr. Greenberg, touch upon Dr. Keyworth's informed view of national laboratories and the Superconducting Super Collider (SSC). On November 29, Dr. Keyworth announced his resignation from the Reagan administration.*

Science & Government Report: Fears are being expressed in Congressional hearings and elsewhere that big projects [such as] the SSC will squeeze out "little science."

Keyworth: The concerns are real, but they stem from a bigger problem. Last year, the freeze strategy for the federal budget meant that the momentum that had gained in emphasizing basic research at universities was stopped in its tracks. This present concern about big science vs. small science is a result of the awareness that the continued emphasis on university basic research may not continue...My own view is that if we have as an objective to maintain our preeminence in science, then we have no choice but to pursue both big and little science.

SGR: You have often expressed concern about what's coming out of the roughly one-third of the federal R&D spending that goes into the national labs. Are changes taking place?

K: I'm rather pleased. If I had to point at landmarks that have represented a lot of work but which have made significant accomplishments, one of them would be the Packard Report on the National Laboratories [produced in 1983 for the White House Science Office by a committee chaired by David Packard, then Chairman of Hewlett-Packard]. I would say that the national laboratories of 1985 are fundamentally changed from what we saw in 1982. There's been a strong shift toward a focus on major national goals - be they national security, education, or strengthening our industrial technology base.

SGR: Opposition to the SSC seems to be growing.

K: I feel extremely upbeat about SSC. I can't remember which Congressman it was who said to me, "There's no way we're going to give up retaining our pre-eminence in this highly visible field of science." The question is when and where. I feel very confident in it. We have strong support from the Secretary of Energy. I see increasingly strong support in the Congress. I see strong interest abroad, in Japan, in being participants in the development, which means bearing some of the financial burden. I think as we become an increasingly competitive nation, that we will value our leadership in such visible areas. I think we're going to build SSC, and I think we're far more than halfway from a question mark to a firm commitment.

SGR: Some Congressmen say the issue is whether to build it. Do you feel that this is now an assured project of the U.S. government?

K: We're all wrestling with the questions of how to allocate resources, how to maintain big vs. small science. My own feeling is, I cannot imagine the United States not building SSC - unless some technical advance says it is no longer a pressing need.

The following articles of current interest and relevance can be found in the Fermilab Library, WH 3:

"New Physics and the New Big Bang" by Paul Davies, in the November *Sky & Telescope*.

"Q&A: Keyworth Ranges Over the Federal Science Scene" in the November 1 edition of *Science & Government Report*.

"Fundamental Research vs. Basic Economics" by Daniel S. Greenberg, in the January issue of *Discover*.

"Sociological problems of high-energy physics" from Andrew R. Pickering and W. Peter Trower in the November *Nature*.

"And now - the supercollider" by Christine Sutton in the November 7 *New Scientist*.

"Congress Questions SSC Cost" in *Science*, Vol. 230, #4727.

X-country Trails in Pine St. Woods Ready for Snow

Cross-country skiers at Fermilab are in for a treat this year, thanks in main to the efforts of Dwaine Johnson and Rudy Dorner, two avid x-country skiers who cared enough to want the very best possible.

Dwaine, a nine-year skier who began the Pine Street Woods x-country trail as an approved Lab recreational project five years ago, and Rudy, whose interest in skiing led to his involvement in the project, have spent hours walking the trail, pulling small trees and clearing brush, ably assisted by Dwaine's wife, Jane, and Lab employees Louise Krafczyk, Therese Watts, Dick Adamo, and Merle Haldeman.

This winter, the trail, which is located in the wooded section of land opposite Swan Lake, has been expanded to include a 1/3-mile "wax tester's loop" in the fields west of the woods. Bob Kraft's Roads and Grounds crew lent their mowing expertise to this loop, which will take skiers out of the woods and across gently rolling hills. The loop, as its name implies, is perfect for determining if your ski wax is appropriate to the weather, since the wrong wax will either cause your skis to slip while climbing, or accumulate snow on the bottoms of your skis.

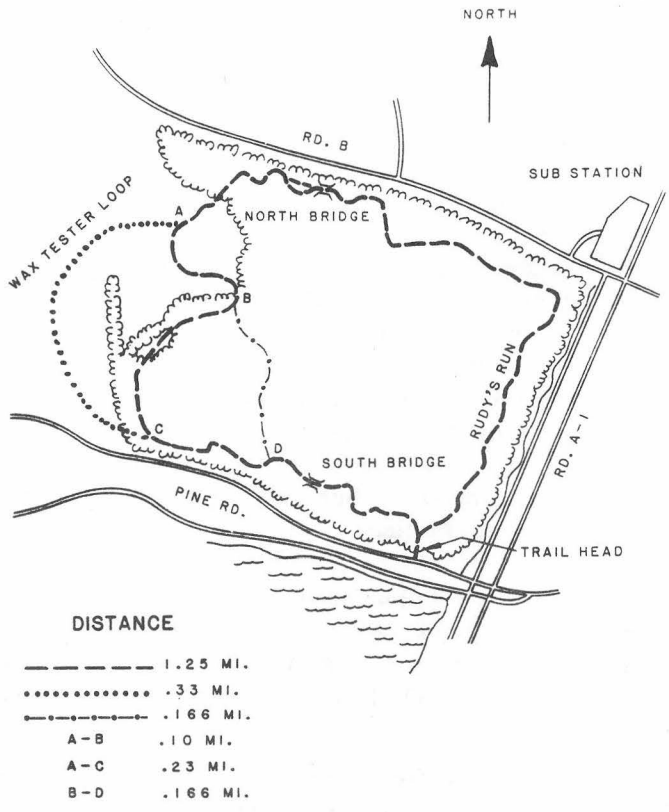
Existing fords over the Pine Street Woods Creek have been improved, and the trail will be track-set with an 8 in. spread between tracks.

While, as Dwaine pointed out, the trail is perfect for lunch-time skiing ("It's five minutes to and from Wilson Hall, which leaves plenty of time for skiing") the trail is open to Lab employees, visitors, and contract personnel at any time. However, persons planning on skiing after hours are encouraged to check in with Security in Wilson Hall before starting their runs. Parking along Pine Street is prohibited.

A map of the trail can be found in a cedar enclosure attached to a tree at the beginning of the trail. There are no markers indicating where to enter the woods, so Dwaine suggests you "look for ski tracks entering the woods across from Swan Lake."

Hikers might also be interested in following the trail, which began years ago as rough roads carved through the woods by local farmers. Dwaine and Rudy ask that hikers keep to one side of the ski trail itself, since footprints in ski tracks are a definite detriment to smooth skiing.

"We think it's a beautiful trail," said Dwaine. "It takes skiers through woods, across open fields, up and down managable hills. It's a real good beginners' trail, but there's no reason accomplished skiers wouldn't find it a pleasant outing. We do ask that skiers observe normal courtesies, since most of the trail is one track: skiers coming down a slope have the right of way, and on flat stretches somebody has to be the nice guy and get out of the way, so it might as well be you."



Not shown on the accompanying map is a mowed section in the "island" between inbound and outbound Pine Streets. Tom Warkins of Roads and Grounds cleared this area as an adjunct to the existing trail. It's the perfect spot for beginners to get their bearings on skis, and adds a flat, open run to the woods-and-hills options on the trail. The "island" area can be reached by crossing outbound Pine Street from the woods; look both ways before you cross, and happy trails!

Fermilab Arts Series Offers Special Subscription Package

Three exceptional concerts and a special subscription price are the Auditorium Committee's offer of "Music to Your Ears." This season the Arts Series presents the Mendelssohn String Quartet, the Empire Brass Quintet, and the Sinfonia da Camera chamber orchestra. Tickets for all three are now being offered at a discounted subscription price of just $18, a $5 savings off the price of individual tickets. Series subscribers will enjoy not only this substantial discount but also are assured the same choice seats for all three concerts.

The Mendelssohn String Quartet is the Resident Quartet at the Santa Fe Chamber Music Festival and at Merkin Hall in New York. Praised for its "luminous interpretation" and "astounding maturity and finesse," the Mendelssohn is a quartet of "startling capabilities." On Saturday, January 11, 1986, at 8 p.m. in the Auditorium, the quartet will perform Dvorak's Quartet in E-flat major, Op. 51, the Haydn Quartet in G major, Op. 77, No. 1, and Beethoven's Quartet in F major, Op. 59, No. 1.

The Mendelssohn String Quartet

The Empire Brass Quintet thrilled a capacity audience with their performance at Fermilab in 1982. They have also recorded over twenty albums, toured Europe and the Far East, and commissioned more than fifty new works from such leading composers as Leonard Bernstein and Gunther Schuller. On Saturday, March 1, 1986, at 8 p.m., this "foremost of American brass ensembles" will perform a concert of classical, jazz, and contemporary works.

The Sinfonia da Camera of Illinois and its prizewinning conductor/pianist Ian Hobson have achieved distinction with the release of their first recording featuring Saint-Saens' second Piano Concerto. Their performance of this work has been praised as "sheer magic" and "astonishing in its subtlety." In Ramsey Auditorium on Saturday, May 3, 1986, at 8 p.m. the 35 member orchestra will play the Saint-Saens as well as Beethoven's Symphony No. 5 and selections from Grieg's "Peer Gynt" music. The Sinfonia's conductor/pianist Ian Hobson won the Leeds International Piano Competition in 1981 and has since embarked on a major international career which includes an appearance with the Chicago Symphony.

To order the $18 special series subscription, phone or visit the Information Desk in the Atrium of Wilson Hall, ext. 3353. The desk is staffed between 10 a.m. and noon, or 1 p.m. to 4 p.m.

Also available at the Information Desk are single tickets for the Mendelssohn String Quartet's concert; admission is $7. In addition, tickets for the next Fermilab Lecture Series presentation by Melvin Konner of Emory University are now on sale. Professor Konner's lecture, "Biological Constraints on the Human Spirit," will be held on Friday, January 24, 1986, at 8 p.m. Admission is $2, $1 for senior citizens.

--Janie Green

Congratulations To . . .

Ginny (*LS/Personnel*) and Dave (*RD/Computing Dept.*) Ritchie on the birth of Robert Scott on November 15, 1985, at Lutheran General Hospital. Robert weighed 6 lbs., 9 oz., and was 19 in. long. Awaiting Robert at home was big brother Jamie.

Lisa and Mark (*RS/Mechanical Dept.*) O'Malley on the birth of their first child, Timothy Mark, on November 24, 1985, at Copley Memorial Hospital. Timothy weighed 8 lbs., 2 oz., and was 20-1/2 in. long.

Tips on Slips and Falls are Just in Time for Winter

Slips and falls can be a very serious peril for some people. Most falls are not plunges from high places but rather are commonplace tumbles on the same irregular surfaces that we travel over every day. **24% of all lost time** on site is a result of slips, trips, and falls.

Many slips and falls occur in parking lots, so use extreme caution and a high degree of care when these areas become wet, snowy, or icy. Take your time even when the temperature dips. Try not to rush out into foul weather because many falls occur when going to and from your source of transportation.

The Lab is working to reduce the possibility of slips, trips, and falls by cleaning the parking lots and removing all the known hazards. When winter comes, the Roads and Grounds crew work long and hard to make every attempt to remove snow and ice hazards as they occur. However, they cannot be everywhere at once, so be aware of the changing environment and take the necessary steps to prevent injuries from falls.

Gary Andrews (Safety Training) reminding Pattie Casler (Purchasing), and the rest of us, to watch our step when crossing wet or icy pavement.

Some precautions to take are:

1. Select the appropriate footwear.
2. Slow down--do not rush.
3. Shorten your stride.
4. Walk with bent knees.
5. Try to keep hands free.

Your personal alertness and sensitivity to the elements can be a great help in avoiding injury. We all need to be alert and guard against any misfortune.

—Gary Andrews

Note Lab Closing Information

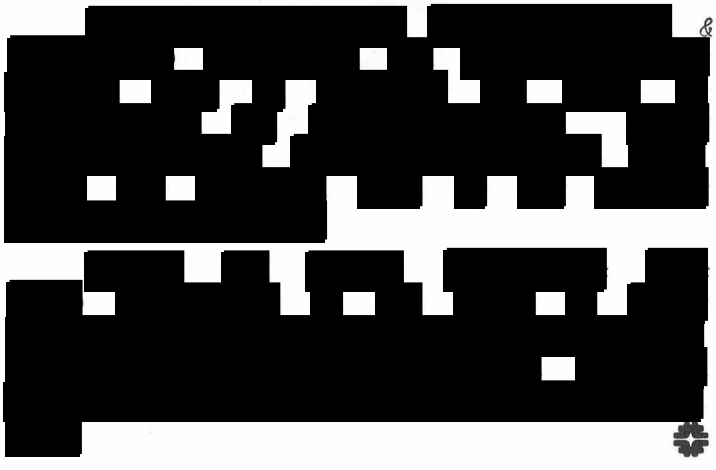
As another Illinois winter approaches, we are preparing ourselves for snow, cold, and blowing conditions. These factors can combine to severely test our ability to keep the Laboratory open and operating normally. Our record in this area is excellent as we have seldom been forced to discontinue or even seriously curtail operation of the scientific program. It is a credit to many people who contribute to the effort necessary to maintain this record. If, however, their best efforts are not enough and we need to make adjustments in work schedules or, in an extreme case, close the Laboratory, a convenient and reliable information source is important.

Tune into these AM radio stations for the latest emergency closing information: WMAQ-670, WGN-720, WBBM-78. FM stations carrying closing information are: WBBM-96, US-99, WCLR-102, WFYR-103.5.

Television stations to tune into are: WGN-TV channel 9 or WFLD-TV channel 32.

So, this winter if you are wondering..."Is the Lab open today?" the answer is probably "YES!!!", but to get the official word, tune your radio or TV to one of these public service stations.

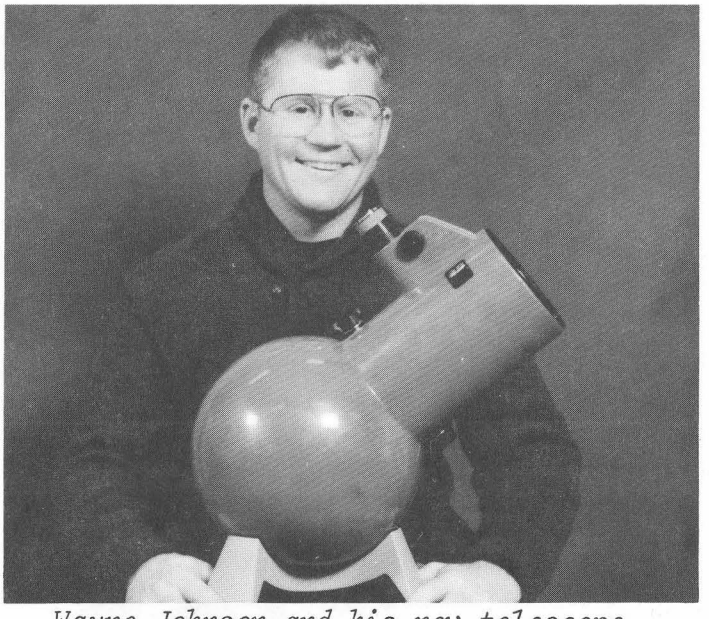
Congratulations To . . .



Wayne Johnson is the Winner !

The Corridor Group, an association of public affairs offices of 14 R&D companies located along I-5 (an area often referred to as the Illinois "high-tech corridor"), held a fund raiser to benefit the INTECH science competition for high-school students.

The fund raiser featured a lecture about comets, Halley's Comet in particular, and a raffle of a telescope donated by Frank Meyer of Meyer Tool and Manufacturing Company, producer of cryostats for the Tevatron.

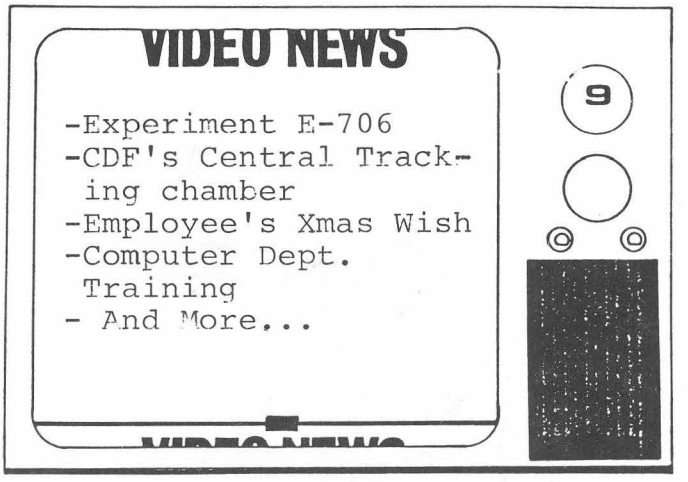


Wayne Johnson and his new telescope.

Fermilab's Wayne Johnson was interested enough in comets to attend the lecture, which was held at the Naperville Sheraton Hotel, but hadn't quite gotten around to taking a chance on the telescope. Wayne was persuaded to take a chance at the very last minute, it being for a good cause after all. Four minutes later, the drawing was held and, out of 720 entrants...as the song says, you can guess the rest.

The INTECH science competition for high-school students has been held for the last three years. Area students are invited to develop science projects, with scientists from Corridor Group member institutions, including more than 20 Fermilab scientists, acting as advisors and judges. INTECH winners are presented with cash awards provided by the Corridor Group, and scholarships from university and college Corridor Group members. INTECH's purpose is to encourage students toward an eventual career in research.

Next On



Reminders from Benefits . . .

New service from TIAA-CREF:

TIAA-CREF notified employees that effective October 1, 1985, a new Allocation Change Service (ACS) was implemented to allow participants to change the allocation of future premiums between TIAA and CREF annuties with one toll-free call to 1-800-842-2252. Before ACS, allocation changes were made by submitting a request to the Employee Benefits Office. The Employee Benefits Office is no longer processing allocation changes. Your first contact with the ACS will be with a recording; if you wait on the line, a representative will answer.

Fidelity Supplemental Retirement Plan announces three new funds:

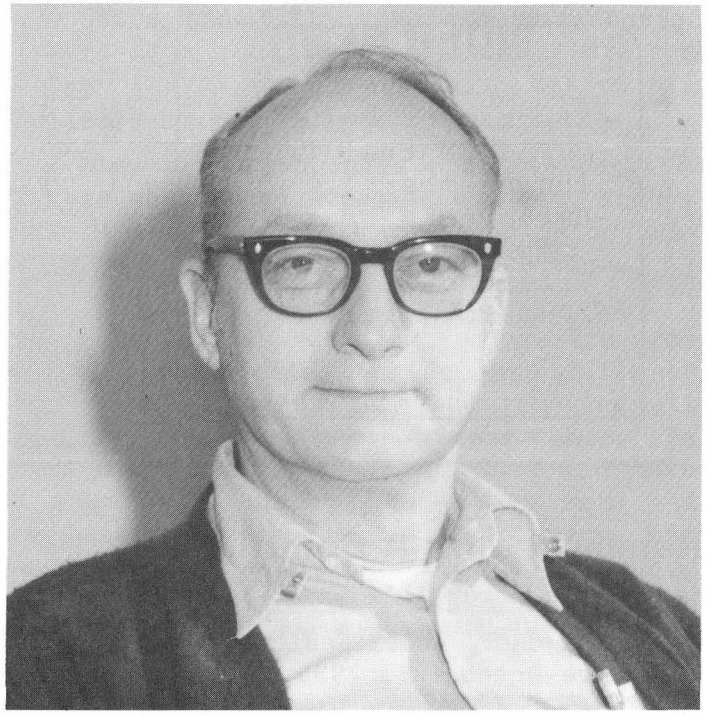
Added to the Fidelity family of funds is an Income Fund named Mortgage Securities and two Growth Funds named OTC Portfolio and Overseas. A copy of their investment results is available from the Employee Benefits Office.

Social Security tax (FICA):

Your January pay check will show an increase in your FICA deduction. The employee and employer tax rate will increase from 7.05% to 7.15% effective January 1, 1986. In addition, the taxable wage base for 1986 will increase from $39,600 to $42,000. This means that the maximum per employee FICA tax for 1986 will be $3,003 (7.15% of $42,000). Combined with Fermilab's FICA contribution, the total per employee FICA tax for 1986 will be $6,006.

--Paula Cashin

Butler Retires — 17 Years at Fermi



"Tom Butler's retirement on December 2, 1985, brought to a close over seventeen years of service by one of the most loyal and interested employees that the Machine Shops have had in their employ," said Earl Bowker, Tom's supervisor, "Tom is probably best known, and will be remembered for, the role he played as the scheduler and planner for the Machine Shops."

During his employment Tom was involved in the machining of many parts of the Accelerator: the Linac, Cockroft-Walton, Main Ring and Energy Doubler magnets, right up to and including the Antiproton Source.

Tom began working in the Fermilab Machine Shop in 1968, back when it was "a little garage in Downers Grove," and says he has really enjoyed watching Wilson Hall grow up. Tom was a Machine Shop supervisor in the shop on the ground floor of Wilson Hall.

After retirement, Tom plans to head out to Kansas City to spend winters with his son, and summer will find him in Minnesota hunting and fishing.

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NALREC Win is a (Family) Picnic

On November 12, 1985, NALREC was honored with awards in two categories for outstanding program promotion by the 80-member Association for Recreation and Employee Services (CARES).

Angela Gonzales, Fermilab's resident artist, captured second place for her '84 Family Picnic poster. FermiNews was awarded first place overall for the July 26, 1984, issue which featured a four-page photo story on the Family Picnic, as well as an article on the previous year's national competition winners, Video News and, again, Angela Gonzales.

CARES, according to Fermilab's head of Recreation, Helen McCulloch (who will assume the presidency of CARES on January 1, 1986), is an umbrella group for companies who wish to promote employee services. Representatives from each company meet to share information on various employee-service programs.

Jesse Guerra of Fermilab, who serves as one of two CARES Directors-at-Large, has entered NALREC's award-winning promotional program in a similar competition held by the National Services and Recreation Association. Winners of the national competition will be announced in March. Congratulations and good luck to all.

Incoming NALREC Board Members for 1986 are, from upper left, Bob Shovan, Secretary; Jo Baaske, Treasurer; Dominick Carullo, 3rd Vice President; from lower left is Glenn Lee, 2nd Vice President; Jean Plese, 1st Vice President; Jesse Guerra, President; and Rose Callaghan, outgoing 3rd Vice President.

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CLASSIFIED ADS TO BE DISTRIBUTED WITH **FERMINEWS** DECEMBER 19, 1985

FOR SALE:

AUTOS:

1984 EL CAMINO CONQUISTA. Must sell, too many cars in family, 12,000 mi., fully equiped, mint condition, 305 V8 engine; $9500 or best. Call Ernie, ext. 3924 or 377-5187 after 5 p.m.

1977 FORD GRANADA. 2-dr., 61,000 mi., newly rebuilt engine; asking $1000. Call Barbara E., ext. 3200 or 232-2184.

1977 BUICK LA SABRE. 2-dr.; $1400. Call Ken, ext. 4744.

1975 PLYMOUTH FURY. 4-dr., 6-cyl, 70,000 mi., auto/AC/PS/PB, int. in good cond., some body rust; $900 or best offer. Call Rich, ext. 3519.

1975 TOYOTA CORONA STATION WAGON. W/luggage rack; one owner, runs well, gets good mileage on regular gas, must sell before it turns into a pile of rust; $500. Call Chuck, ext. 4410 or 355-0299

REAL ESTATE:

WISCONSIN PROPERTY FOR SALE. Ten acres of timberland in Sawyer County, zoned for cabin or trailer, is 100% covered with trees! Only a mile to the Chippewa River. Good for snowmobiling, camping, etc. Taxes are less than $10 per acre. Good investment or vacation property; $500/acre. Call Ed Faught, ext. 4445 or 851-2372.

BRICK RANCH HOME. For sale, rent w/option, or rent. 3-bdrms., 2-bths, full basement, central air, fireplace, in nice neighborhood w/good schools, immediate occupancy, only 5 miles to Fermilab. Call Carl Lindenmeyer, ext. 4024.

VACATION HOME FOR RENT. Orlando, Florida area, 2-bdrms, 2-bths, townhouse condo w/full kitchen, laundry, patio, pool, sleeps up to 6, no pets, 4 mi. from Disney main gate, available: Jan. 25 - Feb. 1, 1986 or Feb. 1 - Feb. 8, 1986; $500/wk., or $850 for both, + $100 sec. dep. Call Joyce, ext. 3572 or 879-5406 after 6 p.m.

MISC:

"SNUFFY" FOR SALE. 1978 REPH 15-1/2 ft. fiberglass runabout w/1978 Johnson 70 hp. outboard, open bow seating, stainless steel power prop and aluminum spare, two 6 gallon gas tanks, AM/FM stereo radio, fire extinguisher, river bottom sytle anchor, etc., on Calkins trailer w/spare wheel/tire; $2200 negotiable. Call Ed Faught, ext. 4445 or 851-2372.

21 CU. FT. FREEZER. 4 years old; $250. Call Ken, ext. 4744.

For the following items call Tom, ext. 3755 or 293-7778: Sofa, $110; double love seat, $50.

PORTABLE KITCHENAID DISHWASHER. Gold w/butcher block top, like new; $100 or best offer. Call Jane, 879-3710.

continued on reverse

For the following items call Craig, 879-8271 after 5 p.m.: AM/FM stereo receiver Denon-DRA-300, $200; set of Bose 501 speakers, $350.

For the following items call Barb, ext. 4136: X-country ski boots, men's size 11, leather and plastic, good condition, $15; size 6 (38 cm) leather, excellent condition, $18; size 3-1/2 (34 cm) leather, well used, $8.

For the following items call Homer Clover, ext. 3685: 12x12 Camel patio tent (needs poles), $10; AM/FM/8-trk Motorola car radio, $10; AM Ford (Philco) radio, $10; AM Boman car radio, $5; FM Motorola converter, $5; 6"x9" speaker 10-ohm, $3; 2"x5" Toshiba speaker w/rear deck housing, 8-ohm, $3; 3-1/2"x5-1/2" speaker, 8-ohm, $2; full-size bed frame w/casters, $5; bunk bed w/bookcase headboard, $5; baby crib, $3; louvered divider, 3 section pr. fits 35"x45" opening, $10; new attic vent, 12"x17", $8; like-new bathroom medicine cabinet, 16"x22" mirror, $10; lawn spreader (adjustable), $5; cast-iron school bell dated 1886, $75; Universal 60 Trackmaster drafting machine fits 4'x8' board, $20; 2 metal boxes w/clasps, 1-1/2"x2-3/4"x21", good for socket set, $3 each; All the above except school bell subject to offer.

For the following items call Duane, ext. 3181: Glass sunroof for Mazda RX-7, best offer; Soundcraftsmen 20-12 audio equalizer, $50; Alpine car stereo system (models 7327, 3006 and 6202), $125; Heathkit H14 dot matrix printer, $100.

For the following items call Jeff Pearsall, ext. 3377: Pioneer SX-60 stereo receiver 80 watts/chn., computer output display, 5 inputs: 2 tapes, phono, VCR, CD/AUX, only 4 months old, great condition, $330; Pioneer CT-40 tape deck, 2 motors, one touch recording, electronic counter, Dolby B+C, music search, blank search/skip, great contition, 4 months old, $175.

For the following items call Dan Kaplan, ext. 2131 or 342-2584: 2 snow tires, GR-78-14, good condition, fit 1970's GM cars (Nova, Omega, etc.), $25 each; Blaupunkt AM/FM/cassette car stereo, $150.

KENMORE REFRIG/FREEZER. 17.0 cu. ft., auto ice maker, gold color, purchased 12/79; $375. Call 892-2386 after 6 p.m.

CROWN DOUBLE OVEN GAS RANGE. Coppertone, very good condition, clean; $150. Call R. Niemann, ext. 4896.