

Freezing Might Help Astronaut on Long Space Flight

By JOSEPH L. MYLER
United Press International
Washington - (UPI) - Radio Moscow grabbed and held the world's attention for a while last month with a bogus story about a couple of salamanders it said were revived after 5,000 years in the Siberian deep freeze.

This may turn out with time to be as farfetched as the tale of the resuscitated salamanders. But at the moment serious scientists are seriously discussing suspended or reduced animation to stretch out crew supplies on space voyages lasting for years. Perhaps the most respectable ideas along this line have to do with hypothermia, the reduction of body temperature below the normal 98.6 degrees.

Hypothermia is used in some kinds of heart and kidney surgery and in treatment of certain brain injuries. **Reduce Animation**
Applied to space pilots, hypothermia would reduce but not entirely suspend animation. Air Force doctors have estimated that a relatively slight lowering of the body temperature to 86 degrees would cut down activity of the cells and organs by 50 per cent.

In the case of a hibernating animal with a body temperature of 39.2 degrees, consumption of oxygen is reduced to three to eight per cent of normal. Such a reduction would mean a great cut in spaceship weight when you consider that an astronaut needs about 1.13 pounds of oxygen per day.

Capt. T. K. Cockett and Cecil C. Beehler of the Air Force medical corps at Brooks Air Force Base, Texas, estimated a space pilot in a normal state would have to take along a minimum of 5,000 pounds of supplies for a roundtrip to Mars lasting 17 months.

This could include oxygen, water, food, and material to neutralize carbon dioxide exhaled by the pilot. Assume a three-man crew for the Mars flight, and you have a requirement for supplies weighing five times the entire Mercury space capsule.

Protect Astronauts
In addition to cutting down consumption, hypothermia also would protect astronauts from many of the stresses of space flight and from dangerous radiations. The Air Force doctors said tolerance to radiation "may be increased many-fold" by a comparative small lowering of body temperature. Hypothermia, however, produces some bad side effects.

A better method of reducing animation, if it were possible, would be to induce in astronauts a state similar to that of animals in the deep sleep of hibernation. If a drug could be made which would induce hibernation, the doctors said, the results would be "tremendous savings" in supplies and a great load off the mind of rocket engineers concerned with spaceship weight problems.

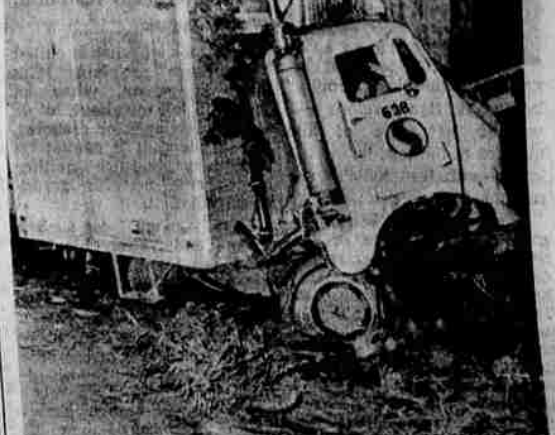
Other scientists have estimated that in hibernation an astronaut's consumption of food and oxygen might be only a hundredth that of an active man. **Bats Live Longer**
It appears that some hibernating bats live 20 times longer than nonhibernating animals of the same body weight. A few years ago Albert R. Dawe, chief scientist of the Chicago branch of the office of naval research, took this bat statistic, applied it to space traveling man, and came up with what he called a "dim future possibility."

In hibernation, Dawe said, "man's arrest of time might be such that he could possibly exist for about 20 normal lifetimes, or 1,400 years."

Entirely suspended animation might accomplish even greater wonders. The story of the frozen salamanders undoubtedly was, as one Soviet scientist said, "pure fantasy." But may it not become possible some day to preserve people indefinitely in deep freezers? There is a new branch of science called cryobiology. It deals with the cooling of cells and tissues of temperatures hundreds of degrees below freezing.

Male Germs Revive
This has been proposed as a means of preserving blood and tissue cultures. Male germ cells have been successfully frozen and revived by cryobiological techniques, and so have fertilized rabbit eggs. The trick seems to be extremely quick freezing and similarly quick thawing. This prevents formation of ice crystals which rupture and destroy tissue.

It has been found that living cells cooled to the temperature of liquid nitrogen, around 320 degrees below zero, cease practically all activity. In a discussion of cryobiology a while back, Dr. Joseph F. Saunders of the office of naval research did not go into its possible application to space flight.



DRIVER KILLED—A wind-fallen redwood tree across Highway 101 near Redway, Calif., caused this huge truck-trailer to leave the road and collide with another tree head-on, killing the driver, Rudolph E. Douthitt, 56, of Guerneville, Calif. (UPI)

MILD CHEDDAR CHEESE
ANY SIZE PIECE
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STEWING CHICKEN
Plump—2 to 3 Pound
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TUNA
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Bonito Flakes	Market	No. 1/2 Tin	6 for 99 ^c
Corned Beef Hash		15-oz.	3 for 99 ^c
Pumpkin	Jack and Bean Stalk	No. 2 1/2	6 for 99 ^c
Tomato Juice	Del Monte	46-oz.	3 for 89 ^c
Tomato Sauce	Stokely's	8-oz.	12 for 99 ^c
Pork & Beans	St. Claire	No. 300	10 for 99 ^c
Baked Beans	Oxford	13-oz.	7 for 99 ^c
Kidney Beans	Good Day	No. 303	7 for 99 ^c
Peaches	Serra Mission, Sliced or Halves	No. 2 1/2	5 for 99 ^c
Asparagus	Dew Drop, Green Cut	No. 300	4 for 99 ^c
Tomatoes	Blue Sky	No. 303	7 for 99 ^c
Tomatoes	Blue Sky	No. 2 1/2	5 for 99 ^c
Stewed Tomatoes	Premium	No. 303	6 for 99 ^c
Hominy	Drew, White or Gold	No. 300	9 for 99 ^c
Pork & Beans	Drew	No. 2 1/2	6 for 99 ^c
Sauerkraut	Del Monte	No. 303	6 for 99 ^c
Spinach	Del Monte	No. 303	6 for 99 ^c
Peaches	Del Monte, Sliced or Halves	No. 303	5 for 99 ^c
Pears	Del Monte, Sliced or Halves	No. 303	4 for 99 ^c
Spinach	Blue Sky	No. 303	7 for 99 ^c
Spinach	Market	No. 2 1/2	5 for 99 ^c
Asparagus	Star Dee, Center Cut	No. 300	5 for 99 ^c
Diced Beets	Vernal	No. 303	8 for 99 ^c
Green Lima Beans	Vernal	No. 303	6 for 99 ^c
Applesauce	North Coast	No. 2 1/2	4 for 99 ^c
Fruit Cocktail	Dainty	No. 303	6 for 99 ^c
Olives	Big California Ripe	No. 1 Tin	4 for 99 ^c
Oysters	Orchids, whole	8-oz.	3 for 99 ^c

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LARGE CRISP TENDER GREEN HEADS
2 FOR 29^c

RED RIPE SLICERS
TOMATOES **29^c** Bsk.

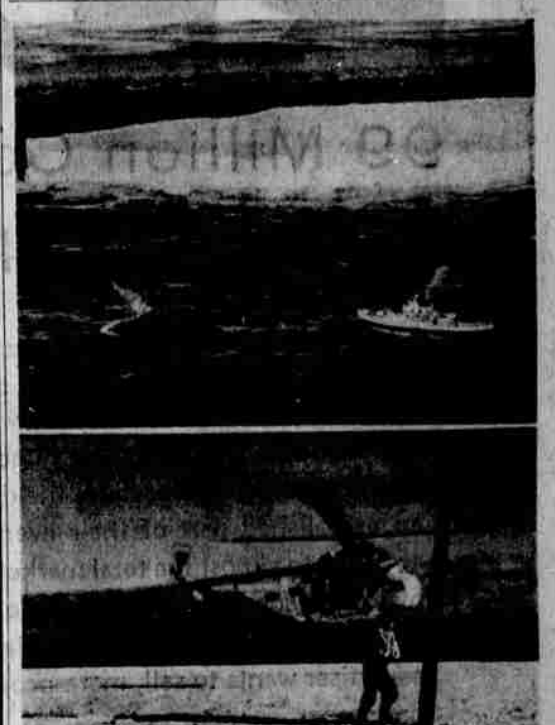
ASPARAGUS LARGE FRESH TENDER SPEARS Lb. **29^c**
POTATOES U.S. NO. 2 KLAMATH SANDLAND 10-LBS. **29^c**
AVOCADOS THIN SKINNED FOR WONDERFUL SALADS EACH **10^c**
BROCCOLI YOUNG, TENDER, GREEN BUNCHES EACH **19^c**
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APPLES WASHINGTON RED DELICIOUS 4 LB. BAG **39^c**

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Oregon FOOD STORES

STAR GAZER
By CLAY R. POLAN
Your Daily Activity Guide According to the Stars
To develop message for Friday, read words corresponding to numbers of your Zodiac birth sign.

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ARIES	Guard	Shop	Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Taurus	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Gemini	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Cancer	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Leo	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Virgo	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Libra	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Scorpio	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Sagittarius	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Capricorn	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Aquarius	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31
Pisces	1 Guard	2 Shop	3 Full	4 An	5 Devote	6 Speed	7 Active	8 Ahead	9 For	10 Day	11 There's	12 Domestic	13 Peace	14 Annoyance	15 Shop	16 Against	17 For	18 With	19 Names	20 Someone	21 Will	22 Better	23 Footwear	24 And	25 Keep	26 Small	27 An	28 Wearing	29 Encourage	30 Increased	31



REMAINS SIGHTED—The U.S. Navy icebreaker Edisto, engaged in oceanographic work in the Ross Sea, sighted in late February in a tabular iceberg far out at sea, the remains of what appears to be Little America III which was built by Adm. Richard E. Byrd in 1940-41, top photo. In the bottom photo Lt. Comdr. A. R. Schroder, USN, of the Edisto, leans against one of the wooden poles found atop the huge iceberg. The helicopter in background waits to take the group of inspecting personnel back to the ship. (UPI)