

MEDICINE

Use Frozen Blood

A new technique has been developed that seems to have solved the problems involved in using whole blood that has been preserved by freezing.

► A SUCCESSFUL method of recovering whole blood from the frozen state that holds promise for an end to the chronic blood supply shortage has been reported.

The problems involved in using blood that has been frozen include the removal of glycerol, a preservative, from the blood, avoidance of contamination, and transfusion to recipients without harmful effects. This has been accomplished by a team of scientists who report their technique in the *Journal of the American Medical Association* (Sept. 27).

Frozen blood is stored in glycerol solution at minus 80 degrees and minus 120 degrees centigrade.

Researchers had been working on a sterile method of recovering blood from the glycerol solution with little success previously. Either the blood recovered was not usable, due to the amount of glycerol that could not be removed, or contamination interference.

The reporting scientists processed the blood in a fractionator, added glycerol and froze it. After storage at minus 80 degrees or minus 120 degrees centigrade, the blood was thawed and then deglycerolized in wash solutions.

The blood was then stored for from three to 11 days in a standard refrigerator, the investigators, Drs. James L. Tullis, Hugh M.

Pyle, Robert B. Pennell, Melvin M. Ketchel and John G. Gibson II and Robert J. Tinch, of Harvard Medical School and New England Deaconess Hospital, Boston, and Dr. Shirley G. Driscoll of Children's Memorial Hospital, Chicago, report.

They said the recovered blood appeared therapeutically comparable to the blood that is now used for transfusions.

The advantage of an effective method of preserving blood can eliminate the restricting 21-day limit that is now the legal length of time that donated blood can be used after it is received from the donor. Under the 21-day restriction, blood shortages occur because not enough can be kept on hand. With the frozen technique, large quantities of blood can be stored indefinitely. One bottleneck in the frozen storage procedure that still remains, however, is the scarcity of freezing space for such large quantities of blood.

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GERIATRICS

100-Year Life Possible From Ten-Point Plan

► A TEN-POINT "do-it-yourself" health program may help a person live to be 100. The program is designed to make it pos-

sible for the average American to live a longer, healthier and happier life. It was put forth by Dr. Edward L. Bortz, Philadelphia, a member of the American Medical Association's Committee on Aging, and consists of these basic needs for older persons:

1. A balanced diet including more protein, vitamins and fluids; less fats and calories.
2. Regular elimination of waste products.
3. Adequate rest of both mind and body.
4. Pursuit of interesting and specific recreational activities.
5. A sense of humor (the best antidote for tension, Dr. Bortz said).
6. Avoidance of excessive emotional tension that leads to personal ineffectiveness.
7. Mutual loyalty of friends and family.
8. Pride in a job.
9. Participation in community affairs.
10. Continued expansion of knowledge, wisdom and experience.

The major scourges of aging man are largely the result of faulty diet, flabby bodies from poor hygiene, excessive fatigue and aimless living, the committee on aging reported.

The two major elements in prolonging life are the preservation of energy and a high degree of motivation. When the incentive, the zest for living, is lost, senility is inevitable, Dr. Bortz explained.

If you just sit and wait for death to come along, you will not have long to wait, Dr. Theodore G. Klumpp, president, Winthrop Laboratories, New York, added.

Continued research in the fields of the major death diseases, cancer and heart ailments, plus a program to reduce the abuse of the human body should enable an increasing number of Americans to become centenarians, Dr. Bortz said.

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METALLURGY

Sputtering Method May Create Printed Circuits

► CATHODE METAL sputtering may prove a good way to produce precision printed circuits for modern communication equipment and giant electronic computers.

Entire circuits, including resistors, capacitors and leads, may be laid down by this technique, in which ionized gas molecules bombard a cathode, dislodging atoms of metal that then redeposit on nearby surfaces.

Harold Basseches of Bell Laboratories has produced thin films of a number of electrically interesting, high melting point metals. Tantalum and titanium, for example, melting at 3,000 and 1,670 degrees centigrade respectively, can be laid down in films that show sufficiently high resistivity to be useful as resistors in printed circuits.

With proper masking of the substrate, lines and patterns of virtually any desired shape and size can be formed, ranging in width down to a few mils. The sputtered films are between a few hundred and a few thousand angstroms thick. Alloys can also be sputtered.

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"SPUTTERED" FILMS—Harold Basseches of Bell Telephone Laboratories (left) describes some of the properties of a newly sputtered film resistor to R. W. Berry. Sputtering apparatus can be seen in the background.