

WING TIPS

Issued in the interest of the personnel of the Lewis Flight Propulsion Laboratory, NACA

Vol. IX

Cleveland, Ohio, June 15, 1951

No. 9

14 RECEIVE M.S. DEGREES

Fourteen members of the Laboratory research staff received Master of Science degrees this spring, twelve from Case Institute of Technology on Sat. June 9 and two from Western Reserve University on Wed., June 13.

The degrees from Case were awarded to the following persons in these fields.

Mechanical Engineering

Patrick Donoughe (C&T)
Seymour Himmel (Eng.Res.)
Richard Hood (Eng.Res.)
Martin Kinsler (C&T)
Raymond Standahar (C&T)
Francis Stepka (C&T)
Frederick Simmons (Physics)

Aeronautical Engineering

Elmer Davison (C&T)
Artur Mager (C&T)
Solomon Rosenzweig (Eng.Res.)
Warner Stewart (C&T)

MONROE HEADS NICNACA

The 1951-52 NicNACA committee held their first meeting on June 1 and elected Dan Monroe as chairman to organize the social planning for this season. Other officers are Sue Storey, treasurer and Millie Shernock, secretary.

The first dance on the new agenda will be scheduled during the first week in August and may be held outdoors.

Other plans under consideration call for a polka night and an early fall formal.

Mathematics

Sanford Gordon (F&C)
Leonard Rudlin (Physics) and Gene Delio (Eng.Res.) received degrees in physics from Western Reserve. These men had been working toward their advanced degrees under cooperative plans between

(Continued on Page 4)

HELP NEW EMPLOYEES

Finding housing within easy traveling distance from the Laboratory is the man-sized project now being tackled by the Personnel Division. Information from the staff is needed.

Response to the memo added a number of room listings to the files from which referrals are made. However, a great need still exists for small family quarters, apartments and houses.

Won't you help by phoning any leads to Personnel, 4112?

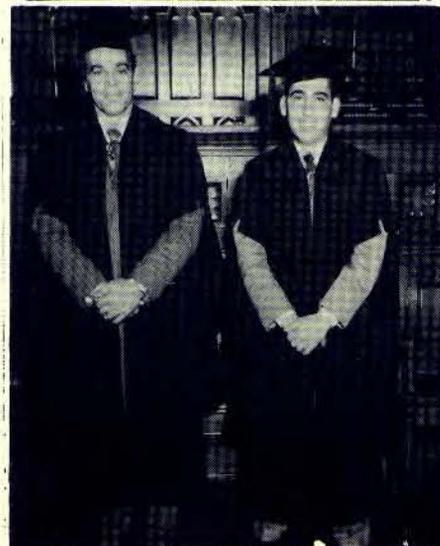
Prompt action will insure keeping an employee in a vital position.

Assurance of the importance of the work being done here at the Laboratory has been given in these statements by Admiral Lonnquest, "The Navy expects and depends on the NACA to provide the scientific knowledge and assistance which is vital for the improvement and the advancement of the aircraft upon

(Continued on Page 4)



Case graduates are: 1st row, l. to r. - S. Rosenzweig; S. Himmel; R. Hood; F. Stepka; 2nd row, l. to r. - S. Gordon; A. Mager; P. Donoughe; F. Simmons; M. Kinsler; and W. Stewart. On the left are G. Delio and L. Rudlin, graduates from Western Reserve.



Technology Utilization Publications

The following new publications are currently available at Lewis' T.U. Office — Room 214, Ad Bldg, PAX 5233 or 8049.

TECHNOLOGY REPORTS

Commercial Potentials of Semipermeable Membranes, SP-5061.

NASA Contributions to Metals Joining, SP-5064.

TECH BRIEFS

Tantalum Alloys Resist Creep Deformation at Elevated Temperatures, Westinghouse Electric Corp., under contract to Lewis, B66-10558.

Detector Measures Power in 50 to 30,000 GHe Radiation Band, Cutter-Hammer under contract to Electronics Research Center, B66-10581.

MOSFET Analog Memory Circuit Achieves Long Duration Signal Storage, IBM under contract to Marshall, B66-10603.

Study of Theory and Application of Long Duration Heat Flux Transducers, Heat Technology Laboratory, Inc., under contract to Marshall, B66-10614. Hydraulically Controlled Flexible Arm Can Bend in Any Direction, Kennedy Space Center, B66-10626.

Process for Preparing Dispersions of Alkali Metals, Jet Propulsion Laboratory, B66-10626.

Volume-Ratio Calibration System for Vacuum Gages, Raymond Holanda of Lewis, B66-10640.

Concept for Using Laser Beams to

Measure Electron Density in Plasmas, Boeing Company under contract to Marshall, B66-10645.

Intergranular Metal Phase Increases Thermal Shock Resistance of Ceramic Coating, North American Aviation under contract to Marshall, B66-10651.

Computer Program Determines Chemical Equilibria in Complex Systems, Frank Zeleznik and Sanford Gordon of Lewis, B66-10671.

Resonant Frequency Can be Adjusted on Vibration Mount, Ryan Aeronautical under contract to JPL, B66-10672.

Study Made of Destructive Sectioning of Complex Structures for Examination, Thomas Riley of Lewis, B66-10676.

Potting Compound for Honeycomb Sandwich Fasteners, General Dynamics/Convair under contract to Lewis,

Study Made to Control Depth of B66-10677.

Improved Rolling Element Bearings Provide Low Torque and Small Temperature Rise in Ultrahigh Vacuum Environment, Dean Glenn of Lewis, B66-10678.

Process Reduces Secondary Resonant Emission in Electronic Components, JPL, B66-10685.

Solid-State Recoverable Fuse Functions as Circuit Breaker, Goddard, B66-10691.

Kinetics conference here March 19

A conference on Kinetics and Thermodynamics in High Temperature Gases will be held at Lewis Thursday, March 19. Results in these areas of basic research in the chemistry and physics of combustion and other high temperature gases will be discussed in various conference sessions throughout the day.

In the chemical equilibria area, Sanford Gordon will speak of Complex Chemical Equilibrium Calibrations, Sheldon Heibel will discuss the Calculation of Equilibrium Properties of Plasmas and Frank Zeleznik's presentation will treat of Thermodynamics of

the Internal Combustion Engine.

In transport phenomena, Richard Brokaw will discuss Transport Properties of High Temperature Gases; Charles Baker, Experimental Measurement of Diffusion Coefficients for Atomic Oxygen and Roger Svehla, Transport Properties of Complex Mixtures.

In chemical kinetics, Frank Belles will discuss Combustion Chemistry; Theodore Brabbs, Rate Constants from Ignition Studies of the H₂-CO-O₂ System; Marvin Warshay, the Kinetics of the Dissociation of Bromine and David Bittker, General Chemical Kinetic Computations for Multireactions System.

Communicate!

A Lewis employee, inspired by the appointment of a Special Assistant for Internal Communications, came up with this cute ditty:

Ode to NPD 1110.4, NPD 1701.1A, NHB 1900.1A, NMI 3711.6, and NMI 3711.7

*If RIF procedures seem obscure,
And rules for RIG's not Ivory pure,
No need for doubts to long endure —*

COMMUNICATE!

*When management edicts don't make sense,
And force reduction make you tense,
The thing to do right now and hence —*

COMMUNICATE!

*If you aren't sure of NASA's mission,
(Or even worse, your own position),
To rectify this sad condition —*

COMMUNICATE!

*So let it out and spill the works,
All that bugs you, all that irks.
Let your boss know all his quirks —*

COMMUNICATE!

*Say it now! Don't pass the buck!
Have no fear! Rake the muck!
(Oh, incidently, lot's of luck!)*

COMMUNICATE???

— Sanford Gordon
Lewis News

October 6, 1972

Innovations bring awards, praise to 21 employees here

Twenty-one members of Lewis' technical staff earned monetary awards and certificates of appreciation from the Technology Utilization program for published technical innovations that may have practical usefulness in non-aerospace business and

industry.

Dr. Walter T. Olson, Director of Technology Utilization and Public Affairs, who presented the awards earlier this month said, "The monetary awards and certificates are only a small way of acknowledging the extra mile you have gone in contributing to our national well being through these innovations."

The contributors and their tech briefs are William C. McNally, "Program for Calculating Laminar and Turbulent Boundary Layers in Arbitrary Pressure Gradients;" George E. Glawe, "Long-Term Drift of Thermocouple at 1600 K; Albert J. Juhasz and Cecil J. Marek, "Turbulent Mixing Film Cooling Correlation; Robert C. Johnson, "Computer Program for Natural Gas Flow Through Nozzles; William D. McNally and James E. Crouse, "FORTRAN Program for Computing Coordinates of Circular-Arc, Single and Tandem, Turbine and Compressor, Blade Sections on a Plane."

Robert L. Dreshfield and John C. Freche, "Advanced Alloy Design Technique - High Temperature Cobalt

Base Superalloy;" Walter L. Howes and Eileen A. LaSavia, "Loudness (Annoyance) Prediction Procedure for Steady Sounds;" Nelson L. Sanger, "Computer Programs for the Design of Liquid-to-Liquid Jet Pumps;" John A. Woollam, "Magnetometer Uses Bismuth Selenide;" Howard F. Hobart and Herbert L. Minkin, "An Optical Quality Meter Suitable for Cryogenic Liquids;" Lloyd N. Krause, George E. Glawe and Thomas J. Dudzinski, "A Multielement Probe for Coincident Temperature and Pressure Measurements."

Sanford Gordon and Bonnie J. McBride, "Computer Program for Calculation of Complex Chemical Equilibrium Compositions;" Steven M. Sidik, "Optimizing Designs of Two-Level Factorial Experiments Given Partial Prior Information (NAMER);" William D. McNally, "FORTRAN Program for Generating A Two-Dimensional Orthogonal Mesh between Two Arbitrary Boundaries;" and Anthony Fortini and George Tulisiak, "Joining Porous Components to Solid Metal Structures."

Money identifier developed for blind persons

The cliché "money talks" will soon acquire a new literal meaning for blind business persons thanks to a simple paper money identifier developed from NASA technology.

The device will enable a blind person to identify paper money by its sound "signature." Until now no reliable paper money identifier for the blind has been available.

To determine its denomination, a bill is passed under a light source on the small, inexpensive device. A photo-transistor measures changes in the bill's light patterns. These changes are converted

(Continued on page 3)

Retirees look forward to "watching world go by"

BY NAZHA "NICKIE" FADIL



Michael A. Chepley, engineering technician in the Engineering Design Division, has accumulated 36 years of federal service. He graduated from the apprentice program in 1948, his first training after World War II. He finds that the people of Lewis are the

friendliest anywhere and he will miss working with them.

Mike plans to relax and travel to California to visit relatives. He is taking a wait-and-see attitude, and will see what develops during his retirement.

"Lewis has a fantastic group of people to work with," praised **Charles S. Corcoran**, head, Electric Systems Experiments of the Transportation Propulsion Division, as he retired after 35 years with the federal government. His wife, Mariom and he like it too much in Cleveland to move. Chuck will catch up on household duties he has put off for so long, now that he has the time to do them.



He served 18 years in transportation service and eighteen years in research, working on such projects as the 8 x 6 wind tunnel, PSL, 10 x 10, SNAP 8 and the Brayton Cycle.

He will miss his career at Lewis. Chuck served as chairman of the Incentive Awards in 1972 and as vice chairman of the Electrical Applications Safety Committee for 30 years.

Three of the Corcoran's seven children still live at home.



"I have been involved in interesting work in my career here. The people are interesting. A lot of opportunities are offered."

These are the beliefs of **Richard P. Geye**, project manager in the Launch Vehicles directorate. In his fifteen years with that directorate, he has been Agena Project Manager, responsible for OAO, Orbiting Satellite 1-2-3, Nimbus b-2, Titan Centaur Mission Project, and the final two years in automobile propulsion research. He is retiring with 31 years of federal service.

His wife, Irene, nee Kives, was the secretary to late Lewis Director Dr. Sharp.

Dick has open plans for the near future.

He has three children in Cleveland. His hobby is fishing.

"I had a very satisfying career at Lewis," stated **Sanford Gordon**, head, Physical Chemistry Section, Airbreathing Engines. He retires with more than 35 years of federal service.

Sanford will spend two weeks in Israel to visit his sons and grandchildren.



In March, Sanford will return to Lewis as a reemployed annuitant for several months. He likes his work. He said that meeting people of the Lewis Lab has been the best part of his life. "I had many pleasant associations," he said.

Sanford has earned an incentive and other awards during his Lewis career.



Frank J. Gusik of the Engineering Design Division will retire this month after almost 35 years of service. His most recent duties include being a member of a management team for an engineering and design contract.

Frank and his wife, Yarmila, live in Parma, and are the parents of one daughter, and the grandparents of three.

Immediate plans are to stay in the Cleveland area, "take it easy, and watch the world go by."

Frank continued, "I choose to retire while I'm still in good health and young enough to enjoy life. I plan to spend more time with my grandchildren and do some traveling."

A luncheon in Frank's honor is scheduled for 1 p.m., Tuesday, January 15, in the Main Cafeteria. If interested, call Chuck Moon or Don Noga, PAX 4107.



Winston W. Hasel, Procurement Associate Aeronautical Engineer, commented, "I enjoyed the type of work I was doing with Procurement people. It was quite a challenge."

Winston was a chief pilot in World War II, flying 42 missions. He has 22 years at Lewis and a total of 35 years of federal service, including military and reserve service.

He plans to do consulting work after he has relaxed for six months. He wishes to visit his grandchildren in New Jersey.



Cavour H. Hauser, head, Single Stage Compressor Section, Fluid System Components Division, will begin a new career with the Bendix Corporation in Elyria. He will work toward improving compressors for pneumatic brake systems to bring trucks to a stop rather than to make airplanes fly safer, as was his Lewis work. Cav was primarily involved in research on the flow-through turbines and compressors for aircraft engines at Lewis.

Cav headed the successful Combined Federal Campaign fall 1979 drive at the Center.

Before Cav works again he will have a two-week vacation.

"I have had wonderful associations at Lewis and hope to remain in touch with my good friends," commented Cav.

Cav finished a new addition to his home in Rocky River. He has a daughter who is an ophthalmologist in Chicago, a daughter in personnel work in New Jersey, and a daughter who teaches first grade in Florida. They were all home for Christmas.

His hobbies are woodworking and house building, and he plans to work at those hobbies more, now that he's retired after 35 years of government service.

After serving almost 26 years, **Merle L. Jones** says it's time to retire. He worked on vehicle pneumatics system and aerodynamics research.

Among Lewis honors for the aerospace engineer was a cost saving award for Atlas pneumatics regulators.

His wife, Del, and he plan to live in the sunbelt state of Arizona. There he will golf, swim and play tennis. He likes photography, too.



Aerospace scientist **Robert Lubick**, of Launch Vehicles, and head, Mission Design Section, performed trajectory and mission analysis of chemical and nuclear rockets for NASA missions. From 1951 to 1962 he worked with experimental turbojet engines.

Bob leaves with over 28 years of federal service behind him.

Bob found Lewis people of high calibre and acquired many close friends over the years.

He will travel to New England with his wife, Barbara, to visit her relatives.

He also is an old movie buff and has been a philatelist for 40 years.

Herbert L. Minkin, electronics engineer of Airbreathing Engines, promises to visit his daughter in Japan for two months.



"I'll miss the friends I started off with and have been here for a lifetime," remarked Herb.

His work at Lewis involved research liquid hydrogen flow metering during the rocket era, and as a technical adviser for acquisition of pressure measurement equipment. Herb won an award for a pressure measuring system for aircraft engine testing and has written over 30 papers during his Lewis career.

The new retiree may do some consulting work later. He plays handball and jogs.



In his almost 35 years of federal service, **Carl B. Wentworth** of Launch Vehicles Division, found the first ten years of NASA space research exciting and absorbing. He was involved with engine research on ramjet engines. He has written 12 technical papers.

Carl witnessed 45 launches at the Cape; he missed only three. He was part of the Tiger team, which was responsible for review of the launches.

Carl may relocate in Michigan later. In the spring he will tour the southwest and enjoy his hobbies as a fisherman, motorcyclist, photographer, workshop enthusiast and auto mechanic.

**HOPING YOU
WILL HAVE A
PROSPEROUS &
HAPPY NEW YEAR!**

Lewis participative management in accord with NASA principles for excellence

(Continued from Page 1)

goals and focusing on successful performance through systematic program planning and execution.

Encouraging as much contractor competition as appropriate, and executing programs through non-adversarial team efforts.

Providing to all offices and facilities the modern equipment needed for quality and productive work.

We Operate With An Open Management Style By:

Recognizing that inherent in R&D are high-risk and high-payoff efforts,

and maintaining high technical credibility and improving performance through free and open reviews of technical failures.

Encouraging those who are responsible for carrying out the work to make suggestions for improvements and participate in the planning.

Providing ample opportunity for our people to communicate with the best minds in science and technology in other organizations.

Maintaining integrity in all our dealings with the NASA Team and all outside individuals and organizations. □

Lewis staffers get Tech Brief Awards

Tech Brief Awards were recently presented to 27 Lewis employees who contributed innovations to the NASA Technology Utilization Program.

Recipients received certificates of recognition and \$100. In addition, their innovative contributions are published in the NASA Tech Briefs quarterly journal.

Here are the subjects and award recipients:

Computer Program HEAVY: Raymond F. Beach.

Prediction of Combustion Gas Deposits: Fred J. Kohl, Bonnie J. McBride, Frank J. Zeleznik and Sanford Gordon.

Thermal Shock Resistant Composite Crucible: Henry J. Geringer and Robert W. Jech.

Remote Programmable High Voltage Power Supply: John C. Sturman and Donald H. Priebe.

Remote Power Controllers for High Power DC Switching: John C. Sturman and Robert W. Gott.

Improved Method for Covering Porous Surfaces with a Thermal Barrier Coating: Curt H. Liebert.

Squeeze Film Damper Controls High Vibrations: David P. Fleming.

Computer Program MIMOC-- Modeling Interface Motion of Combustion: Cecil J. Marek.

Computer Code ROTD--Radial Turbine Off--Design Performance Analysis: Peter Meitner and Arthur Glassman.

Computer Program MERNEW3D-- An Input Generator for the Denton

Three-Dimensional Turbomachine- Blade-Row Analysis Code: Arthur Glassman and Jerry R. Wood.

Computer Program for Stirling Engine Performance Calculations: Roy C. Tew, Jr.

Data Manipulation and Display: John R. Szuch.

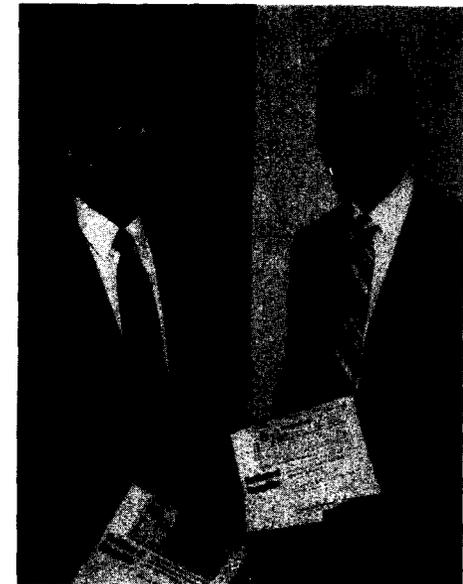
Computer Program for a Four-Cylinder Stirling Engine Controls Simulation: Carl J. Daniele and Carl F. Lorenzo.

Computer Program AESOP-- Interactive Design of Linear Quadratic Regulators and Kalman Filters: Bruce Lehtinen and Lucille Geysler.

Micronized Coal Burner Facility: Fred D. Calfo and Mike W. Lupton.

Lubricant Percent Volume Factor Improves Bearing Thermal Performance Prediction: Richard J. Parker.

Award checks were also mailed out to 21 contractor winners.



Honorees John C. Sturman (left) and Robert W. Gott were winners of one of four Lewis 1984 IR-100 awards for their Tech Brief "Remote Power Controllers for High Power DC Switching."



Lewis NEWS

Volume 30 Issue 11 May 21, 1993

\$10,000 Space Act Monetary Awards

McBride and Gordon honored for CET89 code



Gordon



McBride

TWO Lewis scientists were recently honored, each receiving a \$10,000 Space Act Monetary Award, two of the largest monetary award of their kind ever given at Lewis.

Bonnie McBride, Computational Methods for Space Branch, and Sanford Gordon, a retired Lewis employee who now works part-time, were recognized for their development of one of the most important and widely used computer programs in the aerospace industry, the CET89 code. For any set of reactants, this code calculates chemical equilibrium products as well as thermodynamic and transport properties for the resulting mixture. It includes a large products database for use with a wide variety of fuels and oxidants.

The CET89 code is currently being used at all NASA centers and by universities, government laboratories, and corporations worldwide in a wide range of applications, from Space Shuttle Main Engine design to exploration of new nuclear propulsion concepts. This code is used by numerous scientists and engineers involved in combustion. In addition to handling complex combustion problems, the code can also be applied to evaluate theoretical performance of rockets, incident and reflected shocks, and Chapman-Jouguet detonations.

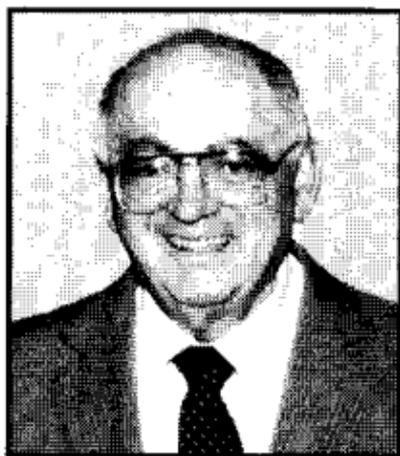
The Space Act Monetary Awards Program was established to provide official recognition and equitable monetary awards for those inventions and other scientific and technical contributions that have helped to achieve NASA's aeronautical and space goals in the past, and to stimulate and encourage the creation and reporting of similar contributions in the future. The awards are given by the Inventions and Contributions Board at NASA Headquarters. ♦

IN MEMORY

Richard Draime, 72, who retired as a contract specialist in 1982 with 22 years of service, recently died.

William Egan, 82, who retired from Glenn in 1970 after 27 years of service, recently died. He worked in the Propulsion Systems Lab and Supersonic Wind Tunnel and became chief of the Test Installations Division.

Sanford Gordon, 81, a leading expert on fuels for aerospace propulsion, recently died. He retired in 1985 after 37 years as a member of the theoretical section, Rocket Branch, tasked to calculate the maximum



Gordon

potential of rocket fuels. In 1950, Gordon and his colleagues published tables of thermodynamic functions for 42 substances, which were the genesis of several computer programs for calculating thermodynamic properties of substances, combustion mixtures, and theoretical rocket performance used throughout the world. In 1992, NASA's Inventions and Contributions Committee selected Gordon and his colleague Bonnie McBride to receive an award for their work, judged to be among the most important achievements of NASA during the 1990's.

Orlando Vlases, 72, who retired from Glenn in 1975 after 15 years of service, recently died. He was an electrical engineer.

Aerospace Frontiers

OCTOBER 2001