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**Folder Title:** [The President – Spinoff Project] (1 of 2)

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THE WHITE HOUSE

WASHINGTON

September 11, 1986

Dear Doug:

As you know, I have been concerned for some time, even prior to the CHALLENGER accident, about a major aspect of the Space Program that has been one of the best-kept "secrets" in America. I refer, of course, to the literally hundreds of human-oriented technological spin-offs from the Program.

The country has been well aware of the various stages of the Space Program. It has understandably taken great pride in the Program's many flight and exploratory achievements. And it has, also understandably, grieved for the Program's failures, few as they have been.

But the public, the media, the Congress -- people everywhere -- have not been sufficiently informed about the enormous technological spin-offs that directly and beneficially affect, and will increasingly affect, the welfare and quality of life for all of us -- not only in this country but for all humankind.

It is likely that, as these spin-offs accumulate and are directed by the private sector toward the betterment of our lives and our society, the Space Program will take its place in the history books along with the Industrial Revolution as a milestone in human betterment and progress.

I believe that broadly disseminating knowledge of these benefits will significantly increase public awareness of the Space Program's extraordinary value for all of us.

The private sector will play an increasing role in the application of these benefits. For this reason, and because of my dedication to the involvement of private groups wherever feasible, the private sector's participation in a program that would bring the many valuable spin-offs of the Space Program to the attention of the public would be very worthwhile. As a member of the NASA Advisory Council and Special Assistant to the Administrator James Fletcher, your discussing this matter with the chief executive officers of a broad cross section of private sector companies -- seeking their reactions, advice, and counsel -- is a vital first step and I encourage you to do so.

By all means, feel free to exhibit this letter to them as an expression of my interest in and enthusiasm for this project. I am confident that those with whom you discuss this matter will see its many benefits to the public and to our Nation as a whole. Please keep me informed of your progress. And if I can in any way be helpful in its implementation, please let me know.

11\*

Sincerely,

Ron

Mr. Douglas Morrow  
1155 North Brand Boulevard  
Glendale, California 91202

THE WHITE HOUSE  
WASHINGTON

November 12, 1985

Throughout our history, we Americans have had the vision and courage to meet daunting challenges. We have risen to the challenge of space, not just because it is there but because it offers a wealth of opportunity to improve the lot of human beings on earth.

Our work in space science and technology has already raised civilization to new heights of knowledge and achievement, yet that work has only begun. A few short years from now we will no longer be just visiting space, but will be there to stay. We will man a permanent space station bound to open splendid opportunities for science, commerce, and industry. The mastery of space will enable America to serve the needs of our citizens and of people everywhere.

I commend the United States Space Foundation for focusing on the tremendous untapped opportunities space offers us. You are serving America well by reminding us that as a free people lavishly endowed with national resources, we can go as far as our imagination and courage will take us. Keep your courage high and your imagination percolating, and the years ahead will grow brighter yet with the gifts you bestow on mankind.

*Ronald Reagan*

# United States Space Foundation

## PURPOSE

To help shape America's future in space for the benefit of all.

## GOALS

Establish a space research program to publish objective studies which will serve Science, Education, Government and Industry.

Foster a commitment by educators to use space materials to prepare youth for living and thriving in a high-tech space-oriented environment.

Build a Space Foundation museum, library, IMAX theater, research and administration facility.

Stimulate a national dialogue among space professionals, national, and international leaders, the media and citizens about the beneficial uses of space.

The Foundation is an IRS 501(c)(3) non-profit organization



*"All your efforts  
represent a major  
investment in the  
future of our country.  
And on behalf of  
all Americans...  
I thank you"*

President Ronald Reagan  
The White House  
April 8, 1986



The Advertising Council Inc.  
1985-1986 Annual Report

Making a difference in the fabric of America

# The Advertising Council Inc.

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## Who we are

You may not know us by name but you know who we are. We "lend a hand." We "take a bite out of crime." We encourage young people to "Just say no" to drugs. We are the "toughest job you'll ever love." We are the Advertising Council—a private, non-profit organization of thousands of volunteers who conduct public service advertising campaigns to make the difference in the quality of life in our communities.

Since 1942, the common thread among all of our campaigns has been the promotion of individual volunteer actions to solve America's problems. And we in turn depend on literally thousands of volunteers from business, the media and advertising agencies to get this job done.

## How we operate

The Advertising Council receives over 400 requests for campaign support annually.

We review each request to determine if it is: non-commercial, non-denominational, non-political; national in scope yet of concern to all communities; generally applicable to all Americans; proposed by an accredited organization; conducive to advertising; and of priority importance.

Once a campaign is accepted by our Board of Directors, a Volunteer Advertising Agency and a Volunteer Coordinator (a corporate executive) oversee its development. Staff representatives of the sponsoring (or client) organization and the Ad Council staff round out the campaign task force to see that the proposed advertising meets Council standards as well as the campaign objectives. When the advertising is completed by the agency, it is reproduced and distributed to all major media which contribute their time and space to our messages.

## What we accomplish

Last year the Advertising Council generated more than \$725 million worth of media time and space for public service advertising from 22,000 media outlets that consistently print, broadcast, or display our messages. We reap the creative talent and expertise of 34 volunteer advertising agencies. The accumulated media support given our campaigns since 1942 amounts to more than \$15 billion.

This performance has generated strong, measurable results for the causes we serve.

## THE CAMPAIGN

The series is being mounted by the Ad Council as a Major Campaign

### The Host-Presenter teams are:

President Gerald Ford & President Jimmy Carter  
Frank Sinatra & Willie Nelson  
Speaker Tip O'Neill & William Buckley  
Barry Goldwater & Jesse Jackson  
Helen Hayes & Whoopi Goldberg  
Charlton Heston & Gloria Steinem  
Itzhak Perlman & Ray Charles  
Tom Selleck & Cybill Shepherd  
Kareem Abdul Jabbar & Bill Shoemaker  
Chuck Yeager & John Madden  
Paul Newman & Elizabeth Taylor (pending)  
President Ronald Reagan (pending)

The series will present 18 human-oriented space technology spinoffs, chosen for their direct and beneficial impact upon the lives of all people. Some will be 60 seconds, some 30 seconds.

Wherever necessary, accompanying footage will dramatically illustrate the application of the benefits.

15 of the spots have already been shot.

The first 2 spots will be put into the media pipeline on or about August 15. Thereafter, 2 more spots will be fed in at 4-6 week intervals.

It is anticipated that the campaign will air over a period of 1½-2 years.

The theme of the campaign, a running tagline at the end of each spot, is - "Space Technology...This is what's in it for you!"

A super at the end of each spot will refer the viewer to the United States Space Foundation. Ten 800 lines are being set up to handle viewer response. In reply to their queries, an impressive brochure will be sent to them explaining in more detail the aired spinoffs (plus other not-aired spinoffs) and advising them how to access these benefits.

In addition, the brochure will advise them how to get the complete annual Spinoff publication which updates new and developing technology applications.



THE PRESS CONFERENCE

Sometime in the first 2 weeks of August, close to the first airing of the series, a press conference will be held in New York.

It will be hosted by the United States Space Foundation and the Ad Council.

It will open with short introductory statements by Presidents Nixon, Ford, Carter and Reagan.

Nixon, Ford and Carter have already been shot and their statements are in the attached kit.

President Reagan's statement, about 90 seconds, should be shot within the next 2 weeks.

A draft of his statement is enclosed for his approval, editing or revision.

James E. Hill, Chairman of the United States Space Foundation, and Douglas Morrow will announce and detail the campaign, and answer media questions.

## THE LUNCHEON

Everyone connected with the project, on both sides of the political or ideological spectrum, enthusiastically supports the idea of this event.

For the convenience of the President, it should be held at the White House.

It will give him, and the Foundation, an opportunity to acknowledge and express appreciation for the whole-hearted and generous cooperation of all those who participated in and made possible this project.

It would include the 22 national celebrities and the 20 CEOs of the broad cross-section of major American companies who participated.

Serious consideration should also be given to inviting the majority and minority leaders of the House and Senate, plus the majority and minority leaders of the 4 primary legislative, House and Senate, space committees.

The guest list would be between 50 and 60.

At the conclusion of lunch, the spots, approximately 15 minutes, would be shown to those assembled, followed by brief expressions of acknowledgement and appreciation.

Depending upon the President's schedule, he could either attend the luncheon, do his brief bit at the end and leave, -or he could arrive for the viewing of the spots, do his bit and then leave.

Those who literally went the extra mile to participate in this project richly deserve this amenity.

And its ancillary benefits are obvious.

Ideally, this event should be scheduled for early August, before the recess. If that is impossible, the week following Labor Day would be a second choice.

It is urgently requested that this event be scheduled.

The United States Space Foundation and Douglas Morrow, as a gesture of their appreciation to all the participants, have volunteered, either jointly or separately, to pay the costs of this event.

**CAMPBELL-EWALD COMPANY ADVERTISING****RADIO—TELEVISION SCRIPT**PAGE 1 OF 1

DATE(S) : AS FILMED 4/23/87

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT \_\_\_\_\_

TITLE President Nixon's Speech

LENGTH \_\_\_\_\_ NETWORK # \_\_\_\_\_

**A.S.N.**President Richard Nixon

As this campaign on the benefits of the Space Program begins, I would like to put it in historical perspective. I vividly recall a meeting at the White House thirty years ago; the Russians had just sent their Sputnik into space and we were being briefed in the National Security Council by a very distinguished scientist on the possible benefits, if the United States went forward with the Space Program. I remember he had a chart on the wall about ten different items, including things like weather and communications. After he had finished going over the chart, he turned to President Eisenhower and said, Mr. President, probably the most important thing we will learn in exploring space is not on that chart. That captures the mystery and the hope of exploring space. As we look to the future, the benefits that we will have, for example, in fields like health, are simply unimaginable, and that is why the United States Space Foundation deserves great credit for sponsoring this program.

**CAMPBELL-EWALD COMPANY ADVERTISING****RADIO—TELEVISION SCRIPT**PAGE 1 OF 1

TE(S) : AS FILMED 4/30/87

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT \_\_\_\_\_

TITLE President Ford's Speech

LENGTH \_\_\_\_\_ NETWORK # \_\_\_\_\_

**A.S.N.**President Gerald Ford

I am very pleased to join President Nixon in supporting this educational campaign now being launched by the United States Space Foundation.

What impresses me about the program is the sheer number of spinoffs and their great variety. Most of us, for example, now take satellite communication for granted. It's how we send important sports events around the country, transmit major cultural programs, disseminate live historic news developments, and make possible the world's most efficient telephone communications. And space technology made it possible.

But until now, until the United States Space Foundation began this program, I didn't know that our space technology was helping to improve fire-fighting, or eliminate drunk driving, or improve hurricane forecasting, or even the sewage recycling technology which is spinning off from space research, and which looks like the potential answer to one of the most important problems every city in the United States has to deal with, every day.

How much all of us can and will benefit from space technology may well depend upon the United States Space Foundation's effort to inform us about this progress, and indicate how we might have access to the many improvements of our quality of life.

I support this effort enthusiastically.

**CAMPBELL-EWALD COMPANY ADVERTISING****RADIO—TELEVISION SCRIPT**PAGE 1 OF 1

DATE(S) : AS FILMED 4/30/87

CLIENT	U.S. Space Foundation
ACCOUNT	
PRODUCT	
PROJECT	
TITLE	President Carter's Speech
LENGTH	NETWORK #

**A.S.N.**

President Jimmy Carter

I agree with President Nixon and President Ford about this effort by the United States Space Foundation.

I would specifically like to call attention to two aspects of the program of special interest to me. As a man with a strong background in engineering and technology, I admire the breakthroughs in processes and materials — the impressive number of practical problems which our space program is helping to solve.

My main interest has always concentrated on human concerns, and here I have to admire what our efforts in space have produced: better tools for heart surgery, improved techniques for fighting cancer, and many more achievements which can help all of us to live longer and perhaps avoid medical problems which otherwise threaten us. People who have heart problems, cancer, diabetes, or countless other common human disabilities have been helped in some way by space technology.

The fact is that all of us in the U.S., and indeed everywhere in the world will someday benefit personally and directly from our space effort.

I am pleased to join with Presidents Nixon and Ford in supporting this educational program for the United States Space Foundation.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE \_\_\_\_\_ OF \_\_\_\_\_

DATE(S) :

**To be** FILMED

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT \_\_\_\_\_

TITLE President Reagan's Speech

LENGTH \_\_\_\_\_ NETWORK # \_\_\_\_\_

**A.S.N.**

President Reagan

I have been concerned for some time, even prior to the CHALLENGER accident, about a major aspect of the Space Program that has been one of the best-kept "secrets" in America. I refer, of course, to the literally hundreds of human-oriented technological spin-offs from the Program.

The country has been well aware of the various stages of the Space Program. It has understandably taken great pride in the Program's many flight and exploratory achievements. And it has, also understandably, grieved for the Program's failures, few as they have been.

But people everywhere have not been sufficiently informed about the enormous technological spin-offs that directly and beneficially affect, and will increasingly affect, the welfare and quality of life for all of us -- not only in this country but for all mankind.

It is likely that, as these spin-offs accumulate and are directed by the private sector toward the betterment of our lives and our society, the Space Program will take its place in the history books along with the Industrial Revolution as a milestone in human betterment and progress.

I believe that broadly disseminating knowledge of these benefits will significantly increase public awareness of the Space Program's extraordinary value for all of us, and provide access to its benefits to people everywhere.

*I QUESTION MENTIONING THE CHALLENGER -*

*ENOUGH SAID ON THE CHALLENGER -*

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

RE(S):

AS FILMED 4/30/87

CLIENT U.S. Space Foundation

ACCOUNT

PRODUCT

PROJECT

TITLE Carter and Ford

LENGTH :60 TV NETWORK #

A.S.N.

PRESIDENTS CARTER AND FORD SIDE BY SIDE ON SCREEN, IN ROUGHLY SAME FRAMING, THOUGH IN DIFFERENT CITIES.

CARTER: Good afternoon, Mister President. It's a lovely day here in Georgia.

FORD: Good morning, Mister President. It's a nice day here in California.

CARTER: California? I could swear we were right next to each other.

FORD: With a communications satellite, we can be. That's one way space technology impacts on life here on earth.

CUT TO ANIMATION SEQUENCE OF SATELLITE.

CARTER: Television, telephone, and radio signals bounced off satellites bring people together who are thousands of miles apart.

CUT TO SERIES OF IMPACTFUL SATELLITE BROADCAST EVENTS: E.G., SUPER BOWL, ROYAL WEDDING, SUMMIT, WORLD CUP, ETC.

FORD: They bring us world events -- as they're happening.

CARTER: They help us educate...entertain...and inform.

FORD: But communications satellites are only one of the thousands of practical applications of space technology.

CARTER: In the months ahead, you'll be hearing about remarkable advances in the diagnosis and treatment of heart disease and cancer.

FORD: New ways to generate electricity and control pollution.

CARTER: All of them spinoffs of space technology. That's why Jimmy Carter from Georgia...

FORD: ...and Gerald Ford from California agree...

CARTER: Space techology has down to earth benefits for everyone.

SUPERS: SPACE TECHNOLOGY. ITS BENEFITS ARE DOWN TO EARTH.

FOR MORE INFORMATION WRITE: U.S. SPACE FOUNDATION  
BOX 000  
COLORADO SPRINGS, COLORADO

A PUBLIC SERVICE MESSAGE OF THE ADVERTISING COUNCIL.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

TE(S) : AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Waste Recycling

TITLE Buckley and O'Neill

LENGTH :60 TV NETWORK #

**A.S.N.**

BUCKLEY: Tip and I seldom share the same views.

O'NEILL: (JOKINGLY) We probably couldn't agree on the time of day.

BUCKLEY: But when it comes to space research and how it benefits everyone, we're both on the same side.

O'NEILL: That's right. Because space technology has led to many down to earth applications.

BUCKLEY: Like a way to recycle sewage into water that's not only potable but palatable!

O'NEILL: Pilot plants in San Diego and at Disney World's Epcot Center have already adapted this purification system, using water hyacinths to turn their sewage into pure drinking water.

BUCKLEY: The sewage is broken down by the plant's root, while the hyacinth purifies the water.

O'NEILL: Once harvested, the hyacinth can also be used for fertilizer, cattle feed, or even be processed for use as a fuel for community power.

BUCKLEY: The technology for recycling sewage into useful products came from space research.

O'NEILL: And it benefits everyone.

BUCKLEY: I couldn't agree more.

O'NEILL: (SMILING) Who said Democrats and Republicans can't agree on anything!

BUCKLEY: Space technology...

O'NEILL: This is what's in it for you!

SUPER & TAGS



CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

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TE(S) : AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT

PRODUCT Laser System for Arteries

PROJECT

TITLE Buckley and O'Neill

LENGTH :30 TV NETWORK #

**A.S.N.**

O'NEILL: Buckley and O'Neill together? How come?

BUCKLEY: I'm here to elucidate the prodigious benefits of space technology. And you?

O'NEILL: To bring what you say down to earth. Take this laser, developed for space research.

BUCKLEY: It may one day supplant the need for coronary bypass surgery.

O'NEILL: It could obliterate an artery obstruction in minutes...the patient's up and around the same day!

BUCKLEY: I'm speechless!

O'NEILL: (LOOKING DIRECTLY INTO CAMERA, SMILING) See? The benefits from space are endless!

BUCKLEY: Space technology...

O'NEILL: This is what's in it for you.

SUPER: SPACE TECHNOLOGY. THIS IS WHAT'S IN IT FOR YOU. WRITE U.S. SPACE FOUNDATION, ADDRESS, ETC.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE \_\_\_\_\_ OF \_\_\_\_\_

TE(S) : AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Synthetic Polymer Microsphere  
Cancer Treatment

TITLE Jackson and Goldwater

LENGTH :60 TV NETWORK # \_\_\_\_\_

**A.S.N.**

JACKSON AND GOLDWATER, PERHAPS AT PODIUMS, LOOKING CHALLENGINGLY AT EACH OTHER, AS IF ABOUT TO DEBATE HOTLY.

JACKSON: I've never been shy about my Liberal views.

GOLDWATER: And I've never been bashful about my Conservative opinions.

JACKSON: But there's one thing we're in the middle of the same road on.

GOLDWATER: The benefits of space research...

JACKSON: For everyone.

CUT AWAY TO FOOTAGE DEMONSTRATING SYNTHETIC POLYMER MICROSPHERES.

GOLDWATER: One example is a remarkable new treatment for bone marrow cancer, now in test.

(CONTINUES VO): Tiny synthetic particles called microspheres, which seek out and stick only to cancer cells, are injected into the patient's bone marrow.

JACKSON: When placed between two magnets, the cancer cells actually separate...leaving only healthy cells.

GOLDWATER: The patient then receives the cancer-free marrow back.

JACKSON: Research for this technique began in space laboratories. They're hoping it'll lead to new cancer treatments, even more effective than radiation and chemotherapy.

GOLDWATER: Practical, down-to-earth applications of space research like this now number in the thousands. And that's a Conservative estimate.

JACKSON: One I Liberally endorse.

JACKSON (VO): Space technology.

GOLDWATER (VO): This is what's in it for you.

SUPER AND ADDRESS OF U.S. SPACE FOUNDATION.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

TE(S) :

AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT

PRODUCT

PROJECT Environmental Impact

TITLE Heston and Steinem

LENGTH :60 TV NETWORK #

A.S.N.

HESTON: We probably disagree on most things.

STEINEM: I agree with that.

HESTON: But when they asked us to talk about how the peaceful exploration of space benefits all men...

STEINEM: all people...

HESTON: we agreed.

CUT AWAY TO FILM AND ANIMATION SEQUENCES.

STEINEM (VO): Earth, from 200 miles above, is an inspiring sight. And a reminder that we share one global home.

HESTON (VO): But this unique vantage point has practical value, too. Since the early '70s, satellites have helped locate potential areas for crops and timber. Monitored soil erosion. And aided weather forecasting.

STEINEM (VO): Now there are even greater possibilities. Orbiting work stations. Measuring changes that happen when a forest is cut down, or the ocean temperature rises.

HESTON (VO): Alerting us to dangers like a sudden buildup of waste gases in the atmosphere. Or a depletion of the ozone layer.

STEINEM (VO): We can use space to better understand the environmental impact of what we do.

HESTON (OC): That's why we're both convinced space technology can help all mankind.

STEINEM (OC): He means everybody.

HESTON GIVES STEINEM A "HERE WE GO AGAIN" LOOK.

HESTON (VO): Space technology...

STEINEM (VO): This is what's in it for you!

SUPER: WRITE U.S. SPACE FOUNDATION, BOX 000, COLORADO SPRINGS, COLORADO, ZIP

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

TE(S) : AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT

PRODUCT

PROJECT Medical Imaging

TITLE Sinatra and Nelson

LENGTH :60 TV NETWORK #

A.S.N.

SINATRA IN TUXEDO, NELSON IN JEANS, VEST, HEADBAND.

SINATRA: (IN MOCK DISDAIN) It's obvious we don't share the same tailor. What do you call that thing you wear on your head anyway?

NELSON: (COOL) I call it (PAUSE) "My Way".

SINATRA: (SMILES) Touche.

NELSON: Right on.

SINATRA: But we do share the same feeling about the benefits of space technology.

NELSON: Darn right. It's led to things that help all of us, city dude and country cousin alike.

SINATRA: Take a look at one. (CUT AWAY TO FOOTAGE) It's called Medical Imaging. The images it generates are in color and more detailed than x-rays. Even subtle changes in small arteries show up.

NELSON: They give a doctor a clearer picture of what's going on inside your body.

SINATRA: They can help him spot trouble, without exposing you to harmful radiation.

NELSON: This medical imaging stuff is just one of the thousands of down to earth ideas that have come from space research.

SINATRA: What this casually dressed gentleman and I have found out and want you to know is: A lot of what's going on up there...

NELSON: ...benefits all of us down here.

SUPER & TAGS.

SINATRA (VO): Space technology...

NELSON (VO): This is what's in it for you.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

TE(S) :

AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Diabetes Implant System

TITLE Sinatra and Nelson

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

SINATRA: Nice to be together with you, William.

NELSON: (TO SINATRA) 'Cause we share the same feeling about space technology, Francis.

SINATRA: (TO US) It's led to benefits for all of us.

NELSON: (HOLDS UP PIMS PUMP) Like this little gizmo. It's a medical system that's implanted...

SINATRA: ...so it releases medication automatically.

NELSON: They believe it'll be the way to treat diseases like diabetes in the years ahead.

SINATRA: And it came from space research.

NELSON: One of the down to earth benefits for everyone.

SINATRA: (LOOKS AT NELSON AND BACK) Him...me...you.

SUPER AND TAGS.

NELSON (VO): Space technology...

SINATRA (VO): This is what's in it for you.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

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TE(S) :

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Lightweight Wheelchair

TITLE Charles and Perlman

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

PERLMAN AND CHARLES ARE SEATED CLOSE TOGETHER, THE WHEELCHAIR IN FRONT OF AND BETWEEN THEM.

PERLMAN: Ray, I have a wheelchair here that came from space.

CHARLES: You're kidding, Itzhak!

PERLMAN: Nope. Lift it.

CHARLES: (HEFTING CHAIR) Light as a feather.

PERLMAN: Well, maybe a heavy feather. It's made from super-light material developed for space vehicles. Weighs half what a standard chair weighs. And it's just as strong.

CHARLES: Must be a lot easier to maneuver...fold up...and store away.

PERLMAN: Exactly.

CHARLES: On that note, I'd say it's another down to earth benefit of space.

PERLMAN: What we call an encore. Space technology...

CHARLES: This is what's in it for you.

SUPER AND TAGS.

CAMPBELL-EWALD COMPANY ADVERTISING

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PAGE \_\_\_\_ OF \_\_\_\_

TE(S) :

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Optacon Tactile Reading Aide

TITLE Charles and Perlman

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

PERLMAN AND CHARLES SITTING TOGETHER, PERHAPS AT PIANO.

CHARLES: Itzhak, we can't always see the benefits of space research.

PERLMAN: But we can feel them, Ray.

CUT TO FOOTAGE OF READING AIDE.

CHARLES: Like this portable reading aide, which has a tiny camera a blind person can pass over printed words.

PERLMAN: Circuitry designed for the Space Program then converts what the camera sees into vibrations a blind person's trained fingers can read.

CHARLES: Books...letters...newspapers.

CUT BACK TO THEM ON CAMERA.

PERLMAN: Even music scores. From Tchaikovsky...(PLAYS GRISS ON VIOLIN)

CHARLES: To Charles. (PLAYS CHORD ON PIANO) Space technology...

PERLMAN: This is what's in it for you.

SUPER AND TAGS.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE \_\_\_\_\_ OF \_\_\_\_\_

TE(S) :

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Autocuer Glasses for the Deaf

TITLE Goldberg and Hayes

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

GOLDBERG SEATED, STUDYING THE AUTOCUER, AS HAYES ENTERS THE SHOT.

WHOOPI: (SURPRISED AT HAYES' ENTRANCE) You're Helen Hayes!

HELEN: (KIDDING) Oh, I knew that!

WHOOPI: (LAUGHING, SURPRISED) And you're funny, too!

HELEN: (SMILES WARMLY) Not like you, Whoopi.

WHOOPI: (TO US) The Old Guard and the New Wave...together...

HELEN: (TO US) To tell you about another down-to-earth benefit from space research.

WHOOPI: I can't believe these glasses for the deaf.

HELEN: A tiny microphone on the frame (INDICATES) connects to a portable computer (INDICATES) which converts spoken words into visual cues that appear (INDICATES) right on the lens of the glasses.

WHOOPI: The eyes doing what the ears can't...unbelievable!

HELEN: Space technology...

WHOOPI: This is what's in it for you.

SUPER AND TAGS.



CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE \_\_\_\_\_ OF \_\_\_\_\_

REVISION(S) :

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT UniStik Vehicle for Handicapp

TITLE Goldberg and Hayes

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

HELEN: (TO WHOOPI) With a name like Whoopi Goldberg, you can't miss.

WHOOPI: (DOING A GROUCHO) With a name like Helen Hayes, you can go pretty far, too.

HELEN: (TO US) And with space research behind them, a lot of people are going places they never could before.

WHOOPI: Including the handicapped.

CUT TO LUNAR ROVER.

HELEN: The controls on this Moon Rover...

DISSOLVE TO UNISTIK VEHICLE.

WHOOPI: Led to the controls on this UniStik Vehicle.

HELEN: Even a severely handicapped person can drive it safely and surely with one hand.

WHOOPI: From up there to down here. Space technology...

HELEN (VO): This is what's in it for you.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

DATE(S): July 8, 1987

REVISED AS PER D. MORROW

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Drunk Driving

TITLE Shepherd and Selleck

LENGTH :60 TV NETWORK # \_\_\_\_\_

**A.S.N.**

SHEPHERD: Last year, over 19,000 Americans were killed in alcohol-related accidents.

SELLECK: Every 27 minutes, another fatal accident is caused by a drunk driver.

SHEPHERD: How can we prevent this from happening?

SELLECK: One way comes from space research.

SHEPHERD: The technology from space helped produce a device appropriately called a soberlizer. (CUT AWAY)

SELLECK: It's a breath tester that prevents a car from starting if the driver's had too much to drink. It works like this...

SHEPHERD: The driver turns on the ignition, then blows into the tube for about 4 seconds.

SELLECK: If the soberlizer detects alcohol above a pre-set level, the car will not start. (CUT BACK)

SHEPHERD: The state of California is already enforcing the installation of the soberlizer in cars of drunk driving offenders on probation.

SELLECK: This will deter additional violations by repeat offenders...

SHEPHERD: Leading to significant reductions in accidents and fatalities.

SELLECK: Space research not only benefits lives.

SHEPHERD: It saves them.

SELLECK: Space technology.

SHEPHERD: This is what's in it for you.

SUPER.

**CAMPBELL-EWALD COMPANY ADVERTISING**

**RADIO—TELEVISION SCRIPT**

PAGE 1 OF 1

DATE(S): July 8, 1987

REVISED AS PER D. MORROW

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Hurricane Forecasting

TITLE Shepherd and Selleck

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

SELLECK: Most people don't have a clue as to how space research benefits everyone.

SHEPHERD: Being detectives, that's a problem we can easily solve. Picture this... (CUT TO HURRICANE FOOTAGE)

SELLECK: Without warning, hurricanes used to take huge tolls on human lives and property.

SHEPHERD: (CUT BACK TO THEM) But with meteorological satellites developed from space research, no major storm goes undetected.

SELLECK: And thousands of lives have already been saved.

SHEPHERD: We make a great team!

SELLECK: (JOKINGLY) Now, if we could just get rid of what's-his-name...

SHEPHERD: (SMILING) Space technology.

SELLECK: This is what's in it for you.

SUPER.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

DATE(S): July 8, 1987

REVISED AS PER D. MORROW

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Search & Rescue Satellites

TITLE Yeager and Madden

LENGTH :60 TV NETWORK # \_\_\_\_\_

**A.S.N.**

ANNCR (VO): Chuck Yeager and John Madden.

CHUCK: Tell me, John. Would you consider traveling to another planet if it were possible?

JOHN: Depends on what time the train was leaving, Chuck.

YEAGER LAUGHS, SHAKES HIS HEAD.

CHUCK: But you still want to tell everyone about the benefits of space technology?

JOHN: Sure, 'cause they're so down to earth...like the search and rescue satellites now in orbit around the planet.

CHUCK: These high-flying listening posts can pick up signals from the emergency rescue beacons carried on planes and ships.

JOHN: When a boat capsizes or a plane goes down -- the satellite locks onto its distress signal...

CHUCK: And relays its position to local search and rescue teams -- who go into action.

JOHN: Using the satellite to guide them within three miles of the site even in the most remote area.

CHUCK: This worldwide emergency network...

JOHN: Has already saved over 800 lives.

CHUCK: What's going on up there...

JOHN: Is helping all of us down here.

CHUCK: Space technology.

JOHN: This is what's in it for you!

(IF TIME)

CHUCK: Say, how'd you like to come flying with me?

JOHN: Sure, if you promise not to leave the ground.

## RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

DATE(S): July 8, 1987

REVISED AS PER D. MORROW

CLIENT U.S. Space Foundation  
ACCOUNT \_\_\_\_\_  
PRODUCT \_\_\_\_\_  
PROJECT Search & Rescue Satellites  
TITLE Yeager and Madden  
LENGTH :30 TV NETWORK # \_\_\_\_\_**A.S.N.**

CHUCK AND JOHN SEATED ON STOOLS.

ANNCR (VO): John Madden and Chuck Yeager.  
(OR SUPER NAMES)

CHUCK: John, how'd you like to come flying with me?

JOHN: Sure, Chuck. If you promise not to leave the ground.

CHUCK SHAKES HIS HEAD, LAUGHS.

CHUCK: But you still want to talk about the benefits of space.

JOHN: Yeah, 'cause they're so down-to-earth.

CUT TO SATELLITE, SEARCH AND RESCUE FOOTAGE.

JOHN (VO): Like the search and rescue satellites now in orbit.

CHUCK (VO): They pick up signals from the emergency rescue beacons on planes or ships in trouble.

JOHN (VO): They alert local search and rescue teams and guide 'em to the spot.

CHUCK: Over 800 lives have already been saved.

JOHN: Space technology.

CHUCK: This is what's in it for you.

SUPER.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE 1 OF 1

REVISION(S) :

AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Scratchproof Lens

TITLE Jabbar and Shoemaker

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

SHOEMAKER AND JABBAR ARE STANDING SIDE BY SIDE. BOTH ARE IN UNIFORM WITH THEIR GOGGLES ON. KAREEM'S GOGGLES ARE AROUND HIS NECK AND BILL'S ARE ON TOP OF HIS CAP. BILL IS IN FRAME. KAREEM IS ALSO IN FRAME, BUT ONLY FROM HIS FEET TO HIS WAIST.

BILL: (LOOKING UP AT KAREEM) Kareem, we'll never see eye-to-eye on anything.

KAREEM KNEELS DOWN INTO FRAME.

KAREEM: (SMILING) Don't be so short-sighted. We can both see that space research benefits everyone.

BILL: Like the scratchproof lens, developed for Apollo's space camera.

KAREEM: That same technology led to scratchproof eyeglasses, sunglasses,...

BILL: And even goggles.

KAREEM: (POINTING AT BILL'S GOGGLES) You wouldn't need those...if your horse was always in front.

BILL: (LAUGHING) Tall order!

KAREEM: What we're learning up there...

BILL: Is helping us all down here.

KAREEM: Space technology.

BILL: This is what's in it for you.

SUPER AND TAGS.

CAMPBELL-EWALD COMPANY ADVERTISING

RADIO—TELEVISION SCRIPT

PAGE \_\_\_\_\_ OF \_\_\_\_\_

TE(S) :

AS FILMED

CLIENT U.S. Space Foundation

ACCOUNT \_\_\_\_\_

PRODUCT \_\_\_\_\_

PROJECT Footwear From Space

TITLE Jabbar and Shoemaker

LENGTH :30 TV NETWORK # \_\_\_\_\_

**A.S.N.**

SHOEMAKER IS DRESSED IN CASUAL CLOTHES (SLACKS, SPORTS SHIRT). KAREEM IS IN JOGGING SUIT, HOLDING BASKETBALL.

KAREEM: (JOKINGLY AS HE DRIBBLES BALL, BOUNCING IT HIGHER THAN BILL'S HEAD) How about some one-on-one, Bill?

BILL: Okay, Kareem, but watch out...I'm wearing new shoes.

KAREEM: (LOOKING DOWN AT BILL'S SHOES, IMPRESSED) The ones developed from the moon boot?

BILL: You bet.

CUT TO MOON SHOTS

BILL (VO): They adapted the lunar boot material and came up with a terrific new shoe...

KAREEM (VO): I heard - with greater shock absorption, better ventilation, and less foot fatigue.

CUT FROM MOON SHOT TO BRIEF CU OF BILL'S FEET. HIS PANTS COVER HIS ANKLES AND ANY INSIGNIA ON SHOES. WIDEN TO SHOW BILL AND KAREEM FULL FIGURE.

BILL: (TAKING BASKETBALL FROM KAREEM AND DRIBBLING IT) Still want to go one-on-one with me?

KAREEM: Only if you promise not to slam-dunk on me.

BILL: (LOOKING UP, GRINNING) I'll try not to. (TO CAMERA) Space technology...

KAREEM: (TO CAMERA) This is what's in it for you.

SUPER AND TAGS.

(spinoff pamphlet draft - 6/17/87)

What does an insulin infusion pump have in common with a wastewater recycling technique and scratch-resistant eye glasses?

Each is the result of "spinoffs" from the National Aeronautics and Space Administration's research programs. Spinoffs are technologies transferred to uses different than, and often remote from, their original application in the aerospace field.

To meet the goals of space exploration and aeronautical development, NASA and its contractors have developed innovations in virtually every field of science and technology. This storehouse of knowledge provides an extremely broad technical foundation for the stimulation of secondary applications.

It is difficult to find a facet of everyday life into which spinoffs have not penetrated, even though sometimes their origins in aeronautical and space research are not easily recognizable. Following are just a few examples of how aerospace research is providing benefits for life here on Earth.

#### Insulin Infusion Pump

Insulin-dependent diabetics have for years been tied to a rigid schedule, in which mealtimes, sleep time and exercise had to be matched to insulin injections. Today, some 12,000 diabetics are free from such lifestyle restrictions through the use of "pump therapy."



Pump therapy involves use of an external pump to deliver insulin continuously at a preprogrammed correct rate. The pump wearer can lead a more normal existence, even participate in sports or travel. In addition, research indicates that infusion of "short-acting" insulin in tiny amounts over a long period - instead of multiple daily injections of long-acting insulin - has helped many diabetics achieve better control of blood sugar levels, thereby minimizing the possibility of complications.

One example of the pump system, a space spinoff, is not much larger than a credit card and weighs only 3.8 ounces. The compact package houses a microprocessor, a long-life battery, a reservoir filled with insulin and a syringe. The syringe is connected to an infusion set, which consists of a thin, flexible plastic tube about 30 inches long with a needle at its end.

The patient inserts the needle subcutaneously, usually in the abdomen. Clipped to a belt or just about any part of the wearer's clothing, the minipump infuses insulin at either the "basal rate" (continuous delivery) or "Bolus rate" (larger amounts of insulin administered prior to meals or when blood sugar levels are elevated). The system can be programmed with up to four basal rates, which is important to patients whose insulin requirements change during the course of a day.

Source: MiniMed Technologies  
12744 San Fernando Road  
Sylmar, California 91342

"Reading" Machine for the Blind

A device which converts regular inkprint into a readable, vibrating tactile form enables blind persons to read almost anything in print, not just braille transcriptions. The device is called the OPTACON, or Optical-to-TActile CONverter. It combines optical and electronic technology developed in aerospace research.

The blind reader moves a miniature camera across a line of print with one hand, and with the fingers of the other hand senses a vibrating image of the letters the camera is viewing on a tactile array screen. For school use, the OPTACON makes the instructional materials of the sighted available to the blind. It helps the sightless to obtain jobs, win promotions and enter vocational areas once closed to them. A related spinoff of optical-electronic technology is the Paper Money Identifier, a small device the size of a cigarette pack, which scans a piece of paper money, reacts to the different colors of the bill and generates an audible signal identifying the denomination.

Source: Telesensory Systems, Inc.  
455 North Bernardo  
Mountain View, California 94043

### Vehicle Controller for the Handicapped

For the Apollo lunar landings of the early 1970s, NASA developed a Lunar Rover vehicle to permit exploration of the moon miles from the immediate vicinity of the landing site. The Rover was designed to allow an astronaut to drive one-handed, using an airplane-like joystick to accelerate, brake and steer the vehicle. That technology is being applied to a system that offers severely handicapped people an opportunity to drive highway vehicles, providing them mobility for more productive lives.

Called Unistik, the vehicle's control system employs a joystick that combines the functions of steering wheel, brake pedal and throttle pedal, permitting it to be driven by handicapped persons who have no lower limb control and only limited use of upper extremities. The driver simply moves the joystick forward to accelerate, backward to brake and from side-to-side for steering; any combination of these movements can be used. The Unistik system can be adapted to an ordinary vehicle.

Source: Johnson Engineering Corporation  
1680 38th Street, Suite 100  
Boulder, CO 80301

### Scratch-Resistant Glasses

When the Food and Drug Administration issued a regulation in 1972 that all sunglass and prescription lenses must be shatter-

resistant, use of plastic lenses increased dramatically.

Today, the majority of sunglasses, corrective and safety lenses sold in the U.S. are made of plastic. But, while plastic lenses are lightweight and offer better absorption of ultraviolet rays than glass, many types of plastic lenses developed visibility-reducing scratches. Until recently, the best plastic available fell far short of glass in scratch resistance.

One major producer of sunglasses spent more than a decade of research effort looking for a coating that would provide plastic lenses with glass-like scratch resistance, while maintaining the advantageous properties of plastic. The answer eventually found combined NASA technology with that of the sunglasses producer.

The NASA contribution was a highly abrasion-resistant coating developed as a means of protecting plastic surfaces of aerospace equipment from the sometimes harsh environments to which they are subjected. The new lens, manufactured under license from NASA, became commercially available in 1984.

Source: Foster Grant Corporation  
289 No. Main Street  
Leominster, Massachusetts 01453

New Window Into the Human Body

Nuclear Magnetic Resonance (NMR) employs a magnetic field and radio wave to peer inside the body. Unlike X-rays, NMR can even see into bones. But NMR images are more difficult to interpret than x-rays, which has limited their usefulness. By applying the computerized image enhancement technology developed to read Earth resources satellite photographs, NASA was able to provide thematic "maps" of the human body. False color can be added to each type of tissue, making such problems as tumors or blood clots stand out clearly. NMR and image enhancement provide invaluable information to diagnostic physicians and surgeons, enabling them to provide better care to their patients.

Source:           Mallinckrodt Institute of Radiology  
                  510 South Kings Highway  
                  St. Louis, Missouri 63110

Water Recycling

For more than a decade, NASA's National Space Technology Laboratories (NSTL) at Bay St. Louis, Mississippi, has been conducting research on the use of aquatic plants - principally water hyacinths - for the treatment and recycling of wastewater.

Already serving a number of smaller towns, the "aquaculture" technique has been adopted by the City of San Diego, California, and Disney World's Epcot Center at Orlando, Florida.

In the early 1970s, NSTL discovered that the glossy green water hyacinths literally thrive on sewage; they absorb and digest nutrients and minerals from wastewater, converting sewage effluents to clean water. Thus, they offer a means of purifying water at a fraction of the cost of a conventional sewage treatment facility. The harvested plants can be used as fertilizer, as high-protein animal feed or as a source of energy.

Source: Environmental Assurances Branch (GA30)  
National Space Technology Laboratories  
NSTL Station, Mississippi 39529

#### Laser Heart Surgery

One technology transfer from aerospace research that may some day eliminate or significantly reduce the need for coronary bypass surgery is the combined use of lasers and fiber optics.

It is estimated that some five million Americans are afflicted with atherosclerosis, the single biggest cause of cardiovascular disease. Atherosclerosis is the buildup of fatty and fibrous deposits that block the arteries carrying blood to the heart.

Physicians at Los Angeles' Cedar-Sinai Medical Center and scientists at NASA's Jet Propulsion Laboratory in Pasadena, California, joined together to develop a laser system to non-surgically clean clogged arteries with unprecedented precision.

While still in the experimental stage, the procedure involves threading a 1.5 millimeter diameter catheter through coronary arteries. The laser light is carried through one of three "bundles" of fiber optics within the bendable catheter. Another group of fibers shines a light at the tip to provide video pictures of the inside of the artery. Watching the video pictures fed through the fiber optics, the physician can spot areas of plaque build-up in the artery and fire short bursts of the laser to vaporize or disintegrate the plaque. The process occurs so quickly that the neighboring tissue is spared from damage.

Source: Cedar-Sinai Medical Center  
8700 Beverly Boulevard  
Los Angeles, California 90048

#### Advanced Wheelchair

More than one million people in the United States rely on wheelchairs for mobility and many of them have difficulties with existing types of chairs. Among the problems are heaviness, which makes the chair hard to handle, frequent breakdowns, and limited lifetime and portability.

Most efforts toward improving wheelchair design have focused on improving components, rather than on development of an entirely new chair. One cooperative effort undertook full-scale development of an advanced wheelchair based on aerospace technology. NASA's Langley Research Center teamed with the University of Virginia (UVA) Rehabilitation Engineering Center in

The Langley/UVA developers employed aerospace computerized structural analysis techniques to arrive at the optimum design and used aerospace composite materials, which are generally lighter but stronger than metals.

The resulting chair weighs only 25 pounds, but has the same strength and weight-bearing capability as a 50-pound stainless steel wheelchair. It can be collapsed for auto stowage and transportation. It also features a solid seat, wheel guards, dynamic brakes and shaped hand rims, and a footrest with smooth contours to aid in opening doors.

Source: University of Virginia  
Rehabilitation Engineering Center  
P. O. Box 3368  
University Station  
Charlottesville, VA 22903

#### Drunk Driver Testing

In the mid-1960s, NASA originated testing -- performed by the McDonnell Douglas Astronautics Company -- to evaluate components of an advanced life-support system and obtain data on the physiological and psychological effects of long confinement. Of particular importance was measurement of the subjects' abilities to perform certain tasks and determine how much their abilities were impaired by long-term isolation.



Almost two decades later, that technology has turned up in a system for determining whether a driver is too drunk to drive. Under contract to the National Highway Traffic Safety Administration (NHTSA) of the Department of Transportation, Systems Technology, Inc., Hawthorne, California - previously contracted by the NASA Ames Research Center to develop an electronic system for analyzing and rating individuals' visual/motor responses - to produce a variant of the NASA device, the testing component of a Drunk Driver Warning System (DDWS).

The DDWS was tested experimentally in California, where twice-convicted drunk drivers were given a choice of operating a DDWS-equipped test car for six months or taking an alternative sentence involving a fine and treatment. Mounted on the steering column directly in front of the driver, the Critical Tracking Task (CTT) device tests eye-to-hand coordination and reaction time. When the driver turns on the ignition, the car's hazard lights start blinking; to turn them off he has to pass the test. The test involves watching a needle on the CTT and keeping it centered - by turning the steering wheel - for less than a minute. Tests have shown a high failure rate for drivers with blood/alcohol concentrations above 0.10 percent.

Source: Systems Technology, Inc.  
3766 South Hawthorne Boulevard  
Hawthorne, California 90250

Search and Rescue

The COSPAS/SARSAT system aids worldwide rescue centers in locating signals from downed airplanes, capsized boats and other emergency situations to speed search and rescue efforts. COSPAS (a Russian abbreviation of Space System for Search of Vessels in Distress) and SARSAT (Search and Rescue Satellite-Aided Tracking System) represent a model program of international cooperation. The United States, Canada, France (SARSAT) and the Soviet Union (COSPAS) are the founders of the program. Other participating countries include Bulgaria, Denmark, Finland, Norway and the United Kingdom. Since inception of the COSPAS/SARSAT program, NASA has provided ongoing research and development to create space and ground systems. NASA has also collaborated closely with the U.S. Air Force, the U.S. Coast Guard and the National Oceanic and Atmospheric Administration (NOAA). NOAA directs the current operational system within the United States. The U.S. Air Force and Coast Guard, and their respective auxiliary organizations, perform the actual search and rescue tasks. The Air Force serves as the central communications point for the U.S. search and rescue activities and as a link to the international community.

Emergency transmitters, built to withstand crashes, hazardous terrain and extreme weather in airplane, boating and other types of accidents, are designed to send emergency alerts and provide location information through satellite measurements. In practice, COSPAS/SARSAT satellites "listen" continuously on emergency frequencies used by ships and aircraft. When the orbiting equipment package picks up a beacon alert, it will relay the signal to a ground-based Local User Terminal. Within minutes, a computer will produce a "fix," locating the emergency site within three miles, if the troubled craft is equipped with a special beacon. Rescue coordination centers are then notified that an emergency has occurred and advised of the location for guidance of search and rescue craft.

Since this unique search and rescue program was initiated in September 1982, more than 850 lives have been saved from boating, aircraft and automotive incidents.

Source: National Oceanic and Atmospheric  
Administration  
Washington Science Center, Building 5  
6010 Executive Boulevard  
Rockville, MD 20852

Synthetic Polymer Microspheres

The first commercial products made in space entered the marketplace in 1983. They were microspheres, plastic beads so tiny that a vial containing 15 million of them is no larger than an index finger. Each is a perfect sphere, with a diameter of 10 micrometers (1/2500th of an inch or 1/40th the diameter of a human hair), and each is identical in size.

These synthetic polymer microspheres are particularly valuable in medical research, where they offer utility in such applications as measuring drainage channels in the eyes of glaucoma victims or, in cancer research, determining with high accuracy the size of intestinal wall pores. They also fill an important need among research and industrial laboratories as a reference standard for calibrating such instruments as microscopes or automatic blood cell counters with extreme accuracy. In addition, they can be used to measure air pollution particles, finely-ground paint pigments and a variety of microscopic particles.

What makes the microspheres important is that they cannot be made on Earth in the sizes laboratories want and in sufficient uniformity. Made of polystyrene, the material used in disposable drinking cups, the microspheres were made on four 1982-84 Space Shuttle flights by use of new techniques and equipment jointly devised by scientists at Lehigh University and the NASA Marshall Space Flight Center (MSFC). They were grown in an apparatus, developed by MSFC, known as the Monodisperse Latex Reactor.

Source: George C. Marshall Space Flight Center  
Marshall Space Flight Center, AL 35812

#### Weather Forecasting

~~The National Aeronautics and Space Administration, primarily through its Goddard Space Flight Center in Greenbelt, Maryland, is responsible for the design, development, manufacture, test, launch and checkout of the National Oceanic and Atmospheric Administration's meteorological satellites. They are the Geostationary Operational Environmental Satellite (GOES) and the Television and Infrared Observation Satellite (TIROS).~~

~~In operation for more than 25 years, weather satellites orbit the Earth, producing up-to-the minute data for the National Weather Service. These meteorological satellites not only make it possible to know our environment better, but also help to protect us from its dangers.~~

## Weather Forecasting

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In operation for more than 25 years, weather satellites orbit the Earth, producing up-to-the-minute data for the National Weather Service. These meteorological satellites not only make it possible to know our environment better, but also help to protect us from its dangers.

In 1900, long before the advent of meteorological satellites, a major hurricane struck the Gulf Coast city of Galveston, Texas, with an estimated 6,000 lives lost. The majority of these deaths were directly attributable to lack of advanced warning and information on the severity of this hurricane.

A similarly destructive hurricane struck the Mississippi Gulf Coast in 1969, with some \$1.4 billion in property damage. Thanks to weather satellite forecasts, only 256 people lost their lives, and most of those could have been spared if they had heeded the early warning to evacuate the area.

Source: National Oceanic and Atmospheric Administration  
Washington Science Center, Building 5  
6010 Executive Boulevard  
Rockville, Maryland 20852

Source: National Oceanic and Atmospheric  
Administration  
Washington Science Center, Building 5  
6010 Executive Boulevard  
Rockville, Maryland 20852

Environmental Impact

NASA's Earth Science and Applications program investigates the Earth as a system from the innermost core to the outermost magnetic field boundary. Traditionally, the Earth sciences have progressed through studies of the individual components of the Earth system such as the oceans, the landforms, the biosphere, the atmosphere and ionosphere. Recent advances in the science, based on many satellite and manned space mission flights, has taught us that all these separate elements are really a unified system. To understand our environment, and to ultimately predict global change caused either by natural events or human interaction, it is now necessary to answer questions in all the previously separate fields of Earth science as though they were a single question. To this end, the Earth sciences goals of NASA now reflect a comprehensive approach to the study of the Earth with the direct involvement of all of the various scientific disciplines and a global overview of their findings.

NASA itself proposes an Earth science explorer satellite series to study rainfall, magnetic fields and other individual elements; instrument mapper satellites to provide further high-resolution detail of the surface of the Earth; space plasma, oceanography and land process studies using satellite data and sophisticated ground analysis systems; a variety of significant advances over our current generation of aircraft and balloon instruments and additional interdisciplinary studies to be carried out by the appropriate scientific departments of hundreds of universities and federal and state environmental agencies.

Further information on this ambitious and scientifically exciting program can be obtained by contacting the following office:

Source:           Office of Public Affairs for the  
                  Office of Space Science and Applications  
                  Code    E  
                  NASA Headquarters  
                  Washington, DC 20546



Speech Autocuer

The development of a wearable, real-time speech perception aid has the potential to improve the quality of life for the 1.8 million deaf people in the United States. Research has been completed which demonstrates that deaf people can perceive speech accurately through a prosthesis based on "cued speech." Called the Autocuer, the speech analyzing prosthesis presents automatically derived visual cues in real-time to a wearable eyeglass display which, in combination with lip reading, enables accurate speech perception by deaf people.

The Autocuer project is a four-way collaboration between Research Triangle Institute (speech analysis, hardware and software design), Gallaudet College (laboratory training and testing, field testing), NASA's Goddard Space Flight Center (project coordination, technical consultation) and Telesensory Systems, Inc. (fabrication of field test units, commercialization). Support for this work was provided by NASA and the Veterans Administration.

Capitalizing on the pioneering efforts of NASA in developing complementary metal oxide silicon low-power electronics for space missions, work began in 1979 to develop a low-power, wearable microcomputer to adequately analyze connected speech for successful automated cuing.

Source: Center for Biomedical Research  
P. O. Box 12194  
Research Triangle Park, North Carolina 27709

Footwear From Space

The Apollo lunar suit worn by a dozen moon-walking astronauts was a masterpiece of design and engineering. One little-known feature was use of a special three-dimensional "spacer" material in the lunar suit's boots for cushioning and ventilation. That material has turned up, in modified form, as the key element of a new family of athletic shoes designed for improved shock absorption, energy return and reduced foot fatigue.

Manufactured by KangaROOS USA, the new line of shoes resulted from a two-year research and development program. The company sought to reduce athletic impact forces, which are transferred by the muscular-skeletal system through the foot and lower leg, and at the same time provide "medio lateral control" or lateral stability.

This design, says KangaROOS, produces a cushioning system that loses virtually none of the shock-absorbing capabilities throughout the life of the shoe. Subjective wear tests by athletes and additional testing by independent biomechanic and exercise physiology laboratories support the company's claim that the KangaROOS athletic shoe design offers superior shock absorption, stability and motion control.

Source:                   KangaROOS USA, Inc.  
                              1809 Clarkson Road  
                              St. Louis, MO 63108

These spinoffs are just a few examples of the benefits available from secondary applications of NASA-developed technology. Efforts are constantly underway to find new opportunities for re-application of the wealth of knowledge in the national technology bank. Spinoffs represent a stimulating influence on the national technological process, and ensure a bonus return on the tax-paid investment in aerospace research and development.

NASA publishes an annual, illustrated report on spinoff technology, called Spinoff 1980, Spinoff 1981, etc. For price information, write to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. For details on Spinoff articles, write to NASA Scientific and Technical Information Facility, P.O. Box 8757, Baltimore, MD 21204.

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