MEMBERS of the Heights YMCA Open House committee which planned arrangements for the event held last weekend, are shown here completing a preview tour of facilities of the new 3,980 sq. ft. building. From left are K. A. Smith (4369), member of the Heights YMCA Board of Governors; Mrs. Mary H. Beighley, Board of Governors member; The Rev. Charles Fish, St. Marks on the Mesa Episcopal Church; A. W. Hollister, Executive Secretary of Albuquerque YMCA; and Sydney Webber, Exec. Dir., Heights YMCA.

Skip those costly greetings!

Sandia Employees Urged To Have True Christmas Spirit

A tradition among Sandia Corporation employees will be observed again this year. Each year as Christmas approaches, many Sandia organizations give to charity rather than go to the expense of exchanging Christmas cards with fellow workers.

Much of this Christmas giving is done through the Albuquerque Council of Social Agencies. The Council especially welcomes cash contributions as it often means benefits may be extended rather than limited. Eighty-four per cent of the Sandia Lab employees made some contribution.

The total figure includes $366 contributed by Sandia Laboratory Federal Credit Union employees and $325 donated by Anderson-Duchesnay, Commercial Club visitors. One hundred per cent of Credit Union employees contributed.

"It is significant," W. R. Rosenberg (4300), RHC committee chairman, said, "that while the total number of employees at the Laboratory is about 200 less than last year, the funds collected totaled about the same. Average gift of members of the plan has increased $1.47."

"The committee urges," Mr. Rosenberg said, "that employees still have payroll deduction cards in their possession turn them in immediately. Second appeal re-evaluation cards that are distributed to all employees last week are also due."

Of the funds collected by the ECP, about 25 per cent are distributed to 24 health and welfare agencies of the Albuquerque United Fund. The remainder will be divided on a percentage basis among nine other national health service agencies in this area.

These agencies are American Cancer Society, Albuquerque Association for Retarded Children, Bernallino County Heart Association, United Fund of Pueblo Association of Bernallino County, Muscular Dystrophy Association of America, National Arthritis and Rheumatism Foundation, National Multiple Sclerosis Society, Parade of Homes Association, and American Association for Mental Health.

Lab Employees Give $120,400 To ECP, Tally Not Complete

A total of $120,400 had been contributed to the Sandia Laboratory Employees' Contributions Plan as the Lab News went to press. With still 240 employees remaining to be contacted and returns from a second appeal not complete, the total above is not a final tally.

Seventy-five per cent of Sandia Laboratory's 6615 employees have joined the Employees Contribution Plan, which calls for a minimum gift of $12. Average contribution of this group is $34.87. Other employees contributed an average cash gift of $4.30 during Open House activities last weekend.

The event was a culmination of efforts beginning in 1956 when the capital fund drive to construct the building was approved by the Albuquerque United Fund. Involuntary in the efforts that followed was a group of Sandians who have long been active in the YMCA organization.

Some 40 Sandians have already purchased charter memberships in the new Heights branch. Other Sandians have served and are serving as officers.

Serving on the downtown YMCA Board of Governors are R. W. Henderson (1430) and R. B. Powell (3600). Members of the Board of Governors for the new Heights YMCA are K. A. Smith (3600), L. J. Holliman (3600), D. J. Jenkins (1430), W. R. Rosenberg (4369) and John McLaey (4369).

Present for opening ceremonies were Archie Westfall, president of the Greater Albuquerque Chamber of Commerce; The Rev. Simon Nieto, president of the Albuquerque Ministerial Alliance who made the dedicatory benediction; and The Rev. Charles Fish who addressed the group.

Inside the gleaming 20,000 sq. ft. building, located on Indian School Road near San Mateo NE, visitors viewed the large 20x30 ft. heated swimming pool, courts, room, social activities room, kitchenette, lounge and club room.

"We are all very pleased to see this long-sought goal accomplished," K. A. Smith said. "It represents the combined efforts and generosity of many civic-minded individuals and groups."

As chairman of the program planning committee for the new Heights YMCA, Mr. Smith stressed the fact that the new facility will place high priority on establishing programs and facilities for family participation.

Activities memberships are available in the Heights YMCA, AL-L-6959. They are youth memberships, 8 to 10 years of age, $12 annually; or 12 to 15 years of age, $15 annually; adult memberships, 18 years and older, $18 annually; and family memberships, father, mother and children under 18 years of age living in the same household, $50 annually.

Secondly, the Heights YMCA will augment the long established service provided by the downtown YMCA, AL-L-6958. They are youth memberships, 8 to 10 years of age, $12 annually; or 12 to 15 years of age, $15 annually; adult memberships, 18 years and older, $18 annually; and family memberships, father, mother and children under 18 years of age living in the same household, $50 annually.

Future plans for the new building include addition of more space and a gymnasium wing. The design is adjustable to add additional 3,000 sq. ft. to bring the total to 32,000 sq. ft.

Hartley Jensen Will Moderate Panel at Shock Symposium

Hartley Jensen (6112-2) will moderate a discussion on the Zero Shift in Peaceful Transduction at the Ninth Shock Vibration and Associated Hazards Symposium to be held at the Oakland Naval Supply Center Nov. 17. Chairmen and Ted. E. Smart (7101) will present papers on the subject, a new, complex field in the field at Livermore and Sandia.

Nike-Zeus System Subject of Talk For Colloquium

Dr. D. P. Linz, Bell Telephone Laboratories, will speak at a re- search colloquium on Wednesday, Nov. 16, at 9:30 a.m. His subject will be "The Nike-Zeus System."

Tickets are required for the meeting which will be held in Bldg. 615.
Editorial Comment

Classified Information vs Classified People

All G-cleared persons here at the Corporation are familiar with the two common classes of classified information — documents and materials.

CLASSEIFIED DOCUMENTS

Another much larger and more sensitive class exists, however.

CLASSIFIED PEOPLE

We can lock documents in a safe or we can burn them; we can cover and put a fence around materials. But the G-cleared individual who possesses classified information, or even sensitive information, even in bits and pieces, must ultimately control himself to protect that information. He must lock his tongue against all unauthorized or careless discussions. He must fence himself against all outside contacts that might subvert him. He must follow the rules of security to do his duty as a Citizen when dealing with classified information.

Emily Gilmore Delight To Business Women’s National Convention

Emily Gilmore (3435) was official delegate for the Albuquerque chapter at the American Business Women’s Association national convention in Indianapolis last month.

More than 4000 women from all parts of the United States attended the three-day meeting. One of the main functions of the association is granting scholarships to worthy girls.

Emily accepted several awards for the Albuquerque chapter in recognition of their accomplishments during the past year.

Recovering Bonnie Prantner (2444-2) is now at home following major surgery. She and her family will expect to return to work about Nov. 18.

Sympathy

To Leslie N. Behnfeld (3112) for the death of his father Oct. 26 in San Antonio.

To William F. Laveroux (4254-1) for the death of his father-in-law Oct. 25 in Albuquerque.

To A. R. Effert (8230) for the death of his father-in-law in St. Louis, Mo., Oct. 16.

To Earl A. Paxton, Jr. (8232-3) for the death of his father in Minasota, Mich., Oct. 8.

To C. D. Crawley (8225-1) for the death of his father in Westcliff, Colo., Oct. 16.


To J. Wayne Ellis (7143) for the death of his wife Nov. 3 in Albuquerque.

To William H. Seelbach (4252-4) for the death of his mother on Oct. 22.

To Roger H. Johnson (4231-1) for the death of his father-in-law on Oct. 25.

Weddings

Helen Mazz (4115-3) and Powell Henderson (3234) were married Oct. 21 in an afternoon ceremony at La Mesa Presbyterian Church. Afterwards friends and co-workers entertained them at the Western Skies.

Helen has been with Sandia eight years and Powell has been at Sandia Laboratory six and a half years.

Dorothy Shaffer (7140-3) and Robert R. Bennett were married Oct. 22 at the First Methodist Church. They will reside in Albuquerque, New Mexico.

Dorothy has been at the Corporation two and a half years.

Ann Edwards (8213-3) and Robert R. Bennett were married Oct. 22 at the Pinesgrove Community Church, Pinesgrove, Calif. Ann has been with Livermore Laboratory since May 15, 1940.

Wedding bells will ring for Lucille Blake (7145-1), Nov. 30 in London, England. She will marry Laurence Moore, retired from the United States Information Agency.

The couple will make their home in Ankara, Turkey, where Mr. Moore is American Correspondent. Lucille has worked for Sandia Corporation nine years.

Congratulations

Born to:

Mr. and Mrs. C. R. Mehl (3111) a daughter, Nina Elizabeth, Oct. 23.

Mr. and Mrs. Don Gorseine (7241-1) a son, James Neal, on Oct. 11.

Mr. and Mrs. Willis E. Sharp (7242-2) a daughter, Phyllis Ann, on Oct. 17.

Mr. and Mrs. Robbie Chapman (7243-1) a son, Gary Lloyd, on Oct. 26.

Mr. and Mrs. Robert Paul (4253-2) a son, Richard Paul, on Oct. 27.

Mr. and Mrs. Julio Larios (7244-1) a son, Gary Lloyd, on Oct. 26.

Mr. and Mrs. Jerry Kaul (7117), ext. 24161, a son, Bill Kaul, on Oct. 9.

Mr. and Mrs. Jerry Sturkie (3466-1) a son, Gary Lloyd, on Oct. 26.

Mr. and Mrs. Richard A. Holt (7243-2) a son, Gary Lloyd, on Oct. 26.

Mr. and Mrs. Betty Blake (4135-1) Nov. 30 in Los Angeles, Calif. They have been married for two years.

Mr. and Mrs. A. R. Eiffert (3466-1) a son, Gary Lloyd, on Oct. 26.

Mr. and Mrs. R. E. Poole, Vice President at Livermore, for her contributions to Sandia LAB NEWS.

Sandia Corporation

ALBUQUERQUE, N. MEX. • LIVERMORE, CALIF.


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LIVERMORE laboratory reporters for the L.A. Times, lab news, and the annual reporters’ luncheon, held Oct. 7. At the speakers’ table (rear) are (l to r), Bob Hanks, assistant editor, R. S. Gilliam, LAB NEWS Editor, Dick Dickson, assistant editor, and R. E. Poole, Vice President at Livermore.
Group Travel to Europe at Reduced Rates Sponsored by Coro

The Coronado Club is offering to sponsor chartered vacation travel to Europe at reduced rates for its members if enough interest.

Sundians Guests of Honor at Salute to Polesin

W. J. Howard, Director of Systems Development at Livermore Laboratory, and F. J. Maloney, supervisor of Project Engineering Division D-13, were among the guests of honor at a Navy Day dinner saluting the nation's Polesin missile development team.

Special events at the dinner, held in Washington, D. C., were key officials from each of the Polesin prime contractors, as well as the Washington, D. C., Chief of Naval Operations, Commandant of the Naval War College, and Chief of the Bureau of Ships.

Principal speaker was Vice Admiral William F. Rayburn, Jr., who recently received the Distinguished Service Medal for his efforts in the Polaris missile development team. He came to Sandia from the original group from Los Alamos in 1946.

Still in the Army, Tex helped set up the Development Shop organization and worked as a machinist. When discharged, he returned to the same job as a civilian.

Prior to the war, Tex was a machinist with the Eureta Tool Company at Drumwright, Okla. He served his apprenticeship with the company at Ranger, Tex., his home town.

The country feels of friendship in the Group is being promoted by the Membership Committee of the Association, comprised of about 35 families living in and around the Sandia Mountains.

Speaker: Dr. J. E. Reynolds, Motorola

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The New Mexico Section of the American Society of Mechanical Engineers will meet at Los Alamos on Nov. 23. The meeting will be held at the Lodge and is to be followed by an inspection trip of the Los Alamos Scientific Laboratory Reactor Facility.

Wives and friends are invited, according to Richard Kieko, Jr. (2337), publicity chairman. A special program and tour has been arranged for the ladies which will include a brief non-technical description and tour of the reactor site and a tour of the City of Los Alamos. Members and guests should make arrangements for their own transportation.

Lunch at the Lodge will begin at 12:00 noon. Tickets purchased at this lunch will be $2 but advance tickets sell for $1.75. Contact Newton Anderson (3331), 833, 3629, for additional information.

SINGLES TENNIS CHAMPION of Sandia Laboratory is H. S. "Hup" Walls (3231) shown above demonstrating the service that was the edge in defeating Charlie Chaves (2365) in final playoffs.

Welcome Newcomers

ALBUQUERQUE

Ellie M. Dephnum 2002
Charlotte J. Johnson 2003

New Mexico

Zetha W. Durango 2002

Return from Leave

THEme ARCHIVE

Deborah Barlow

New Mexico at Livermore

Winston J. Ate, San Diego 3125-4
William E. Sprague, Livermore 3125-5
Lillian R. Peck, San Lorenzo 3231-7
Harriet J. Hill, Piedmont 3231-8

 Coronado Club Offers Buffets, Dancing, Party On November Calendar

Thanksgiving buffet-dance will be held at the Coronado Club Thursday, Nov. 24, from 5 to 10 p.m. The buffet lines will be open from 5 to 7, and dancing will be from 6 to 10. Leith Sprague's orchestra will play.

Tickets are $2.50 for members, $3.50 for guests, and $1.25 for children. Tickets should be picked up at the Club office by Nov. 21. There will be House Parties for unmarried members of the club Friday, Nov. 25, from 4 p.m. to midnight. There's no admission charge. Recorded music for dancing, free beer and dips will be supplied by the Club. Only Club members may attend.

Since the 3100 organization has cancelled its Christmas dance on Friday, Nov. 18, social hour and the $1.75 buffet will be offered as usual. Al Hamilton's band will play from 5:30 to 8:30 p.m.

All Club members are invited to the free graduation ball for dancing class members on Saturday, Nov. 12, from 9 to 1. Recorded music will be provided for dancing.

Lucky Horsehoe helps Harold Faulkner (8114-4) win top honors in the Livermore Laboratory horseshoe tournament with a record of 10 wins and one loss. Runner-up was D. B. Sparger (8233).
Demonstrating their prowess in sports are these five technical staff members of Sandia, from left to right: Tom Lane, Bill Zimmer, Subway, Dain, and Max Newsom. Poses represent letters. (1 to r) Tom Lane, Felting and R. C. Dougherty. Poses represent letters.

Labor News

Three Sanitans Attend Dust Control, White Room Conference

Three Sanitans attended a symposium on Dust Control and White Rooms at Arizona State University recently. A 10-page paper entitled, "Dust Monitoring in the Superpower Plant," was presented by Max Newsom, of the Dry-Slide Spreading Corporation.

They are E. M. Kedel (4252), C. R. Munch (2533), and H. Baxter (4634). Authors of the paper were Mr. Kedel, Mr. Munch, and W. J. Whitfield (4551).

The symposium was sponsored by the Phoenix Chapter of the American Institute of Plant Engineers.

In addition, Mr. Whitfield addressed an American Society for Testing Materials meeting in Skytop, Pa., on "Occupational Hazards and 4 as a member of a committee on the control of contamination in materials for electronics semiconductor devices. At that time he discussed the test procedures and technique covered in the paper mentioned above.

Ben Aikin Heads Livermore Ass'n For Gifted Children

Ben Aikin (8232-5) was recently elected chairman of the Livermore Association for Gifted Children. The purpose of this group is to interest the community in the needs of the exceptional child. Mr. Aikin has been active in the organization for over a year.

He is a consultant on Personnel, Ping-Pong and Power Conversion Devices Division 1321, graduated from the University of Colorado in 1954 with a bachelor's degree in electrical engineering.

Bill Zimmer, who received a PhD degree in mathematics from Purdue University and a bachelor's degree in mathematics from St. Joseph's College in 1959, earned football and tennis letters at Sandia since 1955 and 1956. A member of Project Division 8131, Max has been at Sandia as a engineer since 1954. Mr. Silk, supervisor of Pressuring and Power Conversion Devices Division 1321, graduated from the University of Colorado in 1954 with a bachelor's degree in electrical engineering.

Back from Reserve Duty

Richard Richards (8141-1) returned to Livermore Laboratory after spending two weeks active duty at Kirtland Air Force Base in Albuquerque. Major Richards was assigned to the Weapons Ordinance Branch of the Air Force Special Weapons Command (AFWCC) for AFROTC program. He was awarded a bachelor's degree in mathematics in 1941. In 1953 he received his master's degree in mathematics at the University of South Dakota. He has been with Sandia Corporation since 1953.

Max, Tom, and Len have been in temporary work in division 8141 for the two years he has been at Sandia.

Raymond E. Collins, who won four letters in football and three letters in baseball while at St. Mona, St. College State in New Jersey, received his bachelor's degree in economics there in 1958 and his master's in personnel administration at the same school in 1958. He has been at Livermore Laboratory a little more than a year, working in the Product evaluation Division 8116.

Ken Flynn has worked more than three years at Sandia in Warhead Electrical Systems Division 8141. He received three letters in basketball from North Dakota Agricultural College, where he graduated in 1957, with a bachelor's degree in electrical engineering. Ken, a varsity basketball player for two years, was awarded his BS degree in electrical engineering from the University of New Mexico in 1948. He has been at Sandia for eight months working in Plant Engineering Design Division 8123-1.

R. C. Dougherty, who won his varsity letter in rifle, earned his bachelor's degree in mechanical engineering from the University of Mako in 1953 and his master's in 1958. He has been in preliminary work in division 8141 for the two years he has been at Sandia.

The symposium was sponsored by the Phoenix Chapter of the American Institute of Plant Engineers. The lecture was recently published in booklet form by the State University printing office.

Entitled "Interrelationships of Dimensions of Community Systems - A Factor Analysis of 82 Variables," the article was co-authored by Mr. Kedel, a professor at Ohio State. The article uses mathematical techniques to determine the seven basic factors for measuring the degree of social or economic significance.

Mr. Peres received his PhD degree in industrial engineering (1964) in Massachusetts, and his bachelor's degree in mathematics at St. Joseph's College (1959). He has been at Sandia since the fall of 1963.

Eugene Aas (8144) as a member of a group whose purpose is "to interest the community in the needs of the exceptional child." Mr. Aikin has been active in the organization for over a year.

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Ohio State University

Published Article by Sherwood Peres

A technical article by Sherwood H. Peres (3133), prepared two years ago as part of his work toward a doctor's degree, has recently been published in booklet form by the Ohio State University printing office.

Entitled "Interrelationships of Dimensions of Community Systems - A Factor Analysis of 82 Variables," the article was co-authored by Mr. Kedel, a professor at Ohio State. The article uses mathematical techniques to determine the seven basic factors for measuring the degree of social or economic significance.

Mr. Peres received his PhD degree in industrial engineering (1964) in Massachusetts, and his bachelor's degree in mathematics at St. Joseph's College (1959). He has been with Sandia Corporation since 1953.

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A new facility at Sandia, the Physical Electronics Laboratory, will make it possible for Sandia to support research and development organizations in the design and fabrication of vacuum electronic devices.

"This is a new capability for Sandia Laboratories," according to D. A. Watt, supervisor of Electrical Division 4233. "The aim of the lab is to support Sandia's research and development organizations in their current requirements for unique vacuum electronic devices. We can now do here part of the research work previously carried out by other laboratories. As a result we provide better process control plus more convenience."

The lab, located in Bldg. 834, is presently staffed by four technicians, two of them staff sides. All of the equipment was built according to Sandia specifications.

Final stages of work and testing of vacuum electronic devices are carried out in a specially-con- structed stainless steel and glass "clean room." Absolute cleanliness is used to guarantee the high quality of the vacuum devices. In this room the temperature is maintained within plus or minus two degrees of 70 degrees Fahrenheit and humidity is always below 50 per cent. The interior is cleaner than a hospital surgical room with a filter eliminating all dust particles down to one-tenth of a micron (or one ten-millionth of a meter) in size.

Before entering the clean room, employees enter an ante room to don special lint-free nylon smocks, shoe covers and hoods. They then stand in an air shower to be blasted by compressed air for 15 seconds.

Within the room there are vacuum bell jars for vacuum brazing and vacuum evaporation (metals are deposited on certain surfaces by first vaporizing the metal). There is a control panel to regulate a radio frequency induction heating capability which can be fed into a vacuum bell jar. Spot welders and heli-arc welding equipment are built into enclosed work benches which utilize absolute air filters.

Outside, in an adjoining work area, is a machine in which a vacuum ranging down to 10 to the minus eighth power millimeters of mercury can be obtained. A bake-out oven is lowered over a high temperature glass manifold on which a tube or other device is mounted. Maximum temperatures of 1000 degrees F. bake out the undesired gases and contaminants which are mechanically pumped out of the mounting. When the desired vacuum is reached, the glass is heated with a torch and pinched off to form a seal.

After a part has been fabricated, it is usually ready for brazing in one of the hydrogen furnaces. One uses "dry" hydrogen—the hydrogen is bubbled through water—and is utilized in making ceramic to metal seals and ceramic metalizing. Both furnaces range in temperatures up to 3200 degrees F. Although one of the most explosive gases known, hydrogen is used because of its protective atmosphere which helps keep the item clean. Hydrogen is consumed at the rate of 75 bottles a week (each contains 225 cu. ft.). This gas and others such as nitrogen, argon, helium and carbon dioxide are stored outside of Bldg. 834 in a special gas house.

Steps undertaken to achieve clean working devices include chemical cleaning, ultrasonic vapor degreasing, and rinsing in deionized water. The equivalent of water distilled 38 times.
Sandia Service Awards

November 11, 1960

LAB NEWS
PAGE SEVEN

Sandia Golf League Champions Named

Championship team of the 1960 Sandia Golf League was dis-

cerned recently when winners of each of the six flights com-

ited for the title in 18-hole match play. The second flight were

came out on top were R. Kidd (285), John Kline (281),

nd Fred Fulkerson (443), Allan Freeland (417), and

ick Lloyd (444). "D" Flight was a Western Leaque.

ed out by half a point were Glen Leland (252), winners in "A" Flight.


Other Finalists were: "B" Flight.


Byals Chapman,

John Kline,

Fred Fulkerson,

K. W. Tomlinson,

Bob Kline

Newcomers.

John Kline

Fred Fulkerson

Glen Leland

Glen Leland

10 Years

John Kline

Fred Fulkerson

Glen Leland

Newcomers.

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Man’s Responsible for Work Done By ‘Electronic Brains’

"There are many types of intelligence," Al Iacocetti of Mathematical Services Division 7242 says, "and the IBM 704 computer cannot be called ‘intelligent’ unless you qualify what you are saying. However, the machine can perform masses of mathematical computations with a speed that is amazing."

Without the 704 and other ‘electronic brains’ like it, technology as we know it today would be tremendously handicapped. It would take hundreds of mathematicians using desk calculators months to perform the calculations required for a scientific problem which the computer solves in a matter of minutes. Yet behind this remarkable performance is a mass of intense work by a mathematician who has written the program directing computer action."

Machines don’t think

FROM THE PROGRAM, written by Al Iacocetti, the 704 computer produced the large plot Al is holding above. This in turn became the small disc held in his right hand. The disc is a key component for a photoelectric scanner device under development by Org. 7234.

The first approximation yields an even better second approximation. This in turn yields a third and closer approximation, etc. Successively better approximations are obtained until the solution is achieved to the desired degree of accuracy. In this particular approach the angle thus evaluated for a point on the spiral is used as the first approximation for the next point.

After the mathematics and the associated solution logic have been determined, the programmer writes a ‘flow chart.’ This is a detailed diagram of the logic, instructions, and mathematics as the computer will perform it. This in turn is transcribed into ‘symbol’ language on punched cards.

Symbolic Language

The resulting ‘deck’ of cards constitutes the program in one of several symbolic languages. Since the computer utilizes only ‘binary language,’ a system of only 1's, 0's, positive or negative, to describe every value, the symbolic language is an intermediate step to enable the programmer to easily perform his work. For instance, in one of the symbolic languages ‘CLA’ means ‘clear and add.’ In binary language the same operation code would read 00101001.

A prewritten auxiliary program in the 704, an assembler, automatically performs the function of converting the symbolic cards into a binary deck. These cards, in turn, are loaded into the computer for a check of the program.

Manually, the programmer has solved a few key computations of the program. By checking these against the results of the computer, an accurate check is performed on the mathematics and the logic involved. Knowledge of the physical situation which the program is describing also provides a criterion for the evaluation of the computed results.

Built-In Checks

The 704 also has built-in checks. An impossible instruction or a missing step will be detected by the computer. The machine stops functioning and an error light flashes on the control panel.

The programmer must then follow the results of the program as performed by the computer until the error is located and corrected.

In the case of the scanner disc, all went well. The computer provided the necessary coordinates for location of the dots on the spiral. This information was fed into an auxiliary piece of computer equipment, a plotter, and a graph resulted.

Some touching up by hand (to enlarge the size of the dots) was performed and in turn the graph was photographically reduced.

The resulting negative became the pattern for a disc, produced by printed circuit techniques, with tiny metallic dots on a thin circle of plastic. Diameter of the disc was about two inches and contained a precision pattern of dots that transcribed a perfect spiral.

"The computer is ideally adapted to solve this type problem," Al said, "since the iterative process is performed by the computer and laborious, with a multiplicity of points to be added," said Al.

Actually, Al continued, "the computer can solve any problem in which mathematical expressions can be found. Hundreds and thousands of individual data can be processed, reduced, or mathematically manipulated."

Sandia’s Safety Record

Livermore Laboratory
HAS WORKED
7,900,000 MAN HOURS OR 1726 DAYS
WITHOUT A DISABLING INJURY

San Joaquin Laboratory
HAS WORKED
7,000,000 MAN HOURS
OR 20 DAYS
WITHOUT A DISABLING INJURY

‘THE COMPUTER can solve any problem for which mathematical expressions can be found. Hundreds and thousands of individual data can be processed, reduced, or mathematically manipulated.’