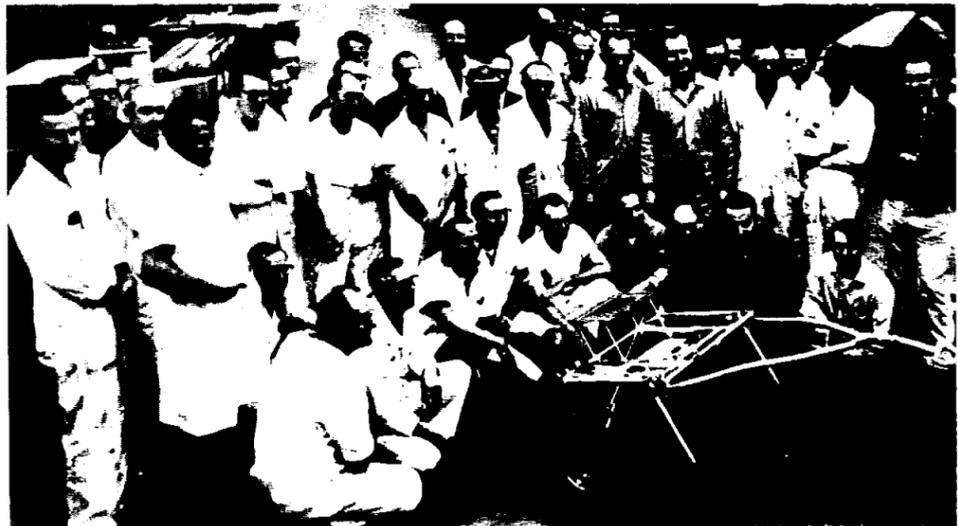


A flat tire of the Moon?—not if these can help it! They're the engineers and technicians who designed and manufactured the MSC "Rickshaw" or Modular Equipment Transporter (MET), to use its proper name. The engineers in the picture on the left were the project's designers. From left, they are (back row) N. Jevas, G. C. Miller, T. O. Ross, L. P. Ratcliff, D. S. Grissom,



W. C. Snyder, C. J. Wesselski, J. D. Bradley; (front row) N. R. Gonzalez, W. H. Keathley, R. F. Smith, R. E. McElya. Project Design Engineer, W. K. Creasy displays the MET. Absent: W. R. Humphreys, R. S. Stevens, E. Schnitzer, J. B. Slight, H. E. Thornhill. The right-hand picture shows the 40-some craftsmen who actually put the MET together in the Technical Services

New labor-saving device: the MSC "Rickshaw"

An equipment-hauling device for the astronauts had been under consideration for some time, but it was not until September 18 of last year that personnel of the Spacecraft Design Office began making firm plans for the development of such an item. Initially the effort involved solving problems of design, stowage, schedule, test and KSC requirements for a light-weight, easily stowed, simply assembled, reasonably stable wheeled transport vehicle.

What the engineers came up with was the Modular Equipment Transporter (MET), nicknamed the "Rickshaw", after its shape and method of propulsion.

With the exception of the rubber for the tires, the MET was designed and made flight-ready entirely by MSC. The Technical Services Division built the actual prototype, training, qual test, and flight items, and the engineers and three of the astronauts, Bill Pogue, Tony England, and Gordon Fullerton, tested it in the fortitude-trying parabolas of the KC 135.

The crews of Apollo 11 and 12 learned how cumbersome "saddlebags" full of rocks can be, and having to lug around the handtool carrier, cameras, and PLSS didn't help matters a bit. Now the MET will help carry the load. It will be a portable workbench with a place for the handtools and their carrier, 3 cameras, two sample container bags, a Special Environmental Sample Container, spare film magazines, and a Lunar Surface Penetrometer. There will also be a work table at the rear of the MET.

Golf cart handles

The original design has undergone a number of changes, the most noticeable one being a change from a two-handled cart to a single-handled style, making it more like a golf cart than a rickshaw. The new style is more suited to the "loping" gait preferred by the astronauts to the "kangaroo hop" of Armstrong and Aldrin.

Various handgrip styles have

been tested—styles ranging from velcro glove and handles to straight-grip handle-bars. The astronauts decided that a simple triangular shape was best. The hand fits in so snugly that the astronaut need not actually grasp the handle in order to pull the vehicle.

Other problems lay in designing a structure which could carry loads of up to 360 lbs, while weighing only 18 lbs itself; finding an equipment restraint system which would hold the equipment down securely, yet release easily enough so that the whole MET wasn't wrenched into the air when the equipment pieces were removed.

The MET will be the first wheeled vehicle on the Moon. Astronauts Shepard and Mitchell will be the first crew to use it, on Apollo 14. The crews for Apollo 15 and 16 will use similar METS on their flights, although theirs will also provide portable communications systems.

Science & Applications expands

Science and Applications Director Anthony J. Calio announced Wednesday that three new offices were being added to the Directorate, a Deputy Director was being appointed, and two existing divisions were being realigned.

Robert O. Piland will be the Acting Deputy Director.

A new Lunar Missions Office, under John Zarcaro, formerly with A S P O, will provide focus



A. J. CALIO, S&AD DIRECTOR

for lunar experiments and investigations.

Allen H. Watkins, previously with the Earth Resources Division, will head the Earth Orbital Missions Office, which will concern itself with near-earth scientific investigations.

Another new Office, the Mission Scientists Office, will place a scientist astronaut, as a Directorate representative, at meetings, planning sessions, etc., where he will speak for the Directorate. For Apollo 13, the representative will be Anthony W. England.

The Lunar & Earth Sciences Division has been expanded, with Dr. Paul Gast, of Columbia University, joining the Directorate as Division Chief.

The LRL will be established as a separate organizational element, with Bryan Erb as Manager.

The Earth Observations Divis-

ion takes the place of the Earth Resources Division. Mr. Piland will serve as temporary Chief of this Division.

The changes have been designed to increase MSC's research capability and place more emphasis on lunar science and earth resources, as well as improving the implementation of science programs in general, at the Center.

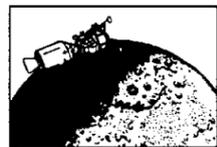


R. O. PILAND, DEPUTY DIRECTOR

ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS



VOL. 9 NO. 7

JANUARY 30, 1970

NASA raft going on the market but ... "We've still got applicable patents"

A man who lost his son at sea and has since dedicated himself to the development of water accident and survival equipment, plans to market the special life raft carried aboard all U.S. manned spacecraft.

His long search for equipment that might have saved his son's life ended with the discovery that NASA holds a patent for just such a life raft.

Now Robert J. Perchard, of Bourne, Mass., as an individual entrepreneur, has obtained an exclusive, royalty-free patent license from NASA to manufacture and sell an inflatable life raft developed for use in the manned space flight program.

The inflatable, non-tippable raft with a radar reflective surface was developed by NASA during 1959-61 for the future needs of astronauts' safety. The raft was made part of the personal survival equipment aboard all manned spacecraft vehicles.

Russell E. Schlorff, one of the five patent lawyers at MSC, and the one who negotiated the exclusive license for the raft with Perchard, wishes that more people knew that such patent rights were available. A number of non-exclusive patent rights have been granted to corporations and private entrepreneurs, but very few have taken advantage of the availability of exclusive patent licenses

from NASA. "We are trying to get the benefits of NASA research into commercial markets," Schlorff explained. "We want to make these items available to the public. In addition to the manufacturing rights themselves, we'll make available to applicants all the technical information we have on file, in order to get these inventions onto the commercial market."

Why don't more people take advantage of this opportunity? The problem seems to be two-fold. First, "Not many people are aware of the NASA patent licensing program", the patent office says. "Too many people do not realize that they can actually obtain a license for NASA inventions."

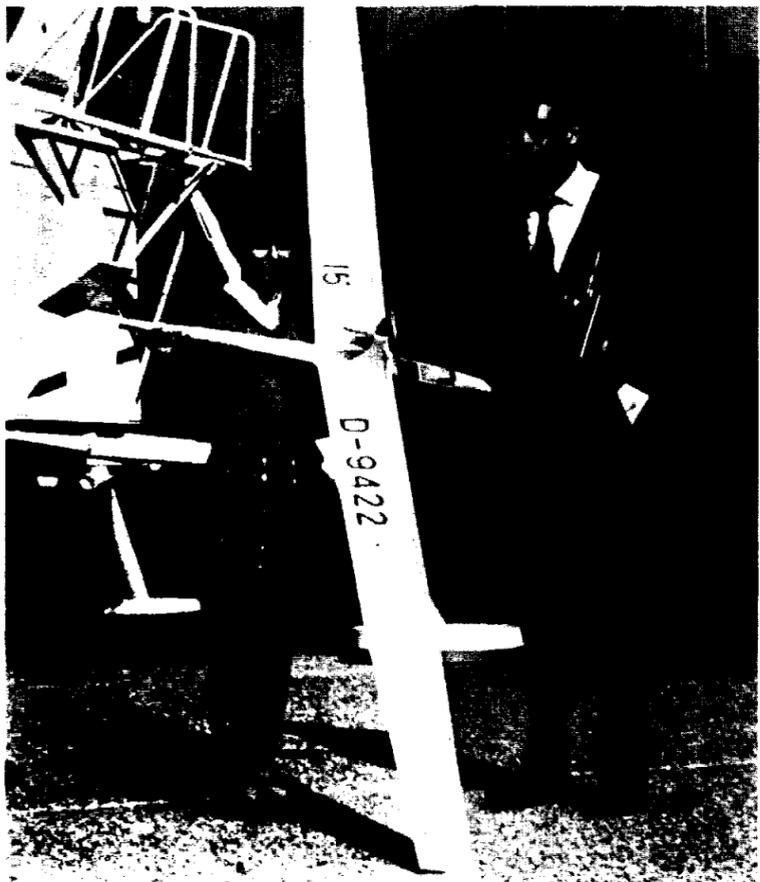
The second problem is that many NASA inventions are so extremely precise and so painstakingly constructed that manufacturers do not think that the inventions would be economically feasible or desirable to apply to their own products. What they should realize is that it is the requirement for high reliability in a hostile environment which makes the NASA device expensive. Many times the creative thought which is the key to the invention can be applied at a commercial level as well.

The way it works

How does the patent license work? An exclusive patent license ensures the manufacturer of a limited period of time, usually 3-7 years, during which no one else may legally manufacture the item.

In return for this license he is required to honor his part of the

(Continued on Page 4)



Almost any Sunday afternoon when the weather's nice, you can find members of the MSC radio-controlled model airplane club trying out the merits of their latest creations. Here Carol Brinkman, a secretary in the Structures & Mechanics Division, displays John Kiker's radio-controlled sailplane model. The plane caught John's eye while at an Aerodynamic Deceleration Conference in Braunschweig, Germany, last year. When he learned that scale models were available for aficionados, he snapped one up. He, and other club members welcome visitors and new members to any of the club's get-togethers. Call Dave Hoffman at MI3-4624, after 5:30 pm for time and place.

Announcements

South Houston Squares

New square dance classes will be beginning soon at the South Houston Square Dance Club. Register by calling 923-6783, or 643-4955 after 5.

EXTRA!

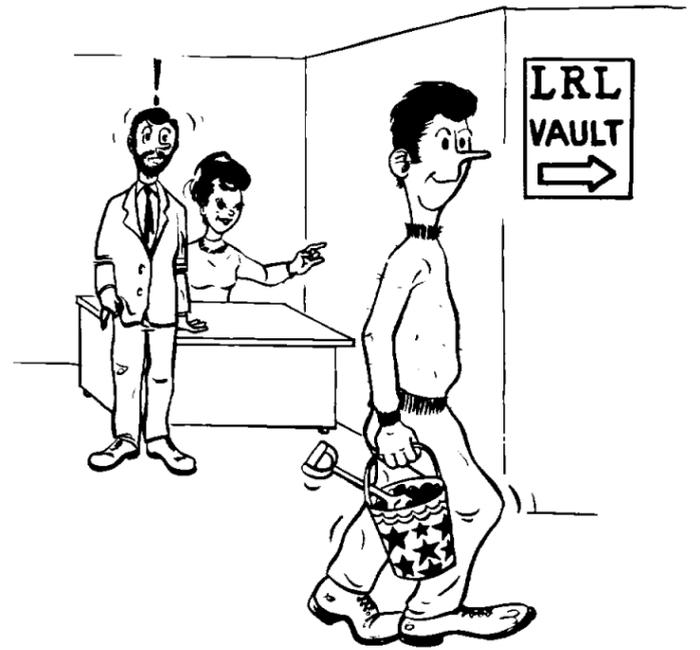
The "Roundup" editor is interested in widening the paper to include more items of personal interest to MSC employees. You can help by phoning x5111 whenever you meet or hear about someone interesting in your area — whether it be a unique job, interesting past or future event, or an idea for a feature for the "Roundup".

You don't have to be a reporter — we'll do all the leg-work. Just let the paper know who to call.

Rugby, Anyone?

Interested in forming an area Rugby football club? No experience necessary! There will be an organizational meeting at 7 pm Sunday, February 8 at the TRW Systems Group Bldg H-1, on Space Park Drive.

Oh, Dr. Smith, there's the Lunar Sample Curator, now.



EAA Bulletins

MSC Cycle Club goes to the races

The Space Center Cycle Club has a block of mezzanine tickets to the Astrodome Motorcycle Races scheduled for Friday and Saturday nights,

February 6 and 7. The seats are directly in front of the starting line, and offer a great view of the whole track. The Steeplechase Championship will be run Friday night and the Short Track Championship will be on Saturday. Tickets are \$3.50 each. Also, the club has free discount coupons for the Motorcycle Show being held that same weekend at the Albert Thomas Convention Center. For tickets and more information, call Fred Toole, x 2731, or Nick Davenport,

Table Tennis Tournament

The closing date for entering the MSC-EAA Table Tennis Tournament is February 10. Contact Steve Jacobs, x4564. Contractor & government employees welcome!

Attention Volleyballers!

The organization meeting for the MSC Men's Volleyball League will be held Tuesday, February 10, in room 316 of building 2 at 5:15 pm. Team managers should attend. There will be two leagues this year: Competitive and Recreational. MSC and active military personnel are eligible. Contact D. Doherty, x2741, with questions.

Toastmasters Install Officers

Dave Phillips was installed as the new President of the Toastmasters this month.

The Toastmasters' Club is a "painless" way of learning to think and talk on your feet, and to listen critically to what is said by others. Topics are presented over dinner, and awards are given for the best ad lib and assigned topic speakers, as well as the best evaluator.

Dinner meetings are held each Tuesday night at 6:15pm at the Ellington AFB Officers Club.

Men wishing to join the club should call David Holman, x4047.

Flag Football Champs



Champions: "Roaches"

Left to right from top: Greg Zambo, Sam Mayfield, Martin Alexander, Harry Kolkhorst; second row: Lee Norbraten, Mike Conway, Bob Wiley, Dan Womack; third row: Richard Wadle, Paul Cantin, Al Wylie, Jack Shreffler, Richard Swalin; bottom row: Charles Seaman, Ivan Johnson, Mel Rother (coach), Ron Lanier, Nick Faust, John McNeely; Absent: Mason Lancaster, Pete Williams, Phil Shanahan, Bob Arndt, Gene Ricks, Herb Estes



Runners-up: "Tigers"

Left to right from top: Mike Hill, Don Holkan, Gideon Weber, Brian Morris; second row: Jim Raney, Jim Long, Tommy Solis; third row: John Miller, Bill Whatley, Ed Svrcek, Dom Arce; bottom row: Mack McCafferty, Ken Westfeld, Bob Becker; Absent: Larry Ratcliff, Larry Armstrong, Dick Parten, James Blackmon, Al Pennington

Your Job in Focus

New life insurance rates

The U.S. Civil Service Commission has approved the following changes in premium groups for the optional \$10,000 insurance coverage under the Federal Employees Group Life Insurance Program, effective with the first pay period in April 1970:

OLD RATES		NEW RATES	
Age Group	Bi-Weekly Premium	Age Group	Bi-Weekly Premium
Under 35	\$ 3.00	Under 35	\$ 1.30
35-54	\$ 6.00	35-39	\$ 1.70
		40-44	\$ 2.40
		45-49	\$ 3.60
		50-54	\$ 5.50
		55-59	\$17.00
55 or over	\$20.00	60 or over	\$19.00

There will be no January increase in premium for employees who reached age 35 or 55 in 1969.

There will be a FEGLI Open Season during the month of March 1970 during which employees will have an opportunity to obtain regular insurance coverage as well as the additional optional insurance. Further details will be published as soon as they are received from the Commission.

SAMPE to discuss pollution

The South Texas Chapter of SAMPE will meet at the Nassau Bay Motor Inn, February 4. Social hour and dinner begin at 6:30 pm. Dinner reservations: D. Cox, 488-0910, x461, or S. Jacobs, 483-4564.

Chess Club:

Interested in chess? Form your own five-man team and join the intramural Chess league. Call Ken Pierce, x4704. Or visit the MSC Chess Club any Thursday at 7pm in bldg 336, Ellington.

Scientists Convene At MSC

"The Role of Clinical Pathology in Manned Exploration of Space" will be the topic of a panel discussion and meeting of the American Society of Clinical Pathologists. The meeting will take place in the building 1 auditorium on February 12.

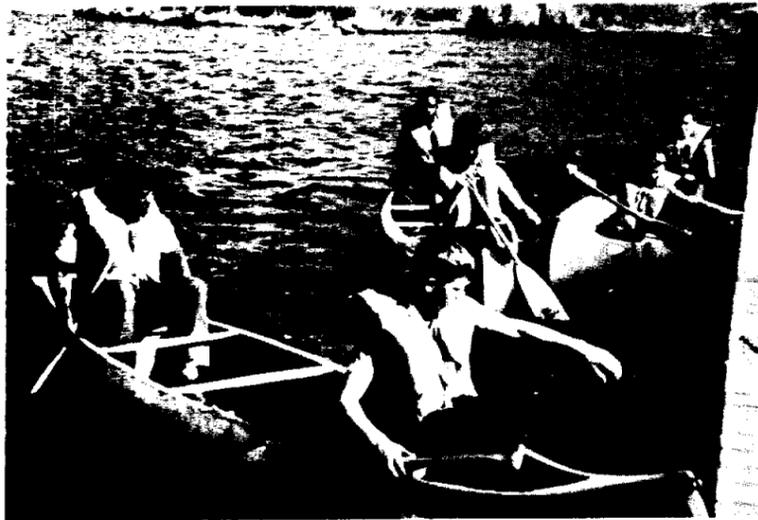
Wig show

The EAA will be giving another wig show on Tuesday, February 10, at 7:30 p.m. in the ballroom of the Nassau Bay Hotel. Admission is free, and a wig will be given as the door prize.

Admin. helps give boys a Merry Christmas

The Harris County Boys' School put that donation from the people of the Administrative Directorate to good use last month. The more than \$700 raised for the boys joined the donations of several other Bay Area firms to buy scouting equipment, canoes, sports equipment, shop and art supplies, a sailboat, and trips to summer camp for 40 boys. Colonel Frank

Borman stopped by to make a personal donation. Three other astronauts joined in passing out the gifts.



Roundup Swap-Shop

(Deadline for Swap-Shop classified ad is the Thursday preceding Roundup publication date. Ads received after the deadline will be run in the next following issue. Ads are limited to MSC civil service employees and assigned military personnel. Maximum length is 15 words, including name, office code and home telephone number. Send ads in writing to Roundup Editor, AP3.)

REAL ESTATE

Attractive 2 bedroom frame house in Dickinson, carpeted, large fenced yard, pecan trees, new window unit. Also cabin, two beautiful wooded lots near Lake Livingston, x2771, Barnard, or 534-3117 after 5

3-2-2 brick on 1/2 acre lot 2 miles from Alvin, 20 min. from NASA, built-ins, central a/h, equity \$5,000, will consider financing part equity, x5271, Morris, or 658-4855 (Alvin)

3-2-2 Nassau Bay Colonial, formal living & dining, den, fireplace, corner, carpeted, fenced, drapes, 5 1/4%, owner, 591-2340, Bell.

3-2-2 Friendswood, 5 1/4%, w-w carpet, built-ins, large fenced yard, trees, on cul-de-sac, 482-7160, Pringle.

4-2 1/2-2, new home in Clear Lake Forest, small equity, \$37,200, call 591-4027

Choice wooded lot on Briarcliff on Lake Travis; moving, will sell below 1968 cost, 667-4332 after 5

MISCELLANEOUS

CAL 20 sailboat, 2 sets sails, spinnaker, head, two bunks, assorted gear, \$3300. 649-0723, Nelson.

Classical guitar, flamenco tap plates, good tone, \$45, 877-2981, Ong.

Danish teakwood end table, set of modern corner couches, industrial workbench, tube tester, Waste King dishwasher, 488-0149, Lang.

Pentax 35mm f 1.8 single-lens reflex, like new, just adjusted at factory, \$120, x3816, Manka, or 523-0519.

VW trailer hitch with ball for VW's prior to '68, \$10, 471-4332, Eldred.

Sears portable dishwasher, 1 year old, excellent condition, \$75, 487-2261, Gott

100% human hair fall, dark brown, never worn, cost \$85, sell for \$50 or best offer, 488-2273, Loden.

Belt massager, Eska 3-speed, like new, cost over \$75, sell for \$25; also 2 oars, 2 oarlocks, 3 life preservers, all for \$5; also one Goodyear CWT tire, D70-14 WW, plus rim, \$10, Statz, 482-7607.

Two KLH-6 speaker systems, like new, x4926, Goodrick.

Ham equipment: HT37-\$180, SB200-\$160, both in excellent condition, MO 6-1069, Loch.

Wooden desk, 30x50", single pedestal with 4 box drawers, hand-made, \$65, 488-1028 after 6, Coan.

2 new snow tires, 7:35x14, Allstate Silent Trac, used 1 month, 4,000 miles, \$20, x5461, Haven.

Hammock, \$7; 3-drawer chest, \$10; baby crib, \$10, pair boys' wall lamps, \$7.50; 13x14 rug pad, \$10; new dark brown wiglet with case, \$15; x4726, Lippitt, or 649-3200.

1960 Whirlpool refrigerator, 12.75 cu. ft., top freezer, good throughout, \$35, 946-5182, Ward.

Sekonic model 100 8mm zoom lens movie camera, f/1.1 single lens reflex, auto exposure, runs 50 ft of film without reloading, excellent condition, \$55 or trade for 35mm, 471-4055, Tucker.

Portable T.V., \$30; platform rocker, \$10; clock radio, \$10; crib and mattress, \$15; spring horse, trike, wagon firetruck, \$12, 591-2340, Bell.

Travel and car baby bed, used once, like new, cost \$15.50, sell \$9; also baby walker-jumper with tray, excellent condition, cost \$7, now \$2.50, call 534-3890, Bass.

T.V. dot/bar generator, portable, x 4816, Revely.

Double bed headboard and frame, solid maple, antiqued white, good condition, \$15, 488-3238.

18' fiberglass Rayson ski boat, low profile, 500 hp/427, Oczkowski, 926-8994.

Will rent storage area, 12x24', Alameda-Genoa/Old Galveston Road area, 946-4752, Morton.

Savage rifle, .22 caliber, bolt action with clip, 4x scope, case, cleaning kit, hardly used, \$50, x4981, Rubenstein, 877-3288.

Two Gates professional tape cartridge playback units, one matching record amplifier, remote control, manual, 116 tape cartridges, cost over \$2,500 new, sacrifice for \$699, x2681, Wancho, or 644-7777.

Dyna-Kit FM-3 tuner and SCA-35 stereo amp, LW speaker in Klipschorn enclosures, all for \$250; Sears 8' pool table + wall rack, only \$150; complete 15 and 20 gal. aquarium set-ups; Tektronix 514 AD dc to 10 M.C. oscilloscope with delayed sweep, excellent condition, \$225; 160 lb. weight set with bench, \$15; Tollison, 482-1014.

Fish aquarium, two 10-gal. tanks complete with stand, pump, filter, lights, \$35, x2428, Girala, or WA1-7212.

Admiral portable television, \$20, Foggatt, 474-2740 after 5pm.

Sony model 540 four-track tape recorder, 2 mikes, lists \$400, will sell for \$300 (5 mo. old); also Motorola X300 watt 7' AM/FM-FM stereo console with record changer, \$700 new, now \$399, x2601, or 644-7777 Wancho.

Heavy-duty galvanized steel swing set, \$30, x5046, Sayers, or 591-2395.

27' cabin cruiser, ship-shore, depth recorder, galley-head, bunks, 6 years old, x5165, Mullins, or GR1-3086.

Reddish-blond wig, human hair, completely hand-tied, styled, original cost: \$139, worn once, now \$25 or best offer. Also dark brown wig and dymel fall, best offer, x5171 Loota, or 474-3320.

14' mahogany runabout, large wheel trailer, \$120, excellent fishing or skiing, 877-1666.

Fly retractable with Aero Club, Inc., P&K Bonanzas, IFR, 195 mph, \$17/hr. wet; Cessna 172, \$9/hr; 150, \$8/hr; instructor, \$5/hr, Ward, 877-3187.

PETS

Free puppies, 2 females, 2 males, 1/2 Weimaraner, 1/2 male on the loose, 5 weeks old, 877-1815, Wade

3 horses: 2 mares, 1 Appaloosa gelding, gentle, just in time for trail rides, reasonably priced, 966-1397, High (Dickinson)

German Shepards: 1 female pup, 5 male pups, 6-weeks old, black and sable; 1 year-old female, 1 1/2 year old male, black and sable, x4691, Adams, or 477-2910

Perfect pale bluepoint Siamese stud, 1 year old, de-clawed, shots, housebroken, reasonable, 474-2489

WANTED

Female roommate to share 2 br studio apt, Gulf Freeway and Bellfort, x4488, Robb, or 645-1198 after 5:30

Will fly you anywhere, up to 3 people can share costs, 591-4163, von Ehrenfried

People interested in sailing Lidos, call 877-3366, Hoover

Outdoor basketball backboard, hoop and attaching hardware/ angle iron, 946-4161 after 6, Wourms

Ride to and from U. of H. wk. days, except Wed, 8-4:30, will pay, x5141, Davis, or 681-3963.

Baby carriage in excellent condition, 488-4120, Hooper

AUTOMOBILES

66 Chevy wagon, Biscayne, V-8, r/h, a/c, automatic trans, power, 2-seat, 877-3245, Peterson

68 Pontiac GTO, vinyl top, a/c, power, 28,000 miles, warranty transferable, will trade equity for older car, 534-4148 (Dickinson)

65 Mustang, high performance 289 engine, 5-on-floor, radio, heater, \$850, 488-1042, Bullock

60 Plymouth, 4-dr, automatic, power steering, new engine, tires, \$325, 944-7278, Dillinger

65 Corvair convertible, 4-speed, air, handling package, very clean, excellent condition, \$635, 523-0519, or x3816, Manka

67 Suzuki X-6 Hustler, \$250, 844-3635, Campbell

60 Falcon station wagon, standard trans, good work car, \$200, x2051, Springfield

63 Chevrolet hardtop Impala V-8, automatic, factory air, power steering, \$795, 932-2065, Coward

65 Buick Riviera, stereo tape, air, bucket seats, 1700, x3041, Browning

67 Mustang hardtop, V-289, automatic, factory air, wide tires, radio, excellent condition, x7581, Bailey or 877-4898 after 5

Motorcycle, Honda Super Hawk, 305cc, crash-bar, luggage rack, only 1250, \$495, 488-1028, after 6, Coan

67 Plymouth Fury VIP 2-dr hdtp, power, 383 V-8, a/c, dark green, black vinyl top, Smith, 877-1111

67 VW, radio, heater, 25,000 miles, good tires, excellent condition, \$950, Renfro, x2741, or 877-1849 after 4:30

69 Javelin SST, 8700 miles, sports interior, air foil, a/c, 293, console, etc, excellent condition, take up payments + \$400, x4696 or 946-3427 after 5

66 VW sedan, 44,000 miles, radio, \$850, McElmurry, 591-4665

65 VW Squareback wagon, needs left front fender, hood, and bumper, has radio, \$450, Morton, 946-4752

68 Pontiac LeMans, V8, auto, air, full power, vinyl roof, \$1895, Oczkowski, 926-8994

68 VW, contact Remmich, x5165

66 Chevelle, must sell soon, excellent condition, under Blue Book, 932-5983 after 5

61 Rambler station wagon, air, overdrive, good mechanically, \$150, Jenkins, 946-0819

67 Gold Firebird, black vinyl top, automatic, power, air, extras, 326 cu. ins., \$2395, Davis, x5141 or 861-3963

60 Chevrolet Impala, runs well, \$100, Tollison, 482-1014

65 Chrysler, 2 dr hdtp, air, power, FM radio, \$900, x4751, Tolin, or 479-1408

Cost Reduction Shopping List

The Awards Office has passed along this list, prepared by Marshall S.F.C., of areas where cost reductions may be possible. See whether any of the items could be applied in your area.

- Increase your productivity.
- Save on mailing costs.
- Reduce contractor's costs.
- Consolidate storage.
- Consolidate deliveries.
- Reduce the distribution of documents and reports.
- Combine or eliminate documents and reports.
- Turn in equipment and supplies that you do not need.
- Clean out and turn in file cabinets.
- Eliminate some travel requirements.
- Reduce the use of electricity and other utilities.
- Make a change in design that produces savings.
- Value-improve some specifications.
- Reduce the cost of processing purchase orders.
- Find and use less costly vendors.
- Substitute satisfactory lower cost items.
- Reduce equipment rental costs.
- Perform the job on time and reduce overtime.
- Eliminate unnecessary cleaning requirements.
- Schedule your work to improve efficiency.
- Save your boss some time by doing a complete job.
- Reduce some requirements for testing.
- Relax a "too tight" tolerance or a "too bright" finish.
- Reduce shipping cost—consolidate shipments.
- Reduce reproduction requirements.
- Improve maintenance procedures.
- Reduce frequency of reporting.
- Eliminate unnecessary meetings.
- Reduce computer print-out requirements.
- Extend the shelf life of supplies.
- Reduce classification requirements.
- Use the less costly of automated vs. manual procedures.
- Simplify checkout and test procedures.
- Reduce contractor reporting requirements.
- Use other agency and NASA surplus instead of new materials.
- Take better care of instruments.
- Release unneeded office, shop, or storage space.
- Rearrange your work area for improved efficiency.
- Eliminate or reduce graphics requirements.
- Use less costly methods and materials.
- Eliminate, reduce, or combine requirements at no loss of effectiveness of function.
- Implement a new or unique method.
- Conserve material, equipment, supplies or manpower.
- Eliminate low priority activities or substitute less costly alternatives.
- Provide direction to contractors to produce improved or less costly performance.

How lucky can you get?!



A delighted Tom Krenek accepted the \$300 Grand Prize from Jim De Muth at the Credit Union door prize drawing last week.

Tom Krenek won one of the \$10 prizes given at last Saturday's MSC Credit Union meeting. That's lucky, in itself, since there were some 200 voting members there for the same drawing. Then all the names were put back into the hopper for the grand prize. Who won? Good old Tom.

The main business of the meeting, though, was the election of officers: Board members — J. Moody, H. Ferrese, O. Crow, P. Sturtevant; Credit Committee: J. Haptonstall, E. Stelly.

Ed Campagna's club put on a five-man magic show, to the delight of all present.

Those dang flying machines are here to stay!

Sixty years ago total United States air power amounted to one plane and no aviators.

In fact, the story of early governmental attitudes on air transportation is one of "monumental bureaucratic bungling and Congressional apathy beyond imagination", according to Lt. Colonel J. R. Fairbanks, ret. His booklet, entitled *Air Transportation*, is a fascinating collection of the better vignettes from the early history of American aviation.

The history of flight does seem to bear out Fairbanks' contention that:

The ever popular adage that if man were intended to fly, he would have been born with wings, was just as true in early Greece, as it is today. Overcoming this obstacle to flight is probably the greatest single feat that man has achieved in the entire spectrum of technological development.

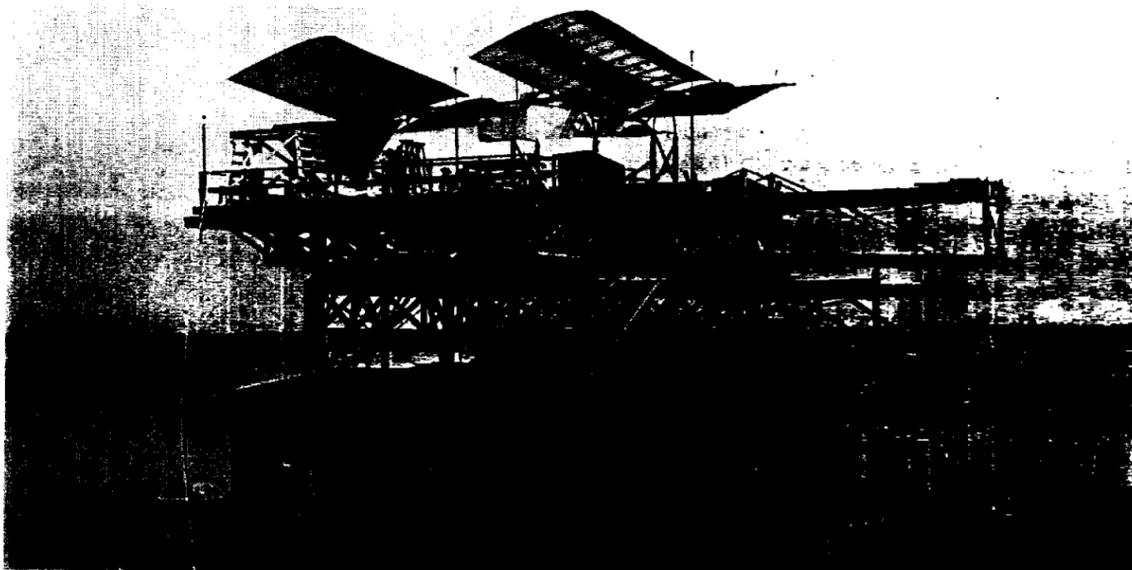
Samuel P. Langley's efforts to develop a man-carrying "aerodrome" were financed by Congress. But when his craft, a glider fitted with a small steam engine, intended to be catapulted into flight from the deck of a houseboat on the Potomac River, plunged instead into the icy water,

Congress withdrew all financial support for aeroplane development in any form. Apparently Congress reflected the attitudes of the public, for the press also criticized Langley for his "costly experiments in unnatural pastimes."

Wilbur and Orville Wright, however, set out on their own to turn their gliders into powered airplanes. They developed the world's first wind tunnel, then took the wind tunnel data, experience from their own experiments, and theories of flight from their contemporaries and, on December 17, 1903, "coaxed the first man-carrying powered aircraft into the air for a tenuous fifty-nine second period of sustained flight."

The Army remained unconvinced. The brothers were approached by other governments, but they declined, hoping that the U.S. government would see the light.

Finally, under President Theodore Roosevelt's insistence, the Signal Corps sent out a request for an air machine for military use. Either cynicism or realism led them to include a requirement that the machine be capable of transport in a standard mule-drawn, four wheeled Army wagon.



"costly experiments in unnatural pastimes"—that's how Samuel P. Langley was accused of wasting the tax-payers' money when his steam-powered "aerodrome" plunged into the chilly Potomac River in 1903. His craft did fly, but not until eight years after this debacle. The flop resulted in the withdrawal of all Congressional financial support for developing a self-powered aircraft for the next eight years. The first Congressional appropriation for military aviation was not passed until 1911, over 7 years after the success of the Wright brothers.

(Courtesy Smithsonian Institution)

The Wrights competed successfully, and, six years after their successful flight, on August 2, 1909, the Army accepted its first flying machine.

Two months later, two lieutenants were instructed to learn to fly the machine. Soon after, they received orders which pulled them off the project without explanation. The U.S. Signal Corps

thus included one plane and no pilots.

Eventually another lieutenant was assigned to the plane. Congress gave him a whopping \$150 per year for operating expenses, and the young man proceeded to teach himself to fly — without benefit of instruction, and with the expenditure of his own funds to supplement the Army's pittance.

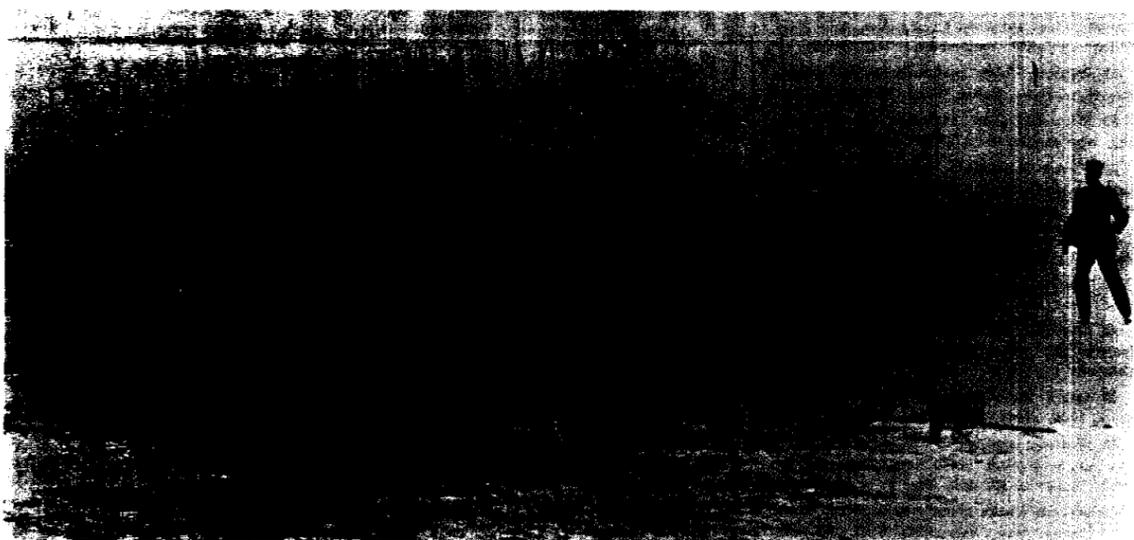
When the plane gave up the ghost, a private citizen loaned his plane until Congress would agree to further appropriations.

Thereafter, government support began to gather momentum. Still, it seemed to take the graphic lesson at Pearl Harbor to convince Congress that "those dang flyin' machines are here to stay."

Fairbanks' chronicle of the early years of flying proceeds to the present day. It is highly recommended reading.

drawn from:

Air Transportation, by
Jesse Robert Fairbanks
National Aerospace
Education Council
806 15th St., N.W.
Washington, D.C., 20005



Two erstwhile bicycle mechanics from Dayton, Ohio, Orville and Wilbur Wright, carried out "the first (flight) in the history of the world in which a machine carrying a man had raised itself by its own power into the air in full flight, had sailed forward without reduction of speed, and had finally landed at a point as high as that from which it started." The flight lasted a total of 59 seconds, and covered 852 feet. This flight on December 17, 1903, should have proved even to a doubting Congress, that powered flight was possible.

* quoted from *This New Ocean*, NASA SP-4201, pg. 6.

Two recent patent grants at MSC

Emergency Escape System, patent number 3490130, granted to Jack A. Kinzler and David L. McCraw, Technical Services Division.

Already in operation at KSC, this escape system serves to protect technicians who service the LM on the launch pad. Under previous conditions, only two hatches were available for egress for the 30-some workmen who might be conducting pre-launch checkout on the LM. The new system makes instantaneous escape possible in case of emergency. Small "plugs" belt the circumference of the SLA, each plug fitted

with a surrounding die and compressed air energized cylinder core which can be detonated either individually or collectively to blow



Gravity Stabilized Flyer

man-sized egress portals within milli-seconds of detonation.

Gravity Stabilized Flying Vehicle:

patent number 3490721, granted to Harold I. Johnson, Flight Crew Support Division.

This patent is for a vehicle which operates much like a one-man helicopter platform. It is a hovering type craft, with stable attitude, which does not require the complex control and instrument panel of a helicopter. It operates in a gravity environment, utilizing a rocket propulsion system. It can also be operated in the un-manned mode.

NASA patents await discovery

(Continued from Page 1)

bargain and see to it that the product does actually get onto the commercial market. He need pay no royalties to NASA or anyone else for his rights to manufacture and sell the product.

Before an exclusive license will be granted, the patent must have issued for as least two years. During those two years, anyone who wishes to do so may obtain a free, non-exclusive license to use the patent commercially.

If, at the end of that time, the product is still not on the commercial market, NASA offers the exclusive license as further inducement to get the product before the consumer.

Yet almost no one has taken advantage of the extensive re-

search and development done for them by NASA inventors and technicians.

There are a few notable exceptions to this neglect, one of them being the life raft mentioned at the beginning of this article.

West Mansion Open House Scheduled

The Lunar Sciences Institute has extended an invitation to all MSC employees and contractors to visit the Mansion on Clear Lake. During the month of February, visitors will be welcome from 4 to 5 p.m. every Friday. Thereafter, the Institute will be open the second and fourth Fridays of each month.

There are no charges and reservations are not required.

ROUNDUP

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