

The Village Trier



national accelerator laboratory

Operated by Universities Research Association Inc.
Under Contract with the United States Atomic Energy Commission

Vol. 5 No. 37

October 11, 1973

BUBBLE CHAMBER STAFF REPORTS ACHIEVEMENT

Staff members of NAL's 15-Foot Bubble Chamber Group described to the October 4 Director's Meeting the preparations of recent months that were necessary to achieve successful operation of the completed Chamber on September 29. It was a record of the gross patience necessary to a project of the magnitude of the 15-Foot Chamber. "We recognize that hardware such as this doesn't come out of the ground without the efforts of a great number of people," Dr. William Fowler, head of the group told the meeting. Dr. Fowler recounted the many groups and individuals inside and outside NAL who have been a part of the effort since he and F.R. Huson came to head the group in July, 1970. (Huson was out of town at the time of the meeting.)



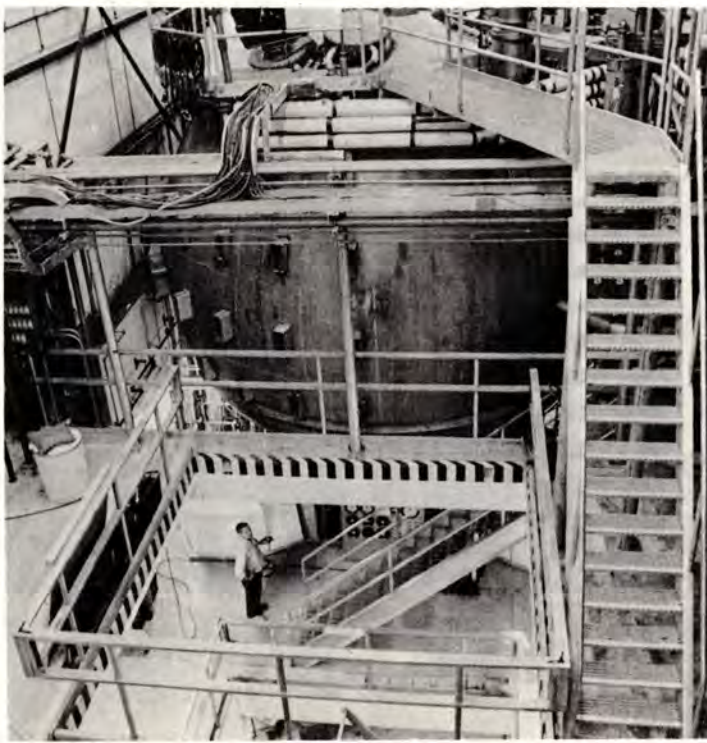
Hans Kautzky



George Mulholland

George Mulholland, who has supervised the crews and installation of the Chamber, recounted the events of recent months. He said the Chamber was first filled with liquid hydrogen on July 2, with pistons decoupled. This allowed a test of the complex plumbing system of the Chamber and the accompanying refrigeration system which fills several rooms adjoining the Chamber Room. The hydrogen was cooled to -414.4°F and stabilized on July 11, and the Chamber emptied shortly thereafter. Assembly of the expansion system at the base of the Chamber was begun in July and successfully tested on August 13, still decoupled. From then on, it was a matter of uniting the filling process with the expansion system, activating the Chamber piston and the optics and cameras so that the precise coordination required of these processes could come into being. The Chamber was filled in just eleven hours on September 29, and tracks were visible in the photograph of the third pulse of the Chamber after sufficient stroke was attained and beam from the

(Continued on Page 2)



...The NAL 15-Foot Bubble Chamber sits on a foundation anchored in bed rock, deep underneath its building located at the end of the NAL Neutrino Line. It requires three levels of building, about 60 feet from base to top. Several rooms filled with equipment necessary to the operation of the Chamber, adjoin the Chamber. Outside the building are four enormous storage tanks of the liquids to be used with the multi-liquid chamber--hydrogen, deuterium, neon, and nitrogen. The Control Room from which the Chamber is operated, is located some 200 feet from the Chamber, on the South side of Lab A, the building topped by the geodesic dome. Outside of the pulsing beat of the Booster Accelerator, the 15-Foot Chamber is the only piece of NAL equipment to exhibit a sound which characterizes its operation. The ponderous metallic thump as the piston driver expands the hydrogen in the Chamber, seems an appropriate climax in counterpoint...

15-FOOT BUBBLE CHAMBER STAFF (Continued)

accelerator was synchronized. "This success was due to the excellent operations chiefs and crew chiefs on our staff, and to our technicians, some of the best on site," Mulholland said.

Hans Kautzky reviewed the development of the Chamber piston. After the original balsa-fiber-glass piston was abandoned, he said, a metal piston -- patterned after a CERN design -- was built completely at NAL. It has passed all tests very well, according to Kautzky, and is presently installed and operating in the Chamber.

Wesley Smart explained the role and location of the optics and cameras of the Chamber. Three of the six cameras are now in operation, and a periscope is currently installed in another camera port to permit observation of the Chamber during its initial runs.

The report of the 15-Foot Chamber Group brought applause from the audience of colleagues who heard it last week. The Chamber will aim to produce two million pictures a year, according to Dr. Fowler.



...Crew A, Back Row (L-R): R. Stoever, G. Athanasiou, C. McNeal, J. Foglesong, and A. Newman (Crew Chief). Seated, J. Stoffel, Operations Chief...



...Crew B (L-R): G. Simon, D. Curtice (Operations Chief), A. Coleman, J. Kilmer, W. Noe (Crew Chief), and R. Ahlman...



...Crew C, Back Row (L-R): E. Beck, F. Bellinger (Operations Chief), C. Pitts, and J. Woodworth. Front Row, (L-R): R. Davis, J. Colvin (Crew Chief), and S. Johnston...



...Crew D (L-R): W. Smart (Operations Chief), R. Thompson, R. Ferry (Crew Chief), J. White III, S. Tonkin, and G. Gadow...



...Bubble Chamber Office Staff, standing (L-R): L. Kula, W.B. Fowler, H. Stapay, M. Morgan, F.R. Huson, L. Mapalo, H. Feng, A. Skraboly, and C. Mangene. Seated, (L-R): M. Richardson, D. Augustine, E. Renaud...



...Support Personnel, (L-R): J. Ramus, M. Dively, C. Pallaver, N. Johnson, E. Beck, J. Thompson, S. Alexander, and Paul Thorkelson (inset)...

R.R. WILSON RECEIVES MEDAL OF SCIENCE



Robert R. Wilson

Robert R. Wilson, Director of the National Accelerator Laboratory, was awarded the National Medal of Science, the federal government's highest award for distinguished achievement in science, mathematics and engineering, at a ceremony at the White House on Wednesday, October 10. The announcement of the award by the President on October 3 cited Dr. Wilson for his "unusual ingenuity in designing experiments to explore the fundamental particles of matter and in designing and constructing the machines to produce the particles, culminating in the world's most powerful particle accelerator."

The National Medal of Science was established in 1959 by the 86th Congress. It is presented to the individuals who, in the judgment of the President, "are deserving of such recognition by reason of their outstanding contributions to knowledge in the physical, biological, mathematical or engineering sciences." The President is assisted in the selection of recipients

by the President's Committee on the National Medal of Science, a committee of distinguished scientists currently chaired by Dr. Charles P. Slichter, Professor of physics, University of Illinois, Urbana. There are eleven recipients of the Medal in 1973.

Robert Rathbun Wilson was born in Frontier, Wyoming. He studied at the University of California at Berkeley under Ernest O. Lawrence, receiving a doctor's degree in 1940. While still a graduate student, Mr. Wilson began his research on the scattering of protons by protons. He went to Princeton University as an instructor in 1940 and was soon engaged, in collaboration with Enrico Fermi, in some of the early measurements of the neutron-absorbing properties of Uranium-235. In 1941, he invented the "Isotron method" for separating the isotopes of uranium. He was then placed in charge of a 50-man energy project at Princeton.

When the Los Alamos Laboratory was formed in 1943, Mr. Wilson and his colleagues moved to New Mexico to help in the formation of that laboratory where he served as director of the cyclotron group. He was named to head the Experimental Nuclear Physics Division a year later and served until 1946 when he accepted a teaching post at Harvard University. He helped design a cyclotron at Harvard before leaving in 1947 to direct the Cornell University Laboratory of Nuclear Studies. There, he and his colleagues built a progression of electron synchrotrons that started with a pioneering 300 million electron volt (MeV) machine. They were the first to apply the strong focusing principle to an accelerator when they built a 1.2 BeV machine which was then converted to a more modern 2 BeV unit. The present 10 BeV electron synchrotron laboratory at Cornell, the location of the largest electron synchrotron in the world, is named the Wilson Synchrotron Laboratory in Dr. Wilson's honor.

In March, 1967, Dr. Wilson accepted an appointment as Director of the National Accelerator Laboratory. He assembled a staff at Oakbrook from all corners of the U.S. and the world. His touch for classic simplicity, combined with originality, is visible everywhere at NAL, where he has been directly involved in every phase of the construction of the Laboratory, all the way from his concept for the accelerator magnets to the massive prefabricated concrete slabs of the circular auditorium building.

Commenting on the award, Dr. Wilson remarked, "I will be proud to receive the National Medal of Science as a recognition of the work of my colleagues whose skill and effort have breathed life into the accelerator and the experiments now being undertaken at the Laboratory. They are now exploring the innermost parts of the proton and the exotic forces that come into play in that region. I hope this recognition of their work will spur them to make the discoveries necessary to reveal a beautiful and simple form that underlies reality."

Dr. Wilson has also been a strong force behind the equal employment opportunity program in effect at NAL since its inception. Together with Edwin L. Goldwasser, Deputy Director of the Laboratory, he formulated a statement of the Laboratory's EEO position early in 1968. He continues to be a prime mover of the EEO programs at NAL. Dr. Wilson was elected a member of the National Academy of Sciences in 1957 and was the first chairman of the Federation of American Scientists. Recently, he has been featured as one of the "Men of Science" in the 1974 Science Year Book, the World Book Science Annual.

Dr. Wilson had formal training as a sculptor in the U.S. and in Italy and has had two showings of his sculpture in Ithaca, N.Y. He was commissioned to make a large sculpture for the Institute of Advanced Studies at Princeton, N.J., and another for the Festival Theatre in Ithaca.

THE INTERNATIONAL FILM SOCIETY

PRESENTS

Village

8:00

Friday,

Barn

\$1.

Oct. 12

a stark and moving
study of obsessive expiation
war guilt

THE BURMESE HARP

Directed by Kon Ichikawa
Screenplay by Natto Wado
Winner San Giorgio Prize,
Venice Film Festival.

Japan/1956



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CHARITY DRIVES SEEK FUNDS

NAL employees are reminded that several community charity agencies are now conducting fund drives. The Metropolitan Crusade of Mercy, which serves Chicago and 89 participating community chests in 155 suburbs, is among those now campaigning. The Aurora United Way and the Batavia Community Chest are local charitable agencies seeking contributions. The Batavia Community Chest, for instance, solicits funds for the home care program for nursing care for elderly shut-ins; H.O.P.E.; Rehabilitation Center for area handicapped; Tri City Youth Counselor. "Please be generous, give them all a Push," the agency asks.

Contributions to any charitable agency on the I.R.S. list of acceptable charities may be designated on the payroll deduction authorization given to NAL employees last week. Deductions begin January 1, 1974. If you have questions about any agency, or any other phase of the NAL payroll deduction plan, call Ruth Thorson, Ext. 3324. Forms for deductions for charitable purposes must be turned in to the NAL Payroll Department by October 17, 1973.

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FLU SHOTS AVAILABLE

Flu shots are now available in the NAL Medical Department, 24 Sauk in the NAL Village. One booster shot is given to those who have received flu shots previously; two shots, eight weeks apart, are necessary if this is the first inoculation. All employees are eligible to receive the shots at no charge. For further information, call Dorothy Poll, Ext. 3232.

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BEST WISHES...

....To Mr. & Mrs. Paul Hutchison (Ruth Druschel, Accounting) following their marriage on September 22 in Las Vegas. The Hutchisons are living at 740 S. Spencer, Aurora.

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FIRE PREVENTION WEEK FILMS -- Auditorium, Thursday and Friday, October 11-12, 9:30-11:30; 11:30-1:30; 1:30-2:00....V O'CLOCK BREAK - Wednesday, October 17, 5:15 p.m. - Village Barn....TAKE A STEP BACK IN TIME TO THE "ROARING '20's SPEAKEASY NIGHT," Saturday, October 27. Further details in next week's VILLAGE CRIER.

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CLASSIFIED ADS

FOR SALE - 1969 Pontiac Catalina Hdtop, fac. air, \$1290. Call T. Wilson, Ext. 3701 or 469-3897.

FOR SALE - 1967 VW Sedan, needs muffler, runs good, \$500. Also a 1969 BSA 650 Motorcycle, black w/chrome, good cond., \$500. Call Ralph Ovitt, Ext. 3719 or 896-6521 after 6 or weekends.

FOR SALE - Motorola 88D mobile transceiver w/solid state pwr. supply, tuned for 52.525 MHF. Buyer must have valid radio amateur license, \$25. Call J. Shaffer, Ext. 3137 or 3184.

FOR SALE - 1969 Motorcycle, 305cc, new battery & tire, \$450. Call Wally, Ext. 3140 or 393-1837.

FOR SALE - 1970 Maverick, Red, stick shift, 5 new tires, muffler, 25 mpg., excel. cond, \$950. Call Homer Branch, Ext. 3621.

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