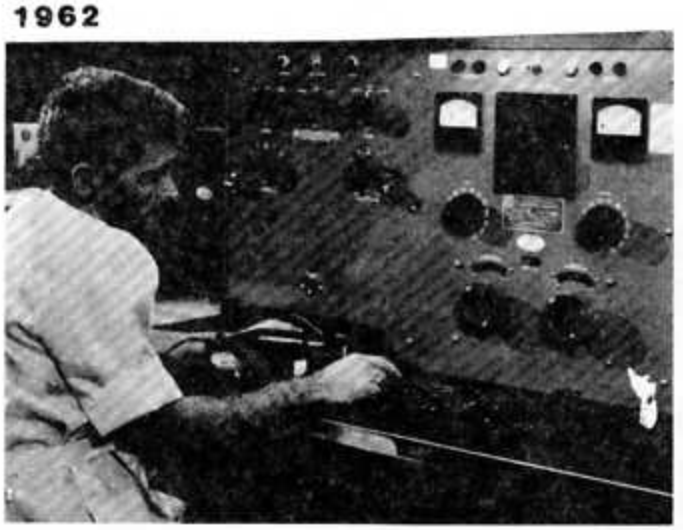
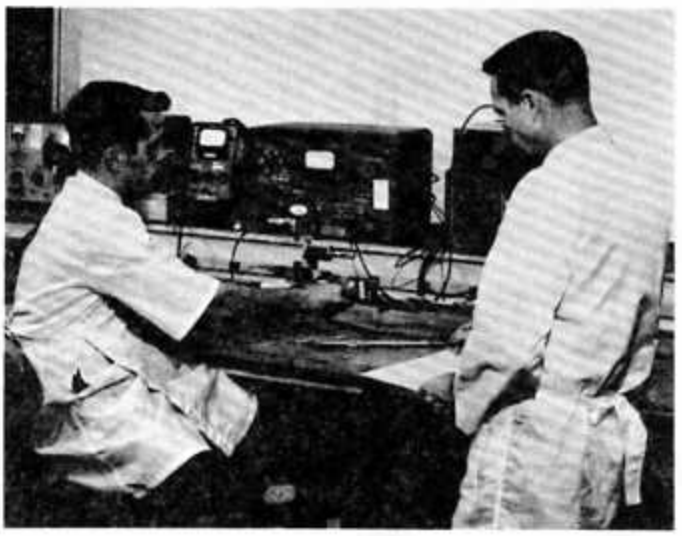
1962



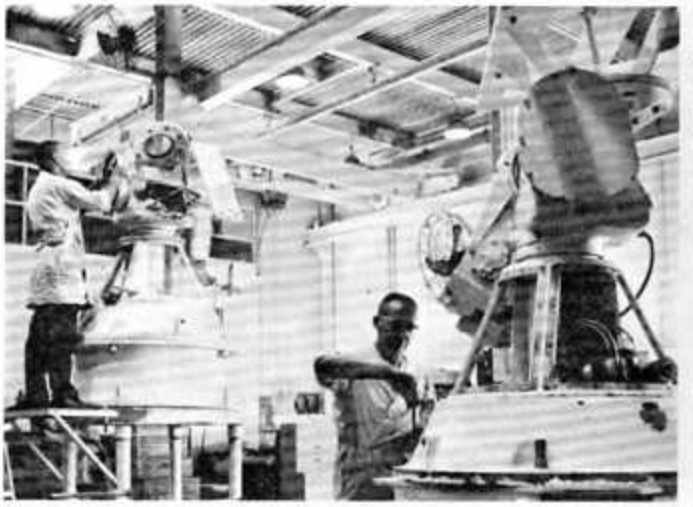
Electronics Technician Clark Bickley certifies the accuracy of a voltmeter in the Patrick AFB TERC shop.



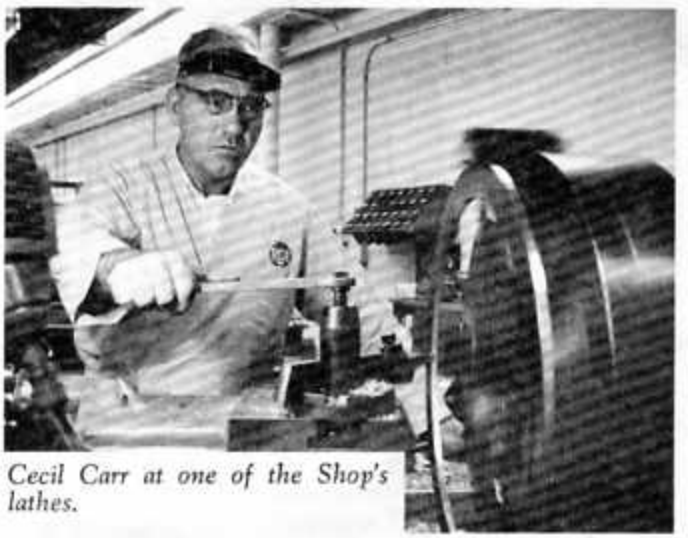
Electronic Repairman Carl Husack (left) and Test Equipment Specialist Ray Richmond measure precision attenuator accuracy.

Electronics Technician Sherman Bell (Cape Canaveral TERC) trouble-shoots a plug-in microwave receiver unit.

1964



Bob Fiske (foreground) and Earl Pearsall work on mounts in the Mount Room.



Cecil Carr at one of the Shop's lathes.

Hargis Clark compares the BC-4 shutter drive he developed (mounted on camera) with the original motor. The new device is more efficient and less complex.

The ME management team: Wayne Gould, leader; Charlie Sharp, manager; Gene Wilford, leader; Herb Masch, staff engineer; and Bill Hardin, leader.

Maintenance Engineering

Maintenance Engineering personnel go into the field frequently to consult on instrumentation. Here, ME's Johnny Gillis (right) rides a cherry picker to inspect Tel II's huge antenna.

Technical Editor Brad Whitacre and Typist Lois Gaynor discuss preparation of a maintenance manual.

1966

Herbert Schwartz has been named Manager of the Missile Test Project's Precision Measurement Equipment Laboratories

1967

Optics Shop

Left—Charles Eldred, Rocky Littler use mirror to check an instrument.

Chuck Pooley, Leader, and Tom Ball plan antenna installation on tower.

W.A. Belluomini, Leader, and Bob Donovan

J. T. Hiles
Radar Shop

L. D. Chowning
PMEL/E

W. R. Osborne

Julius Montgomery

Herman Turner

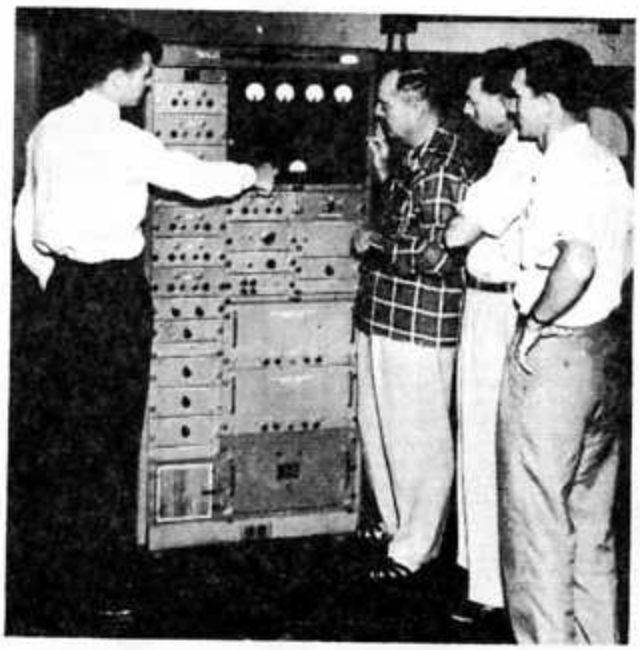
MTP Shop Managers display plaques noting their department's outstanding safety efforts. Left to right, are Howard Warringer, Bill D. Clark (Safety Coordinator), Russ Grunder, Harry Hughes and R. F. Goodhue. W. R. Brooks, Manager, Shop & PME Services, is seated.

Narvea Gardner

Tech Training

Most of the instrumentation technicians and specialists hired at MTP over the years have been Army, Navy or Air Force veterans who had some normal training in the service. In recent years there have been a large number hired who have been graduates of tech schools. Even though most are experienced technicians, few have ever been associated with the specialized and complex instrumentation on the Missile Range.

SUBMARINE CABLE TRAINING is accomplished by " On-The-Job-Training " and correspondence courses.



RADAR COMPUTER TRAINING is necessary to produce skilled technicians and efficient operation and maintenance.

Through the years the job of providing comprehensive training on theory, operation and maintenance of range instrumentation equipment has been provided by RCA MTP technical training. Instruction is provided by a staff of experienced instructors, each a specialist in his field, who conducts training programs at Patrick AFB, the Cape, downrange and on the ships.

Slides, films and training aids are utilized to assist the employee in becoming more proficient in instrumentation operation and maintenance of new equipment or existing equipment that has been modernized or modified. With the rapid expansion of the Range and the modernization and continuing modifications to instrumentation, personnel are provided with on-the-job training to keep abreast of new developments.

Instruction manuals are provided for distribution to sites where new or modified instrumentation is located. In recent years a modern, completely equipped television studio has been added to the Technical Training Facility where classes are recorded on video tape and the tapes provided for distribution. The instruction manuals and video tapes are part of a huge library of instrumentation reference material consisting of over 1600 instrumentation maintenance program manuals and documents plus over 2000 video tape courses originated and provided by the Technical Training Documentation Section.

Top: K. J. Martin (left), Manager of Technical Training, talks over a progress report with engineering trainee Dwight Spencer.

Dwight Spencer, Robert Gruber, D. L. Benne, R. W. Kenyon, and C. J. Thompson participate in a Friday afternoon critique of the week's activities with K. J. Martin (right), Manager of Technical Training.

Training Specialist Bryce Zimpfer of Training and Services is shown conducting a Supervisory Training Class at Cape Canaveral.

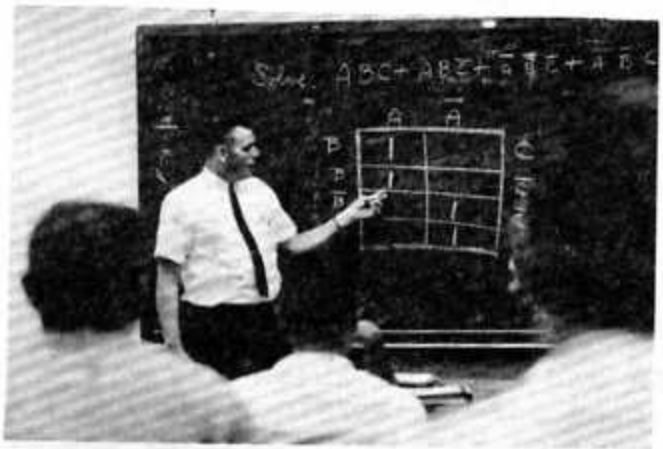
RCA Missile Test Project emloyees who recently completed a training course on the theory and philosophy of MINITRACK, are shown with the Technical Training instructor who conducted the series of sessions. The course was held at Antigua. Shown (left to right) are: Front row: J. H. Skeen, Charles Goetter, W. M. Kanes and G. A. Hilst. Back row: Instructor Jack Stallworth, Latate Hoy, C. A. Settles, T. H. Jacobs, E. P. Esson, J. L. Fischler and M. G. McCarthy.

1963 Pretoria

Steve Resetar holds a computer class in the radar maintenance building. In the front row (left to right) are Bill McAdams, Ron Stein and Bob Pence; back row — Ron Zgodzinski, Doug Stuart, Dick Gagner and Dick Brakewood.

1964

Instructor John Evans illustrates his lecture with a transistor training aid. Students in the foreground are Charles Gudernuth (left) and David Demmer. In the back are Arlin Brown (left) and David Arthur.



Instructor Joe Miller conducts a class in computer logic.

1964

L. C. Brown

1964

Instructor John Soar pauses outside the San Salvador classrooms to discuss a point with two of his students. The building in the background, formerly used to house radio guidance instrumentation for the Atlas missile, is a Tech Training center on the ETR.

1967

Frank Sorum, Mgr., Technical Training

Technical Analysis Evolution

Prior to 1954, when the Atlantic Missile Range (AMR) was operated entirely by military and Civil Service personnel, a Performance Analysis Group constituted by a few engineers and mathematicians was started to conduct a limited amount of instrumentation analyses, delineate optimum technical operating methods, and furnish analytical assistance to tasks arising in the Technical Systems Laboratory, Range Operations and Data Reduction. With the transfer of the technical and logistics responsibilities to civilian contractors (PAA and RCA), this group with its personnel continued as a part of RCA-MTP, under the name of Quality Control.

The growth of the U. S. missile effort in the following years and the associated expansion of the AMR instrumentation generated a steadily increasing number of analysis and evaluation problems. These stemmed to a large extent from the fact that the AMR, previously instrumented for aerodynamic missile testing, was suddenly faced with data gathering requirements peculiar to ballistic missiles. In consequence, the analytic efforts had to be broadened in the areas of instrumentation accuracy evaluation; in the design of suitable error models and instrumentation tests; in the exploitation of instrument capabilities for improved compatibility between present capacity and ever increasing performance demands; in the deduction of future trends of development and instrumentation utilization.

This group, renamed Systems Analysis and sizeably increased, was involved in numerous assignments which fell both within and outside of routine Range Contractor operations. Activities covered not only sophisticated performance and accuracy study programs on various tracking systems, but also a variety of special studies in such areas as trajectory measurements, error propagation, systems application, impact prediction and location, target acquisition, and data utilization. In addition to these activities, Systems Analysis satisfied an increasing demand for advisory services to the Air Force Missile Test Center (AFMTC), Range and Missile Division, the AF Research and Development Command, the National Space Agency, and others, relative to scientific and technical matters of missile range instrumentation and associated problems. Additionally, they supported applied research efforts in the field of missile detection, missile flight phenomena and instrumentation conducted by universities and other agencies not directly affiliated with the AMR. The high demand for services attested to the logical structure, sound operating philosophy qualifications of the group.

In the early 1960's Dr. Bud Mallory led Quality Analysis, Dr. Jerry Keuper was Manager of Systems Analysis, and Paul Beem was Manager of Quality Control.

By 1962, RCA Systems Analysis, under the leadership of Dr. Chuck Cummings, was augmented to deal with the increased analytic/evaluation tasks of the Test Range. A major step was the formation of instrumentation-peculiar groups, i.e., CW Radar (Mgr. Nils Hanson), Marine and Optics, MILS (Mgr. Murray King), Pulse Radar (Mgr. Peter Hoffmann-Heyden) and Math Analysis (Mgr. Dr. Paul Somerville).

Because of space limitations, the entire group was moved into the PAA/RCA office building in Cocoa Beach where it stayed until July 1966 when it returned to the Technical Laboratory. By 1965/66, the group had a personnel strength of about 125, and the Range activities in the instrumentation buildup (MISTRAM and MIPIR) and missile launch support were such that the evaluation workload heavily taxed the personnel availability.

After discontinuation of the Quality Control group in 1972, the name of Quality Analysis was changed to Technical Analysis. The individual groups, however, retained the Systems Analysis identifications as before.

After the PAA/RCA contract rebid in 1972 and renewal, the personnel strength was reduced appreciably and left a core of staff thereafter in the range of 40 to 50 personnel.

In 1985 a Systems Evaluation and Support function under Frank Westphal was added to assist with and monitor the operational acceptance of new or modified systems. Currently the group has 41 people and has five functional units; Mathematical Analysis, Metric Instrumentation Systems Analysis, Instrumentation Processing and Communications Systems Analysis, Systems Evaluation Support and Operations Analysis.

- Performance evaluations of radars specifically designed for missile tracking - FPS-26, FPQ-6, TPQ-18, ARIS Ships.
- Performance evaluations of a series of CW tracking systems - AZUSA MK II, UDOP, GLOTRAC, MISTRAM, FTSS.
- Leadership in orbital mechanics for several decades exemplified by definitive document Methods of Trajectory Mechanics by John O'Connor, newly retired.
- Participation in the development of the Sequential Target Tracking System for the UK Polaris program to maximize the support capabilities single-target tracking radars.
- The Radar Accuracy Monitoring Program (RAMP) using satellite targets was developed by Peter Hoffmann-Heyden.
- Calibration of the DoD C-Band Radar Network for Shuttle support was entrusted to Tech Analysis because of the demonstrated success of the RAMP methods.

MTP NEWS **TECHNICAL ANALYSIS**

1959

Dr. Charles L. Carroll, Jr.

1963

Dr. N. D. Mallory

1965

O'Kelly

1966

Mr. Kirkpatrick

1966

Sally Seward

Roland Davis

Frank Cockerham

1969

A.E. Hoffmann-Heyden

1968

Raymond G. Harker

1968

Peter Tokareff

1968

O. J. W. Christ

1969

Evelyn Ridderman

1968

Charles W. Gibbs

1970

Edward J. Yeo

197

Jari Mullinix

1969

Paul L. Beem

Dr. Mertens

72

Dr. Laurence B. Rice

M. A. King

DOWNRANGE

Stretched 5000 miles downrange on lonely outpost islands are the "Unsung Heroes" of RCA's launch support team.

After the drama and excitement of the missile launch the dedicated "Range Rats" take over. Manning radar, telemetry and communications equipment, they spot the missiles and satellites that whiz overhead at Mach II speed and track and record pressures, temperatures, voltages, engine performance and other parameters.

Today the Range consists of just the islands of Antigua, 1200 miles downrange and Ascension Island over 3500 miles further south, but at one time there were 12 tracking stations in the chain that extended 10,000 miles through Pretoria, South Africa to Mahe Island in the Indian Ocean. Through the years the bases have all looked alike. Concrete block administrative offices, a scattering of radar, telemetry and communications antennae and barracks with screened porches. Pine trees and scrubby brush was the usual vegetation with and occasional palm tree scattered here and there.

The life-lines for each station were the boats or aircraft which serviced the entire Range. A base exchange usually carried "extras" that you needed, but a popular shopping spree was a trip through the Sears catalog.