

THE HARDWARE AND THE PEOPLE

Joint Apollo Manufacturing team from Bonded Structures and Structures Assembly Depts. combined efforts for defect-free job through structure assembly on Apollo Spacecraft 113 command module inner crew compartment, fairing, and service module. Next step is systems installation.

BERGEN FORESEES CONTINUING NATIONAL SPACE PROGRAM

Full confidence in the future of North American Rockwell and in the work being done on the Apollo/Saturn program by the Space Division was expressed by the company's leading executives Tuesday night at Seal Beach's annual Top Management meeting.

Spotlighted in the event were NAR President J. L. Atwood, W. F. Rockwell, Jr., chairman of the board; John Moore, Aerospace and Systems Group president, and division president William Bergen.

Bergen, who was the opening speaker, noted that NASA's decision to make the Apollo 8 mission a lunar orbit flight "is a terrific milestone and a compliment to all our employees."

"In the NASA meetings leading to the decision on the mission, there was absolutely no question as to the integrity of our hardware," emphasized Bergen.

Commenting on the Space Division's immediate future, Bergen said there is no question in

his mind that there will be a continuing national space program. He added that division efforts in future applications of Apollo and Saturn S-II hardware were gaining momentum.

He said the division also would actively pursue business opportunities in the fields of unmanned space systems, nuclear energy rocket development, ocean systems, and Earth resources.

"I consider it a great privilege to be here among the proven professionals," said Moore in his opening remarks. "But as we look ahead to Dec. 21 that is when the real proof of our professionalism will be displayed to the world."

Looking to the future, Moore said the company is making every effort to again put NAR in the forefront as one of the nation's leading military aircraft builders. To this end, he said, the company has formed the North American Aviation Divisions, and put into the organ-

(Continued on Page 2, Column 3)

Company's First TV Documentary Due on Nov. 29

"The Scientist," first of the "Man and His Universe" series of television specials being sponsored by North American Rockwell, will be seen in color on Friday, Nov. 29 on ABC-TV (Ch. 7) at 10 p.m.

The special will examine the public and private lives of a group of young scientists and the contributions they are making to the future through their efforts to unravel some of life's secrets.

The program seeks to understand enthusiastic scientists with a view to discovering the attitudes and personality traits that lead a man to this career. For this purpose "The Scientist" will look into the lives of Dr. James D. Watson and Dr. Walter Gilbert along with a group of graduate students at the Harvard Biochemistry Laboratory.

Watson received the Nobel

(Continued on Page 4, Column 4)

Way on Spacecraft 103

Astronaut Crewmen Take Part in Final Electronic Checkout

A flight readiness test, one of the last major milestones leading to launch, is in progress today at NASA's Kennedy Space Center on the Apollo 8 space vehicle which will take the first Americans into orbit around the moon.

The test, in which astronaut crewmen Frank Borman, Jim Lovell, and Bill Anders are participating, is a final electronic checkout of Apollo Spacecraft 103, payload for the flight, and its systems under simulated flight conditions.

Next major step on the road to the moon for the spacecraft and its 36-story tall Saturn V launch vehicle, which includes the Seal Beach-built Saturn

S-II-3 stage, is scheduled for Dec. 7. This will be a two-part countdown demonstration test (CDDT), which will be a full-scale dress rehearsal of the complete 101-hour prelaunch countdown.

The CDDT starts with a "wet" phase, in which the entire launch vehicle will be fueled. This will be followed by a "dry" (Continued on Page 2, Column 3)

Defect-Free Spacecraft 113 Stack Completed Through Structures

A defect-free Apollo spacecraft stack—command module inner crew compartment, fairing assembly, and service module—has been completed through structure assembly by Apollo Manufacturing.

The milestone task, on Apollo Spacecraft 113, was accomplished by employees of Apollo Bonded Structures and Apollo Structures Assembly. The command and service modules were bought off through NASA inspection, and the fairing assembly through division inspection, as is required, without a mar.

Next step in the completion of Spacecraft 113 will be the initial systems installation work by the Apollo Manufacturing Installations dept.

The achievement gains added significance with the fact that the Spacecraft 113 inner crew compartment is the first to be built under the new "half shell" assembly concept, said Dale Myers, vice president and Apollo program manager.

With the new concept, the inner crew compartment is divided into halves—forward and

aft sections—during structures buildup and installation of the equipment bays. The new plan is hailed as a major stride in manufacturing techniques.

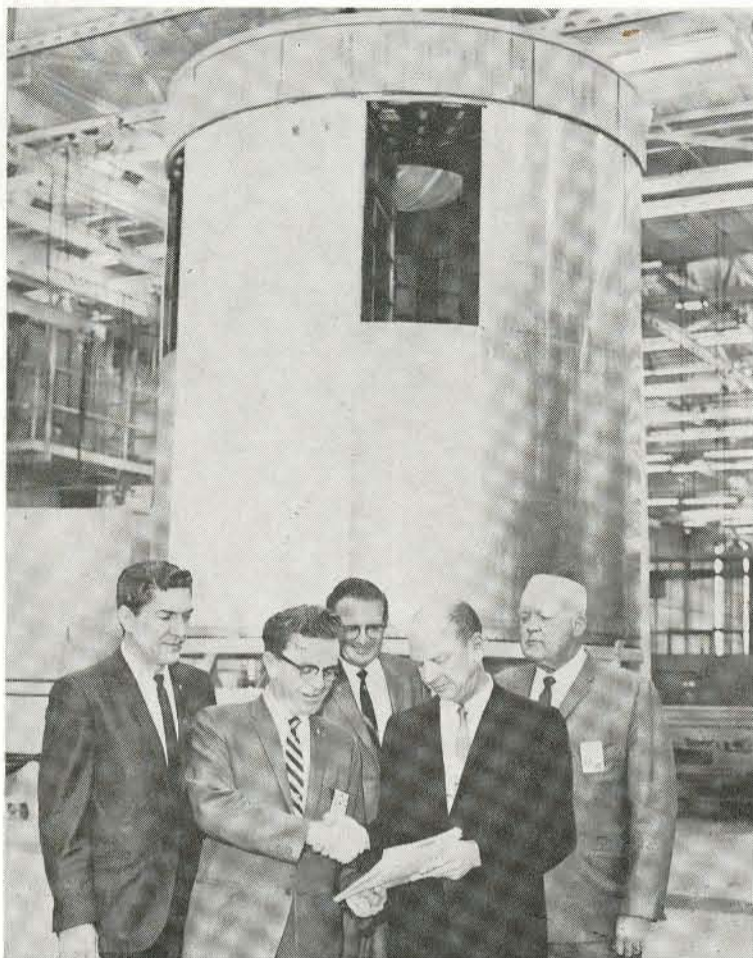
During the operation, the equipment bays are pre-fit and the holes drilled for the next step, the actual installation of the bays. This is followed by closeout welding, bonding, and other operations which join the two sections. The new concept saves valuable schedule time and aids in improving work quality.

"This growing capability to fabricate Apollo spacecraft hardware without defects is an outstanding demonstration of the high quality workmanship of Space Division personnel," commented Myers. "Their attention to detail is tremendously important to the performance we are looking for from the spacecraft in flight."

In work on the inner crew compartment alone, members of the Manufacturing team installed approximately 3,200 detail parts and 1,850 nut plates, (Continued on Page 2, Column 1)



MAN OF SCIENCE—The lives of such men as Nobel prize-winner Dr. James D. Watson will be brought into focus on Friday, Nov. 29 at 10 p.m. when the North American Rockwell special, "The Scientist," will be telecast in color over ABC-TV.



ERROR FREE — Mike Riley of NASA Manned Spacecraft Center resident Apollo spacecraft office at Downey, second from left, congratulates Bob Giovanine, Apollo Quality Assurance, following completion of inspection on Apollo Spacecraft 113's defect-free command module inner crew compartment, fairing, and service module. In background from left are Tony Ciotta, Tom Blair, and Bill Smith, all of Apollo Manufacturing.

Defect-Free SC-113 Stack...

(Continued from Page 1, Column 5) and mounted some 405 brackets, in addition to precision drilling 9,081 holes, said Bill Smith, manager of Apollo Structures and Subsystems.

Fabrication of the fairing assembly included installing 800 detail parts and 500 nut plates, and precision drilling 2,200 holes. On the service module, about 1,100 nut plates and 750 mounting brackets were installed, and 8,139 precision holes were drilled.

"The three assemblies have about 25,000 welded, bonded, and mechanically-fastened components, and each one of these items had to pass individual inspection at least once during the assembly time," Smith emphasized.

"Completion of this job without any defects didn't happen by accident," said Tony Ciotta, general supervisor of Apollo Bonded Structures. "Our employees set this goal in their own minds and did everything they could to bring it to reality."

"We put a lot of planning into the effort, and we had goals and objectives throughout the job," Ciotta noted. "Much of our success was due to the outstanding attitudes of everyone and close working relationship between supervision and mechanics, the outstanding teamwork between our people and the NASA representatives on the job, and the help we received from all those departments which supported us."

Working with the two manufacturing departments on the

Basketball Signups Start

Applications for teams and individuals interested in participating in division basketball league play are available at the Downey Recreation and Welfare office. Persons interested in playing are requested to register as quickly as possible.

job was Tom Blair, half shell effort coordinator for Smith. From Apollo Bonded Structures were Ciotta and Max Arndt, assistant general supervisor. And:

Service Module Structure Installation—Herb Baird, supervisor; Jess Hill, work coordinator; Tom Stringham, special assignments; Leadmen Kenny Holladay, Don Krietz, John Buzze, and Orville Harris.

And Larry Ryslay, Les Threlkend, Oscar Pieper, Cecil Stafford, Jim Kiefe, Tom Allen, Roy Parrish, Willy Draughn, Orville Harris, Ernie Taite, Al Roman, Al Williams, Bob McCullough, and Bernard Fears.

Command Module Secondary Structure Installation—on the first shift were Bob Reed, E. R. Sagrillo, J. H. Stinnette, L. B. Olvera, C. O. Frappier, P. M. Jost, W. M. Culwell, W. C. Luurtsema, Ed Johnson, Maurice Kuhn, Monte Moore, and R. H. Delventhal. Second shifters were Leadman R. L. Johnson, W. C. Tademey, Al Fisher, F. R. Hudzietz, H. H. Hickman, and R. L. Badger.

The Apollo Structures Assembly crew was headed by General Supervisor John West and Supervisor W. H. Kistler, and included:

Walt Lee, Tony Chacon, Hal Tenney, Ozzie Osborn, Charlie Neff, Jack Shockley, Bill Seymour, Warren Mouw, Al Stevens, Elmer Grsen, Bill Quinn, Frank Rezza, Gil Hanes, Loren Chambers, Charles Neil, Bill White.

And Al Pearson, Vern Anderson, E. Carver, S. Barrios, Tom Taylor, Fred Powers, Jack Pilgram, Lee Klug, Sam Sampson, Tom Chavez, Manny Barron, Joe Espinosa, L. B. Kolb, Jack Sward, Stan Wong, Ray Benda, Jack Twombly, H. C. McKinley, Ray Pina, and Walt Zelasko.

Top Management...

(Continued from Page 1, Column 2) ization the "best it has to offer."

The company has three major targets in the aircraft field. The first is the Navy VFX carrier-based, general purpose fighter, and the next is the Air Force FX aircraft. Further down the line is the Air Force AMSA, Advanced Manned Strategic Aircraft.

Expressing his optimism on the success of the Apollo 8 mission, Atwood said his feeling "is not mathematically derived, but an observation based on extensive experience not only with hardware but with the people who are doing the job."

Atwood said that the company in recent years has faced numerous difficult problems and technical challenges in accomplishing its goals. As examples, he pointed to the Apollo/Saturn program, the advanced work at Autonetics, the B-70 program, and various rocket engine and atomic reactor projects, all of which have set new standards in every way.

"I believe that we have a very positive momentum and energy potential in our field that is unusually strong at this time.

"We have overcome the technical difficulties," he said, and it has become apparent that we have done a very excellent job in every way.

"The results are beginning to show so powerfully, that it is my feeling that this potential is growing and the dynamics of this momentum are moving strongly in our favor.

"I would like to reiterate my opinion that we haven't spent our energy, we are gathering energy," Atwood declared. "With this conviction, my confidence is exceedingly high."

Rockwell said the company last weekend conducted its first annual management meeting and that he was very impressed with the plans for the future presented by the various division presidents and company officers.



NEW MANUAL — Barbara Patterson, left, and Margaret Paulsen compare new Policy Manual, left, with old Policy and Procedures Manual. New manual, which is easier to read and handle, will be distributed throughout the Space Division next week.

SD Policy and Procedures Manual Slated To Be Replaced Next Week

The Policy and Procedures Manual, the No. 1 document on the division use list, will be replaced by a new easier to handle, easier-to-read-and-understand model beginning next week.

Succeeding the old four-inch thick, 10½-pound document will be a two-inch thick version with about 200 fewer policies. The new manual contains mostly broad statements of policy which will not change much, said Roy Helsing, manager of Resource Systems.

Those receiving the new manual should throw away the pages of the old P&P and send the binders to the Mail Room, which will forward them on to Conservation for reuse.

Part of the division plan for developing a new Directives System, the new manuals are the product of three months of intensive work, said Helsing. Each division policy and procedure was carefully studied, with much of the material—primarily that which was procedural, being put into the recently-distributed Administrative Manual, or in specific functional manuals.

The new manual contains a Table of Contents, a "Disposition Matrix" which tells what happened to every P&P, and a new Subject Index, all of which are designed to make the new book more functional and easier to understand.

Apollo 8 Test Under Way for Christmas Flight...

(Continued from Page 1, Column 5) CDDT, without propellants aboard, which picks up the count in its final hours and in which the crew again will participate.

Barring any problems, the actual preflight countdown will begin on Dec. 16, leading to the planned launch on the morning of Dec. 21.

Dr. Thomas Paine, NASA acting administrator, Tuesday announced the space agency's decision to make the Apollo 8 mission a lunar orbital flight. He said the decision came following an intensive review that began

Recreation Sets Christmas Party

Final arrangements are being made for the annual division Christmas Party for employees' children.

For youngsters eight years of age and under, the party will be held at the Downey Recreation Center on Dec. 7 from 10:30 a.m. to 1 p.m. Santa and his helpers will be on hand to distribute stockings to the children, and free refreshments, including ice cream, cold drinks, and coffee, will be served.

Aug. 19 and included a thorough study of the readiness of the hardware, crew and support systems.

As planned, the mission will last about six days and will include 10 revolutions, about 20 hours, around the moon at altitudes ranging from 60 to 170 miles initially, and then in a circular orbit of about 60 miles.

The Apollo 8 flight is designed as an open-ended mission that will be conducted in a number of steps referred to as "plateaus" or "commit points" to provide maximum crew safety and maximum benefits as the flight proceeds.

Key commit points will be during the prelaunch checkout ending in launch, in the Earth parking orbit before translunar injection, and in the translunar coast period leading to lunar orbit injection. Apollo 8 will follow a path enroute to the moon that will provide a circumlunar "free return," or automatic return, to Earth in the event a decision is made not to go into lunar orbit.

Crew duties in moon orbit will include thoroughly checking spacecraft navigation, taking still and motion pictures of the moon and planned Apollo landing sites, and landmark tracking

sites on the moon.

Lt. Gen. Samuel Phillips, NASA Apollo program director, noted that the technical and operational experience NASA can obtain from the Apollo 8 flight will "shorten the time to the lunar landing mission by a considerable amount."

Dr. George Mueller, NASA associate administrator for Manned Space Flight, in recommending the lunar orbit flight said the mission would advance the Apollo program in numerous ways.

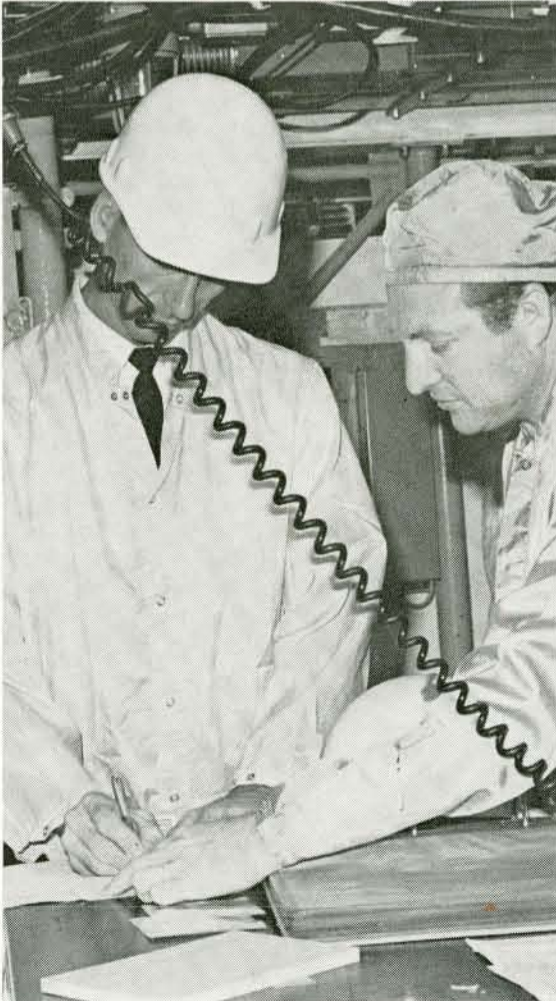
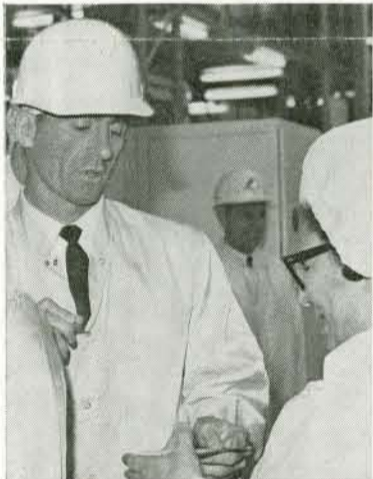
Among these will be validating Apollo systems in the lunar environment, increasing NASA's understanding of the environmental conditions in deep space and around the moon, and providing valuable data on the performance of the crew and the spacecraft on lunar mission conditions and timelines.

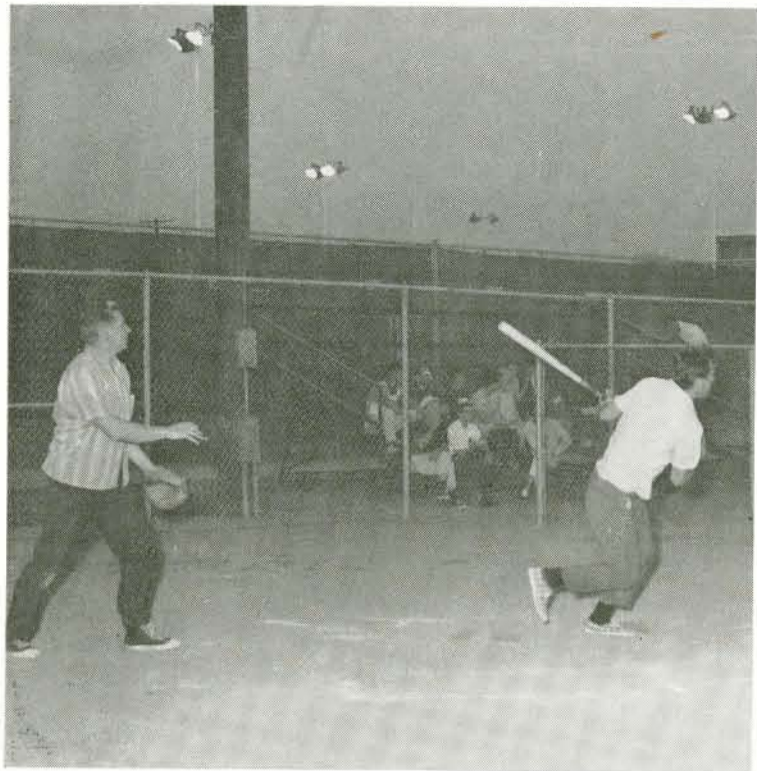
In addition, the mission will complete the final verification of ground support elements and spacecraft onboard computer programs, and confirm the ability of the crew to see, use and photograph landmarks during a lunar mission. It also will provide new measurements of variations in lunar gravitational potential discovered in NASA's lunar orbiter program.



TRIUMPHANT RETURN

NASA astronauts Wally Schirra and Walt Cunningham, crewmen for historic Apollo 7 flight, were greeted by more than 8,000 division employees on their return to Downey last week. Astronaut Donn Eisele, third member of team, was unable to make trip due to illness. Hailed as "two of the world's greatest" by division president William Bergen, astronauts were showered with confetti by employees during ceremony and, on behalf of personnel, were presented with special gold-plated plaques bearing their names, which were carried aboard Apollo 7. In the afternoon following the event, the astronaut pair took time to look over the Spacecraft 101 command module and toured plant to give thanks to employees.





POWER HITTER — Bob Serich of NASA Saturn S-II resident office at Seal Beach bangs screecher to left as Ron Olivier of S-II Contracts and Pricing watches flight of ball during spirited "challenge" softball game between two teams. Contracts squad banged out 10-3 victory over NASA nine.

Saturn S-II Contracts and Pricing Clubs NASA Softball Team, 10-3

A power-hitting Saturn S-II Contracts and Pricing team scored a 10-3 victory over a squad from the NASA Marshall Space Flight Center Resident S-II office at Seal Beach in a recent "challenge" softball game.

Managed by Sol Weinberg, director of S-II Contracts and Pricing, and John Prager, MSFC deputy S-II resident manager, the two teams battled in a spirited and lively contest under the lights at McGough Elementary School in Seal Beach.

Each team was backed by its own rooting section, comprised of families and fellow workers. One even was cheered on by the rendition of its own special fight song. The evening con-

cluded with members of both squads and their guests gathering for a nightcap of pizza, singing, and refreshments.

Members of the division team included Weinberg, Jim Townsend, Ron Olivier, Ken Skala, Roger Wayne, Clay Dure, Gene Phillips, Doug Graham, Roger Sherwood, Jim Moser, Tim Burks, Ed Tivenan, Chuck Robinson, Dale McWilliams, Carl Adolph, Bob Strickling, and Sam Lewis.

Wearing the NASA colors were Prager, John Caffey, Robert Agar, Phil Moore, Ray Beaver, Bob Brown, Bob Serich, Ken Fischer, Al D'Agostino, Lee Kirby, Hank Wilkinson, Bob Oakley, Ted Yancie, Dick Johnston, and Al Stiles.

Mrs. Barbara Johnson Named to Top Post Held by Woman at SD

Mrs. Barbara (Bobbie) Johnson, of Apollo Engineering, has been named to the highest post ever held at Space Division by a woman.

Bobbie has been promoted to the position of manager of Mission Requirements and Evaluation. Formerly, she concentrated on spacecraft entry

performance only, now just one of her many areas of responsibility.

Working closely with NASA's Manned Spacecraft Center, Bobbie's group of more than 100 employees will assist the space agency in defining both Earth orbital, and lunar orbital and landing mission engineering requirements and spacecraft system performance evaluation.

These responsibilities include flight test requirements and evaluation, spacecraft command and service module operations analysis, powered and entry performance, flight plans and procedures, and life sciences command and service module support.

In 1946, at age 21, Bobbie became the first woman graduate in general engineering from the University of Illinois. Often, she had been the only girl in the engineering classes. She joined the division shortly after graduation, and has worked in engineering assignments since that time.

Bobbie and her husband, Robert Johnson, a supervisor in Thermoanalysis at Los Angeles, live in San Pedro.

Atwood To Head Aerospace Bond Drive in 1969

The Department of the Treasury has announced that NAR President J. L. Atwood will serve as the 1969 chairman of the aerospace industry for the U. S. Industrial Payroll Committee for U. S. Savings Bonds.

Department of the Treasury Secretary Henry H. Fowler announced the appointment, stating that Atwood would serve in this capacity with Fred L. Hartley, president of the Union Oil Company of California as chairman of the Greater Los Angeles Metropolitan Area Share-In-America campaign.

The men served in these capacities during 1968 when California led the nation for 10 consecutive months in the rate of U. S. Savings Bonds sales. Annual sales are expected to exceed last year's by \$23 million and the new payroll saving quota to be topped.

In releasing the announcement, State Savings Bonds Director W. C. Eller said:

"Leadership of the quality exemplified by these men makes it possible to sell more than \$411 million in U. S. Savings Bonds in California each year, 5½ billion annually in the Nation, more than 150 billion over the past 27 years, with more than 52 billion still outstanding.

"Nationally, more than 169,297 new payroll sign-ups were recorded in the Aerospace Industry, Mr. Atwood reported to Secretary Fowler. This is 376 percent of the assigned goal for the industry.

"This is history's greatest thrift movement to create a more self reliant citizen, improve his financial health and that of his family, strengthen the local economy and that of the Nation as his Share-in-America."



ASTRONAUT HONORS — NASA astronaut Joe Engle, left, presents astronaut Snoopy Award certificate for "Outstanding Performance in Support of Nation's manned Lunar Landing Program" to J. W. Williams and F. E. LeDonne of division's Clear Lake Facility, on behalf of division team that worked with NASA in Apollo Spacecraft 2TV-1 testing that paved way for Apollo 7 flight. Engle was one of astronaut test crew.

West Point Reps To Visit Downey

A special meeting will be held in December for the sons of division employees interested in learning about the U. S. Military Academy at West Point.

A cadet senior classman will be at the Space Division's Downey plant on Dec. 21 to provide interested youths with a firsthand account of life at the Academy and entrance requirements. A tour of Apollo space-

craft manufacturing and test facilities will follow.

Those interested in attending the meeting should call Lee Gray, Space Division director of Apollo Quality and Reliability Assurance, in the evenings at (213) 596-5612, no later than Dec. 6. Youths calling should provide their names, home phone numbers and high school affiliations.

Documentary Slated Nov. 29...

(Continued from Page 1, Column 3)

Prize for his work as co-discoverer of the structure of DNA when he was only 23. (DNA is an acronym for an acid in which are contained the nuclei which help determine heredity.)

By piercing the mysteries of the DNA molecule, biologists have deciphered the code that determines the inherited characteristics of all living things. This new knowledge opens the way for man to one day control his own heredity.

Gilbert, Watson's colleague,

was attending Cambridge University in England working for his doctorate in physics when the two men met.

The competition which exists in science will be illustrated in the special by rivalry between Dr. Benno Meuller-Hill, a young biochemist from Germany who is working with Gilbert, and another young biochemist, Dr. Mark Ptashne.

George C. Scott, who is currently starring in the Broadway hit play, "Plaza Suite," will narrate the series.

NewsWire

A unique exchange between Autonetics and Imperial Chemical Industries, Ltd., of England in the use of new techniques and technologies in the solution of management problems was disclosed this week by Autonetics' Management Systems and Planning division. The exchange of views and experience between the firms was developed during the last year and highlighted recently by a visit of Imperial Chemical experts to Autonetics headquarters in Anaheim. ICI is the world's second largest chemical company.

Air Force Maj. William J. (Pete) Knight, holder of the world's unofficial speed record, has been named winner of the Harmon International Aviator's Trophy.

Maj. Knight was cited for the award for his series of flights in the Los Angeles Division-built X-15 A-2, only U.S. manned flying within the earth's atmosphere capable of attaining hypersonic speeds. In October, 1967, Knight registered a speed of 4,520 miles an hour or 6.7 times the speed of sound.

Financial Personnel at Downey Will Be Moved to SB Quarters

Financial personnel from Bldgs. 2 and 5 at Downey will be consolidated in new quarters in Bldg. 80 at Seal Beach over the next two weekends. W. J. Leseman Jr., director of Facilities and Industrial Engineering said Representatives of the Financial organization will remain at Downey, to serve as liaison for both business and employee activities, said Leseman.

Timecard Auditing, Payroll, and Group Insurance representatives will have a combined office in Bldg. 4, at grids S-356 and W-38, beginning next week. As of Dec. 5, personnel from the Cashier, Accounts Assignment, Group Insurance, Payroll, and Timekeeping now located in various parts of Bldg. 1, will be relocated in the building to a new office at grid location N-15 and E-32 just across from the Recreation and Welfare office.

First to move to new quarters in Bldg. 80 at Seal Beach this weekend will be 125 persons in Payroll, Accounts Payable, Group Insurance, and Cost Accounting, all now in Bldg. 5.

Over next weekend, 128 persons in Financial Management, Accounting, Cost Accounting,

and Budgets and Forecasts will be moved from their area in Bldg. 2. At the same time, a portion of the resident Defense Contract Audit Agency will be moved to the third floor of Bldg. 81 at Seal Beach.

Coordinating the move at Downey are Art Schwartz, project industrial engineer, and Keith Novinger, both of Downey Facilities and Industrial Engineering, while Ray Eatman, project industrial engineer, and Lloyd Skaggs of Saturn S-II Facilities and Industrial Engineering, are heading arrangements at Seal Beach.

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