## ROUNDUP <br> NASA MANNED SPACECRAFT CENTER <br> HOUSTON, TEXAS <br> $\xrightarrow{2}$



SUGGESTION AWARDS—MSC employees holding certificates received cash awards for their suggestions on improving certain jobs at the Center. They are from left to right seated, Joe F. Naples, Bertha M. Corbett, Francis R. Czrter. Left to right standing are Joseph Atkinson, Joe ${ }^{\text {F }}$ gestion Committee. Not seen in the picture is Jean P. Burgan who also received an award.

## NASA Extends Several Contracts

Several cost-plus-fixed fee contracts were recently extended by NASA. One of the extensions is with Taft Broadcasting Corporation, Houston, Texas. Taft provides support for the onsite clos-ed-circuit TV system during space missions.

Value of the contract through the second year is estimated at $\$ 575,900$. The second-year option remains in effect through December 31, 1973, and the contract provides for one additional year.

Bernhard Knust, Inc., Houston, Texas, also received an extension of one year for precision machine manufacturing services at MSC.

Value of their second-year contract is estimated at $\$ 604,085$.

Knust, Inc, builds scale size metal models, hand tools and orher equipment for Skylab and Space Shuttle Programs.

Also extended is the contract with Delco Electronics. Delco will be responsible for analysis of Guidance and Navigation Hardware and Software problems, perform any required retrofit and or modifications; perform a complete checkout and test for all Primary Navigation, Guidance and Control Systems; and analyze, repair and test failed Guidance and Navigation Airborne Hardware and Ground Support Equipment.

## Students Participate In Advance <br> Science Seminar

The Clear Creek Independent School District is sponsoring an Advance Science Seminar under the instruction of Dr. Charles Walkinshaw of MSC's Medical Operations Divisions.
The Seminar meets at the Lunar Receiving Laboratory at MSC Monday through Thursday from 3:15 to 4:30 p.m. The students were selected for this special seminar on the basis of high scholastic achicvements, interest in biology and medicine and a desire to expand their backgrounds in areas of expertise at MSC.

Participating in the seminar are seniors Bill Geiger, Bob Kilboum, Garry Johnson, Mary Applewhite, Becky Heider, Erlene Nolly and Martin Reed.

Special laboratories have been arranged to expose these students
to procedures employed in simulation testing electron microscopy and methods of advanced planning.

Each student has devoted 20 hours of laboratory training under the direction of an MSC Scien-tist-Advisor.
Two of the projects undertaken by the group have already led to the basis for a scientific journal article. One of thesc-electron microscopy of germfree peanuts-has led to the discovery of a new confirgeration of one of the parts of the developing peanut cell.

It is articipated that the advanced Science Seminar Course will become permanent in the curriculum offered to seniors in the Clear Creek Independent School District.

## NASA To Provide Health-Care

A contract that will bring hos-pital-quality care to a remote community at a distance from established hospital facilities was recently signed by NASA and Lockeed Missiles \& Space Company
Under the $\$ 4.9$ million contract, Lockheed will design and test a system which will provide comprehensive health care to people in a remote community.
By means of advanced medical instrumentation and communications links using voice, data, and television, a profile of a patient's state of health wil be transmitted to a central hospital for analysis and diagnosis.
Paramedical personnel at the patient's remote location can then be advised of the appropriate action to take. The Health Services and Mental Administration of the Department of HEW is a joint participant in the program.
The remote health care systemwhich will apply available space age technology-is a significant example of NASA industry transfer of space technology. The program was designed originally for space applications under the name of IMBLMS-Integrated Medical and Behavioral Laboratory Measurement System-as a means to transmit medical information from space to physicians on Earth.
Applying the system to a remote community on Earth will have the twofold purpose of proving its potential for space use, and its worth to communities at a distance from central hospital facilities.

NASA is now reviewing proposals from various remote com(Continued on Page 3)

## Astronaut Lovell to Bid

 NASA Farewell Soon

JAMES A. LOVELL, JR.
Astronaut James A. Lovell, Jr., the man who has spent more time in space than any other human being, announced he will retire from NASA and the Navy March 1, to accept a position in private industry.

A veteran of four space flights and a member of the first crew to circle the moon, Lovell will become Senior Executive Vice-President of Bay Houston Towing Company, a Houston-based water transport and harbor towing firm with diversified interests in shipping, agriculture, mining, ranching and oil and gas.
Lovell, who has been Deputy Director of Science and Applications at MSC since May 1971 said his decision to leave the space program was one of the most difficult of his life. He stated, "I am sure the opportunity of making four space flights- including two lunar missions-will remain an experience without equal in my life. I hope these missions have contributed significantly to Man's understanding of the Universe.'
"I feel privileged to have been a part of the Apollo program," Lovell continued, "and I am particularly grateful to have had an opportunity to absorb part of the
management expertise of Apollo." MSC Director Christopher Kraft, Jr., said, "Jim Lovell has made many significant contributions to his country through his outstanding performance while he was an astronaut. These not only include his many hours in space, but his untiring efforts in promoting physical fitness and his most recent managerial activities. We wish him well in his future and know he will succeed in what he sets out to accomplish. I personally will miss his presence at MSC."
Lovell will retire from the United States Navy with the rank of Captain after 21 years of commissioned service. He has been assigned to NASA by the Navy since September 1962, when he became one of the second group of astronauts to be selected for the U. S. space program.

Lovell has spent a total of 715 hours in space. He was commander of the Apollo 13 mission, which was to have landed in the upland Fra Mauro region of the moon in April 1970. The mission was aborted after an explosion disabled command module oxygen and electrical systems, and Lovell and his fellow crewmen Fred W. Haise and John L. Swigert, Jr., had to make a hazardous circumlunar return to earth using the lunar module as a life boat.
Lovell was also a member of the Apollo 8 crew which first circled the moon at Christmas 1968 and commanded the Gemini 12 mission, which successfully concluded the Gemini program in November 1966. He also flew on the 14-day Gemini mission which set a space endurance record and completed the first rendezous of two manned, maneuverable spacecraft in December 1965, as Gemini 7 was joined in orbit by Gemini 6 .
(Continued on Page 3)


SCIENCE SEMINAR-Seen in this picture are participants of the Clear Creek Independent School District's Advance Science Seminar held at MSC's Lunar Receiving Laboratory. From left to right standing (left side of the table) are Dr. Charles Walkinshaw, course instructor, Mrs. Mary Henny, Bill Geiger, Bob Kilboum. Seated Erlene Nolly and Martin Reed. Standing is Dr. Richard Simmonds. the (from left to right) are Becky Heider


AMATEUR RADIO-Barry Goldwater is seen operating the control board at MSC's amateur radio station (WM5 MSC) during the Apollo 17 mission. "Ham" operators made about 6,000 contacts throughout 87 countries exchanging signal reports and answering questions about the mission. Those persons contacted received a special card from the Center (QSL card) which is
75 members in MSC's Amateur Radio Club.

## Traveleers to Have Join the Payroll Party For Members Savings Plan.

The first annual "Traveleers" party is scheduled for January 27 , 1973 from 8 p.m. to midnight. The party will be held at the Elks Lodge in Kemah, with live music for dancing. Refreshments will be served.
The party is free to members of the Traveleers and their families. Admission will be by membership cards. Additional guests will be charged $\$ 1.50$ each.
All Travelcers planning to attend the party should contact Dorothy Rafuse at 483-3166.

## 3-Day Skylab Simulation Ends Friday at Mid-night

The 3-day Skylab Simulation is scheduled to end at midnight January 19, 1973.

A shift of flight controllers came on duty in Mission Control Center at midnight Wednesday to prepare the summary flight plan for the following day's activities, thus beginning a fullymanned three-day simulation involving all elements of the team for the first time.

The around-the-clock simulation which started early Wednesday will pick up the flight plan in the 10th day of mission as Skylab makes its way across the Alantic Ocean coming up on Ascension tracking station with seven hours remaining in the crew sleep rest period.
In the normal sequence of activities, the flight controllers who come on at midnight tally the previous day's activities and prepare a summary flight plan for the following day. The day shift of controllers executes the flight plan that was prepared the previous day by the evening shift. Then the evening shift comes on duty to prepare another detailed
flight plan for use the next day. Activities involving all elements in the flight take place between 8 a.m. - 5 p.m. each day. The Skylab Flight Management Team from NASA Headquarters, Marshall Space Flight Center, Kennedy Space Center and the Manned Spacecraft Center are participating in the simulation. Skylab astronauts are manning the crew simulators in MSC Building 5, and the principal investigators for the Skylab experiments are manning their support stations.

The Huntsville Operations Support Center for Skylab at MSFC is providing support for the Orbital Workshop systems. North American Rockwell in Downey, California is supporting simulation in the event of problems with the spacecraft systems, and Martin Marietta has a team on standby status in Denver, Colorado for any problems that may develop. Senior representatives from NAR and Martin are also in the Mission Evaluation Room in Building 45 here at the Center.

## Club Plans Trip

The NASA Employees Club is planning a two-week trip to Greece in May of this year. A flight will leave from Dulles Airport, Washington, D. C. on May 16 and will fly directly to Athens, Greece.
Based on full complements, the flight alone can be taken for $\$ 245$; the flight and a ground tour will be available for $\$ 545$.
Reservatrons should be made before March. For reservations and more information contact $G$. Degennaro, Code FA.P, NASA Headquarters

All of the Flight Operations Directorate are involved in the simulation along with a medical team from Life Sciences Directorate, members of the Skylab Program Office, and an Earth Resources Experiment Package team from Science and Applications Directorate.

The Aircraft Applications Branch is providing simulated aircraft movements, the tracking station data is being simulated, and Recovery Operations Branch is providing updates on the landing areas in the event of an abort of the mission.

Directing the three-day simulation are three teams of sim controllers from the Simulation and Training Branch. They insert malfunctions at the proper times to exercise the procedures and mission rules developed for the flight to observe the reaction of the control teams.

The three days of simulation is oriented more toward experiments than toward activities connected with flying the vehicles.

## NEBA President Says Check Beneficiaries

One of the more important advantages the NEBA Life Insurance Plan offers is a speedy payment of the benefits. Normally this requires only about two weeks after the claim has been filed, assuring the survivors of receiving a sizeable amount of cash when most needed.
Roy C. Aldridge, president of the MSC chapter of NASA Employees Benefit Association stated that "It is wise to periodically check the designated beneficiaries of insurance policies due to the many changes that occur to most individuals over a period of years.
Aldridge was referring to changes in marital status, dependents, estates; wills, etc.
He also feels it is necessary to designate both a primary and sec-
ondary beneficiary, especially if the spouse is the primary beneficary. In the event death occurs to both the insured and the spouse at the same time, the benefits will be paid to the secondary beneficiary.
If a secondary beneficiary has not been designated, payment of the claim could be withheld until the beneficiary is determined by litigation. This could mean lengthy delays in the settlement.
To verify designated beneficiaries, it is necessary to visit the NEBA Office (room 360 building 4.) The information will not be given by telephone. Aldridge said.
For information on NEBA group life and travel accidents life insurance, call extension $5+10$.

## MSC Golf Association Seeks Members

The MSC Golf Association is Epps; new nembership flight-first seeking new members and re- place, Tom Semenuk place, Biil questing that veteran members Keathly. return applications for the 1973 season, according to Bob Gordon, MSCGA vice-president and membership chairman.
The membership drive, which began January 8, will terminate February 5, 1973.

Winners of the 1972 golf tournament are: championship-first place, Bill Dunsenberry; second place, Mike Conway; first-first place Bob Gordon; second place, Ed Cawley; second-first place Jim Sanders, second place, Harold

Awards are scheduled to be presented on January 22 in Building 1 auditorium.
A total of 11 tournaments will be played in 1973. Those interested in playing-cither civil service, contractor employees and Ellington employecs- are requested contact Gordon at 483-5111. Other MSCGA officers include, Gerry Shinkle, president; John Lottinville, trophy and rules chairman; John Jones, handicap chairman; Lou Braun, treasurer.


COLLOQUIUM SESSION-Neil Armstrong the first man on the moon is serving as chairman at one of the colloquim sessions on "Lunar Dynamics and Observational Coordinate System" which was held in the Berkner Room January 15-17. Armstrong is now a professor in the Department

## ROUNDUP



The Roundup is an official publication of the National Aeronautics and Space Administration Manned Spacecraft Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for MSC employees.
Editor: Janet Wrather Photographer: A. "Pat" Patnesky

## Roundup Swap-Shop

Shap advertisiru is available to MSC and on-site cortractor personnel. Articles or services must be ffered as advertised, without regard to race, religion, sex or national orign. Ads should be 20 words or less, offered as adve telephone number. Name and office code must accompany, but need not be inciuded in ad copy. Typed or printed copy must be received (AP3 Attn: Roundup) by Thursday

## MISCELLANEOUS

Small tricycle, minus 1 pedal, $\$ 7$, inchworm, yr old,
Carol 482.3085. Comera, Minolta Autopak 800, 126 Car endn, cost $\$ 70$, ensod completely auto, $\$ 35$, Handley, 482.7041

Baby bed. S15, fireplace with gas log, S , $\$ 95$ electric hedge clit
highchair $\$ 25$, 946.4094.
Body pts =or VW Squarebk, finders, doors,
bumpers, trim etc, Samauce, 488-0406. bumpers, Prim erc, Samauce, AB8 Cart, bog 3 woods, 5 irons, 1 putter, all for $\$ 35$,
 gd beginner's machine, $\$ 25,944-7760$.
Antiaue Oak Armoire, ca 1880 , pegged, berelled mirror doors, two bottom drawers, 2627. 481 1356.
mese bronze-ware in teakwood case, direct from Thailand, 941 - 0574 .
Two 1954 Scott Atwater 16 Hp cutboard With tanks, hoth rum one
$\$ 75$, ea, Price, 477.6410 .
Remington 552 BDL Speedmaster auto 22 with weever 4 X scope,
Price, 471.3314 . Pearce-Simpson Depth indicator,
type model DS 464, $\$ 55,334-1946$.
$\begin{array}{ccccc}\text { type modet } \\ \text { Camera, } 35 \mathrm{~mm}, & \text { Kodak Retina } 1, & \text { com- } \\ \text { pur shutter } & \mathrm{F} & 3.5 & \text { iens, gd cndn, } & \$ 25 .\end{array}$
 boll, shoes, size 734 , bag, 520 . Sunbeam mixmaster gd endn, \$12, 334.1946

Two twin beds, ed with frame,
mattess, li nw, $\$ 55$ each, $482-6058$.
Spanish 3 -drawer chesf, dark wood, $\$ 35$, student typ: desk, antiqued green, \$15,
Gibson, 483 -3937. Bcoutiful carved Chiness 5250 woold screen $\$ 350$. Irg carved chert, 649 -2569.
Danish mocern walnut bdim oult, $\epsilon_{4}$ dresser wi mirror chest.
gd cnan, $\$ 110.474+535$.
Sterec solid state, ${ }^{46}$ contempt cobinet 4 -spd
4357.
cado green, \$25, Abade, 488-1682.
Musi sell $36^{\circ}$ caloric gas stove $w$ /Rotis sere, center iteflon) griddle, ail delux fea tures, white, $\$ 200$. Underhill, 482.6122 aft
4:30. co ct Coldew, white 482.6122 aft $4: 30$ Authentic Mexican furnishings, hd boards. desks,
474.2102 .
Upright freezer, fair cndn, $\$ 30$, Cobb $333-4109$.

0 Cougor conv, 351-4.B, pwr,
 gen, extras, 14,000 miles, $\$ 8,000$. Wiseman,
534.3802 . 66 Olds Culess Supreme, 4 -dr, hi, 550 auto, fully
34-3802
S200, 224-7681 $\times 287$ or 946 -3016 aft $6 \mathrm{p} . \mathrm{m}$. no calls Friday nite or Sct. 34-4338
70 Wheel Camper Trailer, Econoline 2 plu , sleeps $\delta$ advits or 4 adolts 44 children, semi-self contained, 63 Chevy Impala, 1 owner, pwr s/b, xint cndn, $\$ 350,488.2713$.
Buick Skylark, Spt Coupe, a/c pwr str,
5121.

## Employees to Plan

 1973 VolleyballA meeting to organize the 1973 Volleyball program will be held February 2 in the Ellington Air Force Base gymnasium at 5:30 p.m.

Present plans include forming 5 leagues: Men's A (competitive), Men's B, Women's Mixed A (competitive), and Mixed B.
Teams that desire to play in any of these leagues should have a representative at the organization meeting.

69 Buick Riviera, blue/whire vinyl top, owr str/b, auto, pwr windows/seats, xint
andn, $42,000 \mathrm{mi}$, still in warranty, $\mathrm{s} 3,150$. 488-4372.
64 Dodge Polara,
lean, $\$ 300,333-3457$.
Chevy Huntin Rig efd, trans, nw mud grips, brakes, shocks, dependable, 481-2184.
67 Buick Electra, full pwr, xint cndn, low mileage, 1 owner, 481-2118.
Orange boys' 3 -spd bike, less than 1 yr old, seldom used, $\$ 25$. Jean, $488-5421$ aft 5 . 58 Volvo, 444 Sport Sedan, gd tires, runs 67 Pontias lemans, vin roof teel radials, xint buy, $\$ 625$, Grogan, x-6361. 68 Olds Cutiass, vin top, buckt seats, air, radio, $\$ 1100$. Brooks, $488-2795$ aft 5 p.m. 72 Caprice, 4 -dr, blue, blk vin tp, pwr
t, FM stereo, tilt string, more, 17000 mi $\mathrm{s}, \mathrm{E}, \mathrm{FM}$ stereo, m , l . string, more,
$\$ 3595,554-2243$. $\$ 6$ Buick sta wgn, $\$ 250$. Lenoir, 334-2627. 71 Travel Trailer, sleeps 9, Holiday 21', nw cndin. self-contained
$\$ 4295$, Fuller $488-3985$.
69 Plymouth Satellite, 4-dr, auto, ait $35,000 \mathrm{mi}, \$ 1500$, Rogers, $488-4463$ 69 Pontiac Catalina, 2-dr, hatp, ain,
dires, $42,000 \mathrm{mi}, \$ 1200.644-7160$ of Bonneville sta wgn, pwr sib, air, fully equipped, $x \operatorname{lnt} \mathrm{cndn}, \$ 750$. 337-1956. 71 Toyota Corona Mark 11,2 -dr, hdtp,
gir, 45 spd, sicie moldng, $11,000 \mathrm{mi}$, dealair, 45 spd , sicie moldng, $11,000 \mathrm{mi}$, deal er serviced, S1995 or trade for pickup van or Irg 4.dr, Undertill, 482-6122 off. 4:30 $70,000 \mathrm{mi}$, gd work car, $\$ 300$. $332-4511 \times$ 3354 or $941-5716$ oft 5 p.m.
65 Oldsmobile 4 -dr hdtp, cuto trans, pwr str $\mathrm{b}, 4$ season air, heatei, radio, tinted
glass. 350 v .8 , two barrel, $80,000 \mathrm{mi}$, $\$ 300$. $472-6980$.
472-6880.
i3 Nova ss, 2 -dr ht, 6 cyl cuto, air, radio, all vinyl int, buckts, gd tires, clea,
pft 2nd car, McGregor, 488-2775. pfct
71
71
$Y$ Yemaha car 200 ce str bike
rk $\&$ helmet sacrifce for $\$ 350 ., 483-1009$ aft 5. Lare model Cadillac, wholesale book,
Cr.bb, $333-4109$.

PROPERTY AND RENTALS

## Nasau Bay, contemp $3-2 \cdot 21 / 4$, fireplace living $\&$ dining \& family rooms, lot wi larg

 ooks, 474.4349. blocks from lake Hwy 69, 29 mi n of Beau mont, $\$ 3200$. Dick, $472-2447$ off o p.m. : Mobile home $12 \times 64$, Heritage. 2 bdrm carpet, central a h , washer/dryer, 50 ownirg. carport, adult park, Joseph, $941-0574$ $100 \times 130$ lot in Lago Vista Estates, Golf Course Country club com on Lake Travi near Austin, Jacobs, $774-9924$ after 6 p.m. Miramar, 3-2-2 central a'h, buillt-ins, nea schools, fenced, landscaped, $\$ 8000$ equit $\$ 144$. nior or new loan, Glory, 474-2930 4:30 p.m.
$3,057 \mathrm{sq} \mathrm{ft}$ incl 3 bdrms, study or 4 th
bdrm, family ame game rooms, 2 baths, fireplaces, wet bar, formal living \& dining rms, kitchen \& eating area, utility rm \& detached db garage wi 6 ft cedar fnced bk yd. n Dickinson pines, 337-2766. 6 unit apartment complex, all rented, gd
income, low down pymt, Schmitt, 337-3259

## PETS

German Shepard, male, female, gd family
pets ond watchdogs, Grogan $x$ xable 2 fe-
Registered blond cockers, 3 males, 2 . males. 8 wks old, $\$ 50$ ec wi papers, White, $946-4315$ aft 5 p.m.
Yorkshire Terrier at stud, AKC Registered,

## Lovell

(Continued From Page 1)
In addition to his regular duties at MSC, Lovell has continued to serve as a presidential consulant on physical fitness and sports since June 1967
Among his many special honors, he holds the Presidential Medal for Freedom, the NASA Distinguished Service Medal, two NASA Exceptional Service Medals, the Navy Astronaut Wings, the Navy Distinguished Service Medal and two Navy Distinguished Flying Crosses.
Lovell is married to the former Marilyn Gerlach of Milwaukee, Wisconsin. They have four children, Barbara, James, Susan and Jeffrey. Lovell was born March 25, 1928, in Cleveland, Ohio.
beautiful markings, perfectly proporno gentle disposition, $\$ 100.337-2153$ Springer Spaniel, 1 yr old wi shots, $\$ 35$.
Labordor Retreiver, 2 yrs old, female, $\$ 25$. Labordor Rerreiver,
$337-1956$ oft 3 p.m. Siamese kittens females, 13 wks old, lova 4 -month old puppy, shorthaired brown/ white, all shots, gd wi children playful, Briggs, $333-2717$.
Beautiful male Beagla gd bloodlines AKC egistered, 9 wks $\$ 45$. Willis $944-3647$
background, Lousna, 482-2360.
68 Coronado 25 Sail
19' Glastron Cuddy Cabin, 105 Interceptor engine, bg wheel wailer, new condtion, F2850, 334-1946.
Fully equipped Chrysler Conqueror wi 120 hp outboard trailer mint endn, list
over $\$ 4400$ now $\$ 2995$. Bland $333-4580$, Fiber-glass Squall sailboat, 10 ft , gd for beginners, also takes 3 hp outboard, oarlocks
for ro wing, no trailer, $\$ 150$. J. Dornbach, for ro wing,
$334-3459$.

## WANTED

West or Equiv, Bullock, 774-660
Found the iacket of the person who
dragged a man from a burning Gremlin on Loop 610 at Scott Dec. 21. Ca
Dyke at $626-8800$ or $782-0508$ Dyke at $626-8800$ or 782-0508. Los ID bracelet, gold plated, "Steph
contact S. Derry, $\times 6156$ or 643 -3330.

## Remote Health -

(Continued From Page 1) munities who want to participate in the health care system during its test phase.
During the four-year program, Lockheed will install and verify operation of the health care sys tem on site. A large hospital near the remote community will be the operational base which will support fixed and mobile units and their patients to the central hospital.

Lockheed will develop the ground-based test unit in three phases. During the first $10-$ month period, Lockheed will de fine the system. The second 14 month period will be devoted to fabrication and checkout of test unit. During the third 24 month period, Lockheed will de be installed at the selected r mote and will undergo operational testing and system evaluation.

APOLLO 17 EVA PHOTO-Scientist-Astronaut Harrison H. Schmitt is photographed next to the deployed U. S. flag during lunar surface extra vehicular activity at the Taurus-Litrow land whish be seen in the fa the flag appears to


FINEST PARTICLES EVER!-These (orange) glass spheres and fragments are the finest particles ever brought back from the Moon. Ranging is 160 times in this photomicrograph made in the Lunar Receiving Laboratory at MSC.

## MSC Was Indeed a "Winter Wonderland!"





[^0]

Jm Poindexter (above) leaves his footprints in the snow as he trudges toward Bidg 1. The little snowman
(bottom) is all by himself since MSC employees decided all play and no
work wouldn't get the job done! work wouldn't get the job done



[^0]:    WE'RE HAVING FUN!-These guys and gals are really engrossed in the snow which covered MSC January 11. Diana Sullivan (top) gleefully throws a snow ball in the air while Gloria Canady (2nd from top) gleefully snowman. Stan Houchen thinks it's a perfect day to pick oranges from a
    tree near LSI. Gus Knight of LSI is enjoying the snow so mut tree near LSI. Gus Knight of LSI is enjoying the snow so much, he is smiling as he removes it from his windshield.

