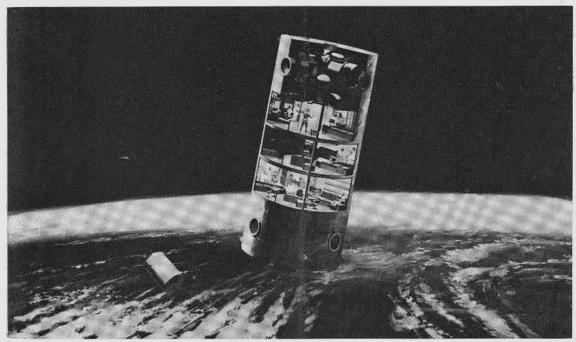


Space Division Skywriter Downey, California Volume 29 Number 30 August 1, 1969



HOME AWAY FROM HOME — Artist's drawing suggests a 12-man space station of the type that may develop from Space Division study now under way. Station would include storage area, crew quarters, laboratory-experiment area and a special area to be used for physical conditioning. Circles seen at top and bottom are multiple docking ports; at left are experimental modules.

INITIAL PHASE OF NEW SPACE STATION STUDY UNDER WAY

team was at work this week on the initial phase of a NASA study to design and plan a space status by mid-1970.

program definition studies awarded by NASA.

Program manager for the division study is Dr. Ian Dodds who heads a team including M. A. G. Robinson, assistant program manager for Operations; Earl Cole, chief program engineer and A. A. Tischler, assistant chief engineer. Serving as technical advisor for the study is Dr. Krafft Ehricke.

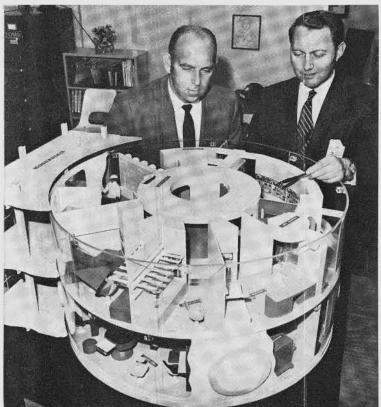
The study work will be performed at the Seal Beach facility. Dodds said the study group will be moving to Bldg. 81 there in mid-August.

Working with the division as prime subcontractor is General Electric's Space Division at Valley Forge, Pa. GE is providstation which could reach flight ing support in the definition of experiment requirements and laboratory module design, in in-The \$2.9 million project is laboratory module design, in in-one of two parallel 11-month formation management systems, and in other areas in which that company's capabilities complement the division's.

> Prime goal of the study will be the preliminary design and planning of a 12-man Earth-orbital space station which could be developed by 1975 and would have an operational life-time of 10 years with resupply of supplies and equipment and the rotation of crews.

> Also included in the study is the conceptual design of a 50man space base made up of specialized modules assembled in

(Continued on Page 3, Column 5)



MODEL FOR STATION - Dr. Ian Dodds, right, Space Division study program manager, and A. A. Tischler, study assistant chief engineer, check station model showing crew quarters command and control area, and lab and experimental areas.

Dr. Mueller Sends Congratulations To NR on Apollo 11

Dr. George C. Mueller, associate administrator for Manned Space Flight, NASA, has congratulated North American Rockwell upon the success of the Apollo 11 flight and said that in the future there is a "sound lunar program which I believe will provide us with returns beyond even our most visionary predic-

His letter, addressed to J. L. Atwood, president, read:

"My heartfelt congratulations to you and your people on the Apollo 11 flight! It was a magnificent mission and a dramatic demonstration of the skills and technology created in the Apollo Program. Thanks to the dedication, the perseverance, and the vision of your organization, we have now carried mankind across the threshold of interplanetary exploration - a first step to an exciting new era.

"In Apollo there has been laid the foundation of operations and capabilities upon which our nation can now build a program to explore and eventually use the world of space for the benefit of all mankind. In a very real sense, each one of you has created an (Continued on Page 2, Column 4)

Astronaut Says Cost Will Pace Space Travel

Cost is the limiting factor of future space exploration, astronaut Walter Cunningham said last week.

Cunningham, who flew last October on the first manned Apollo mission, was principal speaker at the annual Cost Reduction banquet held at the Long Beach Elks Lodge.

"It's no longer a question of whether we will explore the planets-man will one day exceed the speed of light," Cunningham said. "Rather, it is when and, to an extent, the (Continued on Page 3, Column 4)

Division Status Will Be Aired at Special Briefing

Supervision To Hear Bergen, Others on **Division Programs**

Several hundred members of supervision are expected to Third Quarter tomorrow at a special briefing by President William B. Bergen and other members of Management Council on the division's status.

The briefing will be held from 9 a.m. until noon in the dome

To gain admission to the special briefing, it will be necessary for all members of supervision to show their regular company identification badges to the division patrolmen on duty at the Long Beach Elks Lodge.

auditorium at the Elks Lodge, 4101 East Willow St., Long Beach.

Welcoming remarks are to be made by Joseph P. McNamara, executive vice president, who sent a letter of invitation to each member of supervision.

J. E. Franklin, vice president, Advanced Programs, will discuss new contracts signed or in negotiation and the division's prospects for new business gen-

Robert E. Greer, vice president and program manager, Saturn S-II Program, will dis-(Continued on Page 2, Column 4)



William B. Bergen

Company Reports on Sales, Earnings

North American Rockwell Corporation last week reported sales of \$626,058,000 and net earnings of \$18,516,000 or \$.70 per common share for its third fiscal quarter ended June 30, 1969. This compares with sales of \$654,934,000 and net earnings of \$19,803,000 or \$.76 a share for the third quarter of

Sales for the first nine months of the current fiscal year were \$1,873,280,000, compared with \$1,974,057,000 for the first nine months of last year, while net earnings were \$50,840,000 equal to \$1.91 a share, compared with \$53,996,000 or \$2.05 a share for the first nine months of

Amounts for all periods include the operating results of companies acquired on a pooling of interests basis.

J. L. Atwood, president and chief executive officer, and W. F. Rockwell, Jr., chairman of the board, noted that operating profits of NR's Commercial Products Group in the first nine months of fiscal 1969 were up approximately one third on a 14 percent sales increase over the first nine months of 1968, while aerospace sales and profits were down.

Substantial sales increases were experienced by the Automotive Divisions of the Commercial Products Group. Hatteras Yacht had record sales in the first nine months, and demand for Aero Commander and Sabreliner general aviation aircraft was well above last year. The Boston Gear, Morse Controls and TMW Divisions also had substantial sales gains.

The NR executives explained that among factors that continued to act as a brake on earnings were higher interest rates, lower sales volume in the Aerospace and Systems Group, less favorable profit rates on certain government contracts, (Continued on Page 3, Column 5)

Following is the text of a message telephoned to employees by Space Division President William B. Bergen, a few minutes after the Apollo 11 command module had landed safely in the Pacific Ocean:

"As you know, Eagle has landed men on the moon and Columbia has brought them safely back to Earth. Apollo 11 is now history. As well as all previous spacecraft has performed, Apollo 11 has done even better. As of this moment, for example, there are no known anomalies on any of the Saturn V stages and a very minimum on either our spacecraft or the LM. This is but the first step.

am hopeful that before many days President Nixon will make as meaningful a statement about our future space program as was the lunar challenge. In the meantime we do know this: The decision was made this week that the AAP, the Apollo Applications Program, will use the dry workshop instead of the wet workshop. While this will mean a slip in spacecraft schedules, it will mean that we will now use additional S-II stages as the S-IV will be used as a dry workshop booster.

"As of yesterday we were awarded a parallel Phase B study together with the McDonnell Douglas Aircraft Corporation for the Phase B development of the future space station. I am sure additional Apollo spacecraft will be required for the interim shuttle for this station. In the meantime we must also prepare for the competition for the shuttle which, as you know, will be a completely reuseable vehicle.

"You all have done a superb job and I know that you are ready for the challenge of the future. Again, let me extend my congratulations and say that I am as proud as I can be

that I am a member of your team. Thank you."

Dr. Mueller . . .

(Continued from Page 1, Column 3)

invaluable legacy for future gen-

Lon Kight Named VP-International; Becomes Officer

A. B. "Lon" Kight has been elected vice president, International, by the board of directors of North American Rockwell Corporation, it was announced elected vice president-Interna-this week by Executive Vice President Robert Anderson.

Kight was staff vice president-International, before being elected to the new position which makes him an officer of the corporation.



tional evidence of our determination to increase attention and effort in the international markets,

"Elevating

from the staff

operations and acquisitions,' said Anderson.

The company has more than 80 subsidiaries, affiliates and licensees in more than 20 countries on all continents.

Reporting directly to Anderson Kight will remain in the Pittsburgh headquarters of the Commercial Products Group. He is responsible for direction of all international activities of the corporation.

Kight joined NR last March as vice president-International for the company's Commercial Products Group. Prior to that time, he was with the Borg-Warner Corporation. In 1954, he was made vice president of Borg-Warner International and in 1962 president. After two years in that position, he became president of the compa-ny's Norge Division. He was named a corporate vice president in 1962, a position he held until joining NR.

Kight received an AB degree from Harvard University, an LL.B. from Columbia University Law School and an MBA

WHEN ASTRONAUTS WALKED THE MOON

World Responded with Enthusiasm

When Neil Armstrong and that the "superhuman and his-German rocket scientist, now Edwin Aldrin walked on the toric adventure" of Apollo 11 director of NASA's Marshall moon July 20, much of the should provide an antidote for world responded with New the young to the negativism, de-Year's Eve-like celebrations. Though this jubilation has now abated, admiration for the astronauts and America continues undiminished.

Londoners danced and sang in Trafalgar Square in front of a giant television screen. Queen Elizabeth II cabled President bassy. On the night following Nixon, "I send my warmest the landing, one Russian said, congratulations to you, to the "I won't feel easy until they are congratulations to you, to the American people . . .

In Tokyo, a sign on Japan's tallest building emblazoned, "Three cheers for Apollo 11." Temporarily, fierce controversies over reports of nerve gas on Okinawa and sharp trade differences were eclipsed.

In Paris, as in most other world capitals, tributes to the United States were unstinted. Luna 15 was considered an "intruder" by most commentators. Many Parisians followed the neck. progress of Apollo 11 through the night, then organized celebration breakfasts.

In Italy, Pope Paul VI said

cadence and defeatism of the 'professionals of protest."

By Soviet standards, Russian news media gave fair if unenthusiastic coverage of the Apollo 11 mission. Nevertheless, calls from private Soviet citizens flooded the American emcrew of Apollo 11 and to the back on Earth safely. Then I will weep and cry from joy.'

In India, Hindu Pujas-ancient prayers said in Sanskritwere chanted for the safe return of the astronauts. At a New Delhi hotel, an American tourist awoke to find servants who had heard over the radio about the lunar landing-awaiting outside his bedroom. When he emerged, they applauded while a gardener hung a gar-land of flowers around his

West Germans shared the pride in mankind's achievement and noted the role played by Dr. Wernher von Braun, former

Space Flight Center, Huntsville, Ala.

The European Broadcasting Union estimated that about 600 million persons watched video pictures of man's first steps on the moon. Including Eastern Europe, 49 nations received Apollo 11 pictures via satellite.

In an editorial the Christian Science Monitor, commented, "... Regardless of one's age or position, everyone can stand a little taller, feel a little stronger as a result of this soaring adventure of mankind's. Instead of diminishing the Earth, it makes it all the larger . . ."

Briefing . . .

(Continued from Page 1, Column 4) cuss the present and future of this second stage of NASA's Saturn V launch vehicle.

Dale D. Myers, vice president and general manager, CSM Programs, will give a status report on Apollo and the outlook for CSM programs.

Bergen will discuss the division's general status and will be available for questions as will other members of Management Council.

Earl Blount, division director of Public Relations, will serve as master-of-ceremonies.

Members of supervision are invited to write their questions in advance or to ask them from the floor.

It is suggested that the "uniform of the day" be informal attire, such as slacks and sports

"For the immediate future we have defined a sound lunar program which I believe will provide

us with returns beyond even our most visionary predictions. In carrying forward this program, let me ask you to emphasize to each of your key people the crit-ical importance of maintaining a high level of reliability and assuring that every individual associated with each of the next Apollo flights continues to do the right task at the right time. The outstanding success of Apollo to date is a tribute to the personal commitment of hundreds of thousands of men and women across the nation and around the world. The future course of the space program will depend on our ability to maintain this incredible record of success.

'I would very much appreciate it if you would convey my deepest thanks to each person in your organization. The unprecedented progress of the program is a reflection of the spirit, the loyalty, and the boundless energy of your people. Your leadership and dedication have encouraged progress here on Earth as well as in space, creating common bonds that millions of people can see and share."



North American Rockwell News

I. S. Elliott Editor, Skywriter Judy R. Brown Assistant Editor

Published weekly by North Amer-Lakewood Blvd., Downey,

SC/108 and S-II-7 Joined at KSC; Await Nov. 14 Launch

Space Division-built SC/108 | launch Nov. 14. and Saturn S-II-7 already are stacked in the Apollo 12 Saturn V in the Vertical Assembly Building at NASA's Kennedy Apollo 11 lunar landing. Nina Underwood, left, and JoAnn Van Building at NASA's Kennedy Valkenburg, CSM Programs, view paper from Cologne, Germany. Space Center in readiness for

Lt. Gen. Samuel Phillips Apollo program director, told reporters at a news conference following the successful landing of Apollo 11 that the primary lunar landing area for Apollo 12 will be in Site No. 7 in a western mare area of the Ocean of Storms.

Prime crew selected for Apollo 12 is composed of Spacecraft Commander Charles "Pete" Conrad, Lunar Module Pilot Alan Bean and Command Module Pilot Richard Gordon.

Principal objectives of the mission will be the obtaining of scientific materials and data in what is hoped will be an area different from that explored July 20 by the Apollo 11 crew.

Present plans call for Conrad and Bean, during two periods of extra vehicular activity, to be afoot on the lunar surface between five and six hours, approximately twice the period Neil Armstrong and Edwin Aldrin were outside the lunar module. Moreover, Conrad and Bean expect to be able to range several hundred feet from the LM in contrast to Armstrong and Aldrin, who as the first lunar explorers, remained relatively close to the lunar craft.

A secondary objective of the Apollo 12 mission will be an



The Space Division has been | for the lunar sample test is Dr. selected to test and analyze a lunar soil sample.

A small amount of lunar dust -about two grams (70 thousandths of an ounce) will be consigned by NASA to the division, said Albert C. Jones, program manager and principal administrator responsible for the lunar sample experiment.
Two grams of lunar dust are ley, scientist and co-investigative, scientist and co-investigative. ble full, or equal to about 1/4 teaspoon of salt,

The lunar sample will be flown to Downey after the soil has been quarantined for at least 21 days.

Then the pinch of priceless and historic dust will be translaboratory at North American Rockwell's Science Center in Thousand Oaks, Calif. where a new type of spectrometer will seek to unveil the sample's origins and type. The spectrometer will analyze and measure energy which the sample absorbs.

Principal science investigator Nobel Peace Prize.

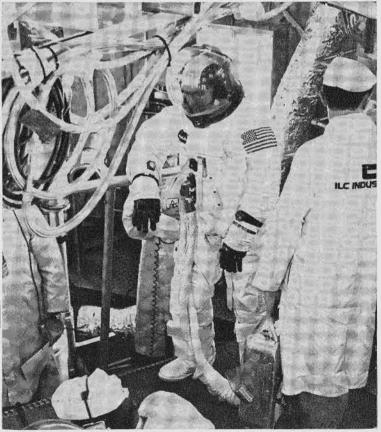
Arthur H. Muir, Jr., NR physicist, whose scientific team will concentrate on iron content and its distribution in the sample. Distribution of iron may help determine whether the material is volcanic or meteoritic.

WORLD ATTENTION — Largest type available appeared on

The laboratory will utilize Mossbauer Effect spectroscopy to do nondestructive test tor. It permits analysis of grains that cannot be identified by conventional means because of small size or amorphous (formless) nature. The technique works like this:

Radioactive material is placed in the spectrometer and emits gamma rays. The rays are ported to a specially prepared transmitted through the lunar sample. Then, a spectrum is produced on a small screen and tells the scientists the characteristics of the material.

The method is named for a German scientist, Professor Rudolf Mossbauer, whose discovery in 1958 netted him the



APOLLO 12 PREPARATION — Apollo 12 Command Module APOLLO 12 PREPARATION — Apollo 12 Command Module attempt to find and examine Pilot Richard Gordon prepares to enter the CM for simulation in NASA's Surveyor 3 unmanned an altitude chamber at NASA's Kennedy Space Center. The next spacecraft which landed in an lunar landing mission is scheduled for Nov. 14. Other crew area close to Lunar Landing members are Comdr. Charles Conrad and LM Pilot Alan Bean. Site No. 7 in April, 1967.

Lambeth Retires After Serving NR Nearly 34 Years

R. A. Lambeth, vice president and senior financial advisor of North American Rockwell Corporation, is retiring after serving nearly 34 years as an officer of the company,

In announcing the retirement, J. L. Atwood, president and chief executive officer, said: "Our current financial strength and our record of paying cash dividends each year since (and including) 1948 are attributable in no small measure to the expertise and dedication which Andy Lambeth brought to the

company's fi-nancial man-agement."

Lambeth joined the company as comptroller in 1935. He became treasurer in 1938, was elect-

Lambeth ed a director in 1940, was named vice president-Finance in 1942 and senior vice president in 1958.

When North American Rockwell was formed by the merger of North American Aviation and Rockwell-Standard Corporation on Sept. 22, 1967, Lambeth assumed the duties of vice president and senior financial adviser and a director of the new corporation. In anticipating his retirement this year, Lambeth did not stand for reelection to the board of directors at the company's 1969 annual meeting of shareowners last February.

Born in Laclede County, Mo., on Oct. 3, 1902, Lambeth was one of five boys in a farm family. He received his earliest schooling in a one-room schoolhouse and was graduated from high school in Lebanon, Mo.

Orphaned by the death of both parents within a year while he was in high school, Lambeth was forced to earn his way early in life. After graduation he held clerical jobs for brief periods at Swift & Co. and the St. Louis & San Francisco Rail-

Moving to Chicago, he joined the Yellow Cab Manufacturing Co. and studied accounting and cost procedure at night school. He was successively promoted while with Yellow Cab and served as assistant cost ac-countant, assistant chief disbursing clerk, and supervisor of branch house budgets. A series of mergers eventually resulted in the formation of the General Motors Truck Co. and promotion for Lambeth to traveling

and regional auditor.

He became affiliated with aviation on Sept. 1, 1931, when

Astronaut James A McJ he accepted the position of comptroller of Western Air Express at Burbank, Calif. He was made the treasurer of General Air Lines, a subsidiary, and later became the treasurer of Western Air Express.

In March, 1935, Lambeth returned to Missouri as assistant treasurer of Transcontinental & Western Air, Inc. In September of that year he joined North American Aviation, Inc., then at Baltimore, Md., as the comptroller.

Lambeth married Eileen Slat-er of Los Angeles in 1942. They have two children, Patricia and Robert, Jr.



principal speaker at the annual Cost Reduction banquet last week at Elks Lodge, Long Beach, told audience that future space programs will require same quality spacecraft but at less cost. captured first place in the annual Cost Reduction competition.

PROGRESS REPORT

Astronauts Being De-Briefed; Soil Samples Under Study

Laboratory, Houston:

termine whether they suffered primarily for iron content. any adverse effects from their lunar landing missions. Physi- are assisting NASA in comcians quarantined with the as- mand module sterilization tronauts thus far have found procedures for the CM interior. the Apollo 11 crew to be in The historic spacecraft was present plans call for the trio to week after division crews deacbe released Aug. 11.

examining the precious 70 to Downey Aug. 13.

At NASA's Manned Space-pounds of lunar rock and soil craft Center Lunar Receiving Laboratory, Houston:

At NASA's Manned Space-pounds of lunar rock and soil samples gathered by Armstong and Aldrin July 20. Analysis of Neil Armstrong, Mike Collins and Edwin Aldrin were extake months and the Space Ditensively de-briefed this week vision in conjunction with the and are dividing the remainder North American Rockwell Sciof their time between relaxing ence Center is to receive four and medical examinations to de- grams of lunar dust to analyze,

excellent physical condition and flown to Houston earlier this tivated its systems in Hawaii. Scientists are systematically The spacecraft is to be returned



THREE AWARDS - Hal Raiklen, left, Saturn II chief engineer, accepts on behalf of S-II Engineering three Technology Utilization plaques for outstanding performance during April-May. Others pictured are, left to right, Bob Manoli, John Wessel, Tony Fioretto, Don Thomas and Mike Wistock, all TU coordinators. his organization."

Mick O'Mach & Buster



ASTRONAUT ADDRESS - Astronaut Walt Cunningham, FIRST PLACE - Charles Feltz, left, assistant general manager, CSM Programs, accepts Buc Trimmer trophy from Joseph P. Mc-Namara, executive vice president. CSM Programs, with 106 points,

Cost Reduction . . .

(Continued from Page 1, Column 3) 'when' will be paced by cost fac-

"For Apollo Applications, and programs beyond that, we will need the same outstanding quality spacecraft you're giving us now but it will have to cost less," Cunningham now serves as chief of astronaut liaison for Apollo Applications.

Joseph P. McNamara, executive vice president, presented Apollo CSM the annual Buc Trimmer Trophy as first-place winner in the annual competition. McNamara gave trophies also to Saturn S-II and Ma-terial, who tied for secondplace, and to Quality and Reliability Assurance, who came in

Sherman E. Ellis, vice president, Administration, gave special recognition awards to Rolly Willett, of Apollo CSM, and to Jack Chapman, of Saturn S-II.

"Rolly's efforts kept his organization among the top three competitors all year. Apollo CSM has consistently supported the cost reduction program with the highest reported dollar savings of any Space Division organization. In fact, Apollo's dollar total exceeded the combined total of all other division organizations."

Of Chapman, Ellis said that 'Jack delayed his retirement until next month to see his organization through the tough competition. Nearly half of the

Sales, Earnings . . .

(Continued from Page 1, Column 5) and expenses in competing for new military aircraft.

NR is one of three companies left in the competition for the Air Force F-15 advanced air superiority fighter. Selection of the airframe development contractor is expected late this year or early in 1970.

Hailing the achievements of Apollo 11, on which NR was the largest contractor, the executives said that despite comple-tion of that epochal mission, NR still has remaining a space business backlog of approximately \$850 million.

Referring to the earnings per share, Rockwell and Atwood said that gains arising principally from the sale of certain assets and technology, which were treated as extraordinary income items, contributed \$.15 a share to net earnings for the third quarter and \$.17 a share for the nine months ended June 30, 1969. They added that if the Administration's proposed Federal tax legislation is enacted, earnings would be reduced by \$.02 a share for the third quarter and by \$.05 a share for the nine-month period this year.

Total backlog of unfilled orders was \$3.3 billion on June 30, 1969, compared with \$3.6 billion a year earlier. The backlog total on June 30 this year included \$1.5 billion of commercial orders and funded aerospace orders and \$1.8 billion of authorized work not yet funded but being negotiated. The comparable figures a year earlier were \$1.3 billion and \$2.3 billion, respectively.

Space Station . . .

(Continued from Page 1, Column 2) low Earth orbit in the late 1970s and early 1980s. The base would be a centralized facility in orbit comparable to a scientific and technical research, development and operations center on Earth.

NASA said scientists and engineers of many disciplines could utilize its unique features, such as weightlessness, vacuum, Earth viewing and unobstructed celestial viewing, for a large variety of research and applications activities.

Logistics systems to resupply expendables and rotate crews of both the space station and the space base will be included in the study.

McDivitt Named Apollo Manager,

Astronaut James A. McDivitt, a frequent visitor to the Space Division, has been named manager for Lunar Landing Operations in the Apollo Spacecraft Program Office.

McDivitt, 40, who served as Apollo 9 spacecraft commander, will be responsible for planning lunar landing missions sub-sequent to the first landing. Emphasis will be on landing site selection, mission planning and requirements for spacecraft modifications to achieve mission objectives.

The new position removes him from consideration for space flight crew assignments.



CANINE CELEBRITY - N. J. Goldstone cradles family pet with famous name, while his daughter, Erika, 5, proclaims, via a says Erika Goldstone, 5, hold-home-made sign, that "Apollo von Lunar Victory" sleeps here. ing up a hand-lettered sign,

PERMANENT PLAQUE PLANNED

Apollo Unaffected By Fame

N. J. Goldstone, assistant to "Apollo Sleeps Here!" A perthe vice president, Apollo Ap- manent plaque is planned and plications CSM, is learning there will be a suitable unveilwhat it's like to live with a ing ceremony. celebrity.

"Apollo von Lunar Victory", called simply "Apollo".

Apollo and the lunar landing undetermined." mission.

"Apollo is a famous dog,

How is "Apollo" taking this characteristic con- fame? Goldstone explained that fidence, Goldstone 31/2 years ago unlike some other Hollywood formally registered his newly residents, the press notices have acquired dachshund with the not changed him a bit. "He still American Kennel Club as spends his days chasing Perigee, a seven-month-old male alley cat, Horatio, a 11/2-year-old This week, throughout the world, front pages of newspa-cat, and, Horace, visiting neighpers have been proclaiming borhood squirrel, age and sex

'UFO' Signals Tamed by



PHYSICIST - Sal Fallone points to High Gain Antenna which outfoxes errant signals.

REMARKABLE ACHIEVEMENT

Crews Attain Perfect Saturn S-II Circumferential Weld Again

er: Crews have achieved a "per- the other while the welding actial weld for the second time!

Day and night crews welded No. 5 cylinder to No. 6 cylinder of the S-II-14 without an X-ray or dye-penetrant squawk.

Last March, S-II weldors at Seal Beach had their first "perfect" circumferential weld.

The finished weld is 1,244 inches, but including all of the weld passes, the welding torches traveled the length of a football field and the crews completed more than 24 hours of continuous operation.

In order to make this complex weld, post-trim cleaning is started at noon. The night crew then finishes the cleaning and positions the facing ends of the 33-

The day crew starts at that time and makes the first "interrupted" tacking pass. During metalfitters. these weld passes, the crews are divided into two teams, one for each weld head. Each team consists of an exterior weldor and crew and an interior weldor and

The interior weldor monitors the burn-through of the weld head and with his communications headset coordinates the arc control with the outside weldor.

Both teams are coordinated by the station leadman who monitors also the rotation of the welding heads.

Scott, manager, Vehicle As sembly, S-II Manufacturing, says that "once the cleaning for the weld has started, the crews must complete the welding opertion. It's like a juggling act with

Womens' Cue Crew Seeks Registrants

Girls, take a cue from Mary Ann Gravley, of the Division's Cool Cue Crew.

Registration for a new women's pool league will be at Black Jack's in North Long Beach, 7:30 p.m., Thursday, Aug. 14. Girls will compete for 1st, 2nd and 3rd place trophies and prizes in straight pool, no handicap.

Additional information may be obtained from Mary Ann, Ext. 4373, 4050, or from Loretta Van Tienen, Ext. 2121, 2179.

E, B. Scott couldn't be proud- one team stepping in to relieve or operation by any one of the crew would be disastrous.

Major Sub Assembly Welding ber of the Commission. and Bonding Dept., listed the Garland previously following team members:

Night crew: L. A. Schemper, supervisor: B. B. Roberts, leadman; J. P. Tonso, leadman; G. W. Edmiston, weldor and Apolonio Ramirez, W. D. Welke, E. R. Valles, G. N. Kolb, J. R. Jaramillo, L. B. Olvera, William Cendejas and G. H. Miller, all metal fitters.

Day crew: K. A. Saenger, supervisor; J. A. Gilbert, supervisor; R. E. Boner, leadman; M. Barnes, leadman; P. A Quinlan, leadman; A. A. Gray, J. A. Harvey and W. T. Sanfoot cylinders forty thousandths of an inch apart (to allow for penetration of the weld arc) at about 4:30 a.m.

J. A. Harvey and V. J. Chez, weldors, and Louis Pietrocci, R. R. Hernandez, Z. Y. Jamie, R. L. Bright, M. L. Heyen, G. L. Gartrell, S. A. Anderson, G. E. Oravetz, J. H. Easum and D. D. Hunt, all

Garland Named Downey Planning Group Chairman

employment representative, Perfect" Saturn S-II circumferen- tion continues. One missed area sonnel, has been elected chairman of the City of Downey Planning Commission after hav-A. P. Shultz, manager of the ing served two years as a mem-

> three years on the City of Downey Personnel Advisory Board and was one of the original members of the Parks and Recreation Commission when Downey took over this responsibility from Los Angeles County two years ago.

In addition, Garland is a member of the Personnel Commission of the Downey Unified School District, and served as those from Earth. this commission's first chairman two years ago.

Saturn V Engines

Saturn V launch vehicle have cause it used equipment needthrust ratings from 72 pounds lessly and drained electrical to more than 1.5 million pounds. power that must be conserved Some engines burn liquid during complicated lunar land-

Jack Garland, professional

Garland previously served

propellants, others use solids. ing missions.

Sophisticated Antenna Unidentified flying signals | automatic tracking antenna.

The antenna has been carefully refined to outfox the mysterious and random radio signals that zip through the heavens.

"The universe is full of strange radio signals that are not well understood (or welcome) during Apollo flights," said Sal Fallone, Space Division physi-

"These random noise sources could be from stars, sun spots or who knows?

The unidentified flying signals troubled deep space radio operations during earlier flights.

Apollo 11's lunar spacecraft had improvements built into its special S-band high gain tracking antenna to filter out the vagrant signals and pull in only

Fallone said the random signals set the deep space antenna on Apollo 8 flopping around in an attempt to track them. This, The 41 rocket engines of the he said, concerned engineers be-

The S-band high gain antenna from "who knows where?" no is used for transmission of telelonger taunt Apollo's deep space vision pictures and, when the spacecraft reaches the vicinity of the moon, for transmission of data voice communications.

Fallone said the highly sophisticated circuits for the deep space antenna are etched into crystals of silicon. The etching is then filled with gold and other exotic materials to create the circuitry features needed to operate the tracking antenna. "Etched circuits," said Fallone, "have everything — transistors, circuits, capacitors and resistors all in a block the size of your little fingernail."

The physicist said that Apollo 11's antenna circuitry was refined to reduce the unwanted

"This circuitry is now more precise," said Fallone. "The band is narrower and more selective. It has a narrower frequency spectrum.'

The refinements, he said, reduce the mysterious radio noises because these signals are less coherent and are on a wider



Classified Advertisements

- FOR SALE

- 66 Riviera Gran Sport, full power, a/c, \$2,995. Stutzman (D), 256-7485.
- '67 Chevy, Air, Mags, 633-7138. '68 Chevy 34 Pickup, 714/528-3698
- 65 Dodge, 4 door, 865-3294. 59 Ford, 531-0557.
- 66 Ford Econoline Super Van, 894-5409.
- Chev. V/8, \$1500, ME 4-4380.
- 66 Plymouth Satellite, UN 3-5858.65 Olds F85, Stick, 921-5479.
- Skylark, Air, Manual, 529-3739.
- 59 Sprite, 923-7083. 56 T-Bird, 431-4127. 57 VW, 596-0645.
- 64 VW, \$900, 430-0109
- 64 VW Bus, \$1260, 861-2178 8 VW Sunroof, \$1675, 592-5192
- 69 VW Auto., \$1995, 714/871-8560, 66 VW Sundial Camper, \$1775, 837-9261.
- 5 Jaguar 3.85 automatic, am/fm. Robinson (D), 714/838-1785.
- 64 Chev 34T w/Camper Kit, 714/892-1373. VW Dune Buggy, incomplete, 714/828-

Dune Buggy, Meyers Manx, ME4-6993.

MISCELLANEOUS-

- 9' Kakanamoku surfboard, 962-4139, Jr. size accordion, \$125, 714-774-0710. Mark Ten ignition, \$31, 865-0016.

- 10' Cabover Camper, 1 ton p/u, TO King Size Bdspread, Turquoise, 328-5817.
- Mark Ten Ignition, \$29.95, 865-0016. Upright Piano, 925-4666. Sewing Machine, \$15, 421-2935.
- Port. Sewing Mach., \$20, 433-804.
- 12'x18' Rug, Bitrgrn, \$65, 920-2786. Showcase, 24'x36"x70", \$50, 943-8357. Gaffer-Sattler Grill, 714/536-1584. Circular Bar/4 Stools, 764-4792.

MISCELLANEOUS-

- 63-67 Corvette Windshield, \$20, 865-0016. Antique Clocks & Watches, 421-1640. Spalding Exec. Golf Clubs, 691-8130.
- Golf Irons, Wilson, \$30, 714/897-6072 Naugahyde Furn., Rug. 714/828-
- New Wedding Gown 12T, 429-7291. Reg. Slate Pool Table, 860-6047
- Baritone sax, goldplated, case and stand, \$300, 714/JE 7-3845. Large Old Elec. Train, 714/826-1396.

3 pc. Antenna Tower, 714/894-5409. ANIMALS-

- Germ. Sht-haired pointers, 714/637-3446. Dachshund, AKC Registered, 714/528
- AKC Airedale Pups, 213/379-3119 Manchester Terrier, 868-8455 Part Malamute Pups, \$10, 869-7662 Beagles, Champion Sired, AKC, 714/847-4096.

RIDE WANTED/OFFERED

- Wanted—Pac. Cst. Hwy. & Cherry, 599-6431. Wanted-Norwalk to Seal Beach, 921-4869.
- Offered, Pool, W.L.A.-Dny., 276-9733 Wanted, Bastanchury & Associated Rd., 7:00-3:30, 879-1979.

FOR RENT-

Cabin, Mammoth-Sierras, 714/846-3533. Vacation Home Big Bear, 336-6014. Hi-Sierra Vac. Home, NE 2-4133.

APPLIANCES-

Coppertone Refrig. & Stove, \$225, 921-4867.

LOST & FOUND-

Lost/black female Poodle, 864-1308. WANTED-

26" Girl's Bike, Phone after 6:00 p.m. 213/670-3935. 2½ x 2½ Negative Enlarger, 714/529-5041.

Navy officer uniform, size 40, reg. service dress khaki, Buerger (D), 377-7460.

HOMES-4 bd., 2 ba, Long Beach, 421-0244.

BOATS-

- 18' Outboard, \$1325, 714/827-5624. 28' Race/Cruise Sloop, \$5500, FR 5-4836. 14' Glasspar G3 Ski Boat, TO 1-1815
- 16' Bt., Trailer, Twin 45 hp motors, 320-
- 2 Sabot Sailboats, OX 5-8622.

MOTORCYCLES-

- '64 Scout, 4-wh. dr. w/winch, 634-6272.
 '66 Suzuki X-6 Hustler, 446-0811.
- '67 Triumph 650 cc, 862-7488.
 '68 Kawasaki, 175 cc, \$430, 862-6051.

TAPES, RADIOS, TV-

2 Type CRV Receivers, 714/527-1050. Concord Cassette Tape Deck, 714/535-0511. Pract. New TV \$75, 925-5839.



BRIDGE INVITATION - Pam Goldstein, director, Space Division Bridge Club, invites all division employees to attend Club meetings, Tuesdays at 7:30 p.m. at the Downey Recreation Center. Novices as well as experienced players are welcomed, either to play or watch. Each player is guaranteed a partner. Further information may be obtained from Pam; call Extension 4483.