

MEDICINE

# Free As Water

## Blood, When Needed for Transfusions, Is Sometimes Costly and Hard to Find, But Not Under New Plan

By CHARLES DILLON

**C**RASH! Screams! Another auto wreck.

Police sirens—then an ambulance. The bleeding victim is rushed to an emergency hospital. Internes with quick fingers press shut the gushing arteries, peer at the ominously white face of the unfortunate. One of the stern young men in white speaks crisply to a nurse.

"Type his blood and get a donor. Hurry."

The nurse runs to execute the command. The patient is a good looking lad of 17; reminds her of her brother. She has seen them lying there on that table so often. She knows that there isn't a chance in a million that the hospital can find a blood donor with the right type of blood in time.

### Frantic Calls

The girl at the switchboard begins frantic calls. The list of donors is not long, and she can go through it in 30 minutes. The laboratory has told her to find a "Type One." Plenty of "Type Two" and "Type Four" answer the phone today. The nurse is on another line attempting to reach relatives of the dying youth. But they live in the country. It would take them two hours to drive in through the Sunday traffic. And they wouldn't do either, probably. The telephone operator sighs. Not a single

"Type One" at home. And that sigh was a requiem for the lad upstairs who had just breathed his last. Anti-climactically it may be added, that if "Type One" had been available, likely as not he would have charged between \$35 and \$50 for each pint of death-cheating fluid "given."

For, notwithstanding front page stories about generous policemen and firemen, donors of blood for transfusions are not usually humanitarians. They're professionals in business for the money. It's a business without much competition. After you have had the big vein in your arm punctured two or three times, and have watched your blood being drawn off into a jar, even the \$50 doesn't seem sufficient compensation. It's not at all pleasant—if you are thinking about yourself and the check.

There is another point of view, however. The slant of gladly giving a part of your life to save somebody else's life, and doing it with a spiritual lift. A lot of people would feel that way. But who are they? Where can the surgeons find them? They'd save among others, more than 1,000 mothers a year who die from childbirth bleeding.

### They Can Be Found

Well, they *can* be found, in large numbers. As many as 600 in a town of 60,000. This has been proved recently in the city of Augusta, Ga. There, for the first time in the United States, a Red

Cross unit has undertaken to make blood as free as water for the injured and dying.

Our lad of 17 would not have perished in Augusta's University of Georgia Hospital. Lots of "Type Ones" would have been ready to serve. If it were day time, the local Red Cross Chapter's Motor Corps would have sped the donor to the doctors. If it were night, the police would have furnished an indomitable taxi—a squad car.

### Will Sweep Nation

All Augusta knows about the blood transfusion service. The town is thrilled. There is an atmosphere of important achievement. Everybody feels it. Something has been started that will sweep the nation.

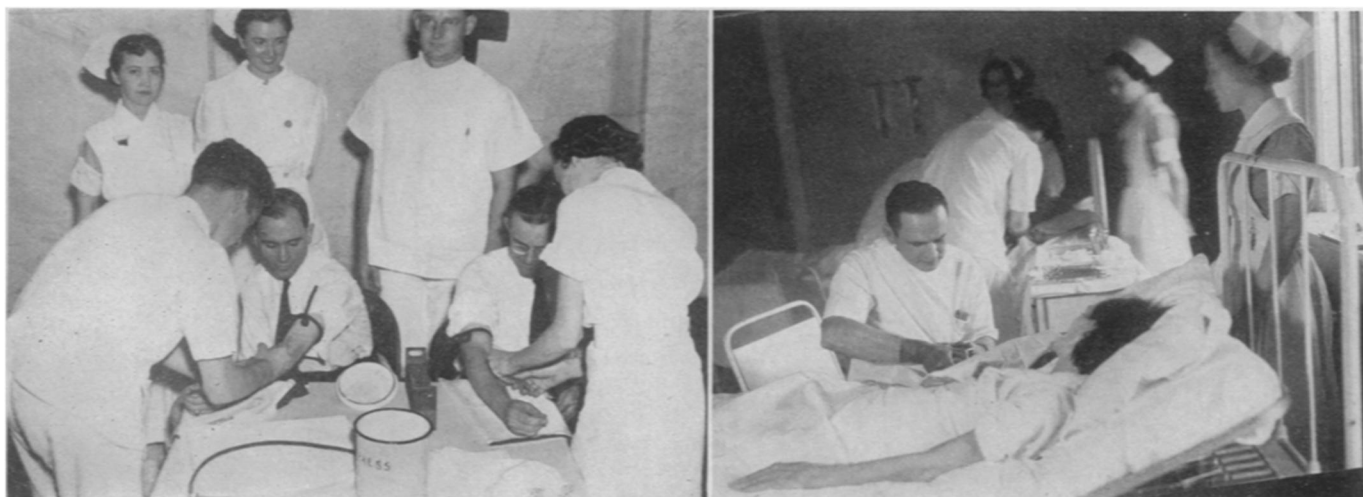
Already other communities are aroused. "They shall not die from lack of blood!" will soon ring from coast to coast—the Augustans hope. Particularly, so hopes Dr. William De Kleine, Medical Director of the Red Cross in Washington, D. C.

But that's getting away ahead of a story that properly begins back in 1628. In that year, Harvey discovered the circulation of the blood. (Prior to that time the quaint theory obtained that sickness could be alleviated by drawing off blood

### TESTS FIRST

*Before a donor can give his blood to save another's life, he must have certain tests made, including the Wasserman test being conducted in the picture on the left. Next his blood is typed. (right).*





—a service customarily performed by barbers!) On the basis of Harvey's findings, physicians soon realized the value of blood transfusions to replace blood loss caused by accident, operations or disease.

For many years, however, three obstacles prevented the successful practice of transfusion: infection occurring during the giving of the blood and its receipt by the patient, coagulation of the blood between extraction and injection, and the incompatibility of different kinds of blood.

The first difficulty was overcome by the researches in antiseptic methods of Pasteur and Lister; the second by adding a citrate of sodium; and the third by the discovery of the four blood types by Jansky and Moss between 1907 and 1910.

The first transfusion in which sodium citrate was used to cheat death took place in Buenos Aires in November, 1914. Curiously enough, according to a bulletin of the British Red Cross Society, "By this time most European countries were too busily engaged in war to permit of further experimentation!"

#### Army Helps

But in 1917, the American Army Medical Corps brought the possibilities of the sodium citrate method of avoiding coagulation to the attention of the Allied Armies Medical Staff. As a result, transfusions became one of the Army surgeon's strongest weapons against the effects of wound bleeding and shock.

This war experience was deeply impressed upon Red Cross officials over the world, particularly in England, the Netherlands, Norway, Spain, Belgium and Japan. In 1921, the Camberwell Division of the British Red Cross Society

under the leadership of P. L. Oliver, made a modest start on a voluntary transfusion service for regular hospital patients.

By 1925, the demand for donors had grown to such proportions that the parent Society had to take over the work. It was the poor, of course, who were helped—who could not afford to pay the high prices of the professional donors. In 1934 the British service answered 3,000 calls.

Meanwhile in the United States, pellagra-fighting William De Kleine, M. D., Red Cross friend of Paul de Kruif, took stock of the mounting auto accident death toll, scanned the childbirth mortality figures, investigated American blood transfusion practices, and decided to look into the British system thoroughly. Too many people in this country were dying because their arteries could not be reprimed in time.

#### Draws Up Plan

De Kleine completed his London studies in 1936. Back in Washington, D. C., in his office in the marble memorial to the heroic women of the Civil War, which is Red Cross National Headquarters, the doctor drew up a plan for local Red Cross Chapters to follow, wherever and whenever it would be possible to make a trial. Encouraging to American experiment was the program of the Blood Transfusion Betterment Association of New York, which, while it listed and supplied only paid donors, was a non-profit organization interested in research and the improvement of technique.

Scarcely had Dr. De Kleine's secretary delivered the freshly typed plan to his desk, when he walked Pat H. Rice, Jr., Chairman of the Augusta Red Cross

#### GIVING AND RECEIVING

*Cheerfully, men give of their blood so that unfortunate victims of illness or accident, such as the woman on the right, may live.*

Chapter, and thus is the circle of the story once more complete.

Rice told the doctor that Augusta physicians sorely needed aid in finding blood donors for the fine, modern hospital of the University of Georgia. Dr. De Kleine smiled, picked up the plan from his desk. Mr. Rice read it; his eyes sparkled. Exactly the thing!

#### Press Aids

Shortly thereafter, Dr. De Kleine was in Augusta conferring with University medical men and local Red Cross people. Everybody put his shoulder to the wheel, and the plan moved swiftly into execution. Press, radio, club programs and church services were the means used by Rice and his associates in getting the project before the community.

Editorials in the papers and a mayor's proclamation attracted much attention. Leading doctors spoke on the air, explaining the process of transfusion, assuring listeners that donors suffered no ill effects, pleading the cause of humanity.

The Chapter secured a laboratory in the heart of Augusta's business district. Doctors and nurses from the hospital and Health Department were in attendance. In came the stream of volunteers who wanted to give their blood free. First to enroll was a woman whose own life a transfusion had saved. Within a few days 600 had had their blood tested and "typed." All, of course, were given physical examinations, including Wasserman tests.

A simple record system is kept in duplicate by the Chapter and the hospital. There is an alphabetical list of donors with necessary information, especially the blood type. Another file lists donors by the four types. When a transfusion is completed, a note is made on the card, and it is filed separately so that the donor will not be called for another three months.

Quite by chance, the first donor called was Chairman Rice himself. His blood renewed the spark of life in a woman suffering from puerperal fever.

Once again at his desk, with reports of life saving success steadily coming from Augusta, Dr. De Kleine writes careful instructions to Chapters elsewhere that are interested, that have heard the news through Red Cross channels. He predicts that one day an army of Red Cross blood volunteers may serve throughout the nation.

If he is right, thousands of persons now marked for death, will live. No longer will blood loss or weakness be tragic in accidents, puerperal fever, childbirth, anemia, peritonitis and some 60 other dangerous conditions. No more will there be a mad scramble to locate donors with the desired type of blood. No more will heavy fees be paid by the poor to save their lives.

Blood will be free as water!

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#### ENTOMOLOGY

### This Unpleasant Widow Is Still an Old Maid

**T**HIS story of a Black Widow spider who proved to be a most determined old maid is told by Prof. John M. Pierson, Jr., of Oregon State College. He has kept a virgin Black Widow in a laboratory cage for over two years.

A year ago he tried to give her a mate, but she was more than cold to the male spider's advances. In fact, she bit her hopeful suitor twice. He recovered. Prof. Pierson tried again, several times, to play the part of matchmaker for his spinsterish spider. But every time the poor twice-bitten male was put into her cage the Black Widow went on the warpath.

So she's an old maid still.

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A new kind of paper for photographic prints is said to be really durable, neither turning yellow nor becoming brittle.

#### BIOLOGY

## Hormones Aid in Treating Burns; Throw Light on Cancer

### Many Kinds of Injured Cells, Both Plant and Animal, Yield Substances Not Yet Understood by Chemists

**F**URTHER advance in the knowledge of cancer and its eventual subjugation, a potent aid in the treatment of severe burns, and better understanding of the nature of life and cell growth, are all bound up in the discovery of substances produced by injured cells which cause the rapid multiplication of healthy cells.

These substances, provisionally named intercellular hormones, were demonstrated recently to the American Association for the Advancement of Science, by Dr. John R. Loofbourow of the Institutum Divi Thomae.

For the past year, they have been used at St. Mary's Hospital, Cincinnati, in the treatment of third degree burns. Burns thus treated heal up in a minimum of time and without the wide areas of disfiguring scar tissue that usually follow such injuries.

The steps in the demonstration were simple, direct, and complete. Under one microscope were cells of yeast, with other cells of yeast, uninjured, separated from them by a layer of jelly-like material, agar-agar. Nothing especial was happening in this culture.

Under the next microscope was a similar mounting of yeast cells, with the important exception that the lower cells had been injured by prolonged exposure to strong ultraviolet radiation. Here, something emanated from the injured cells, passed through the separating layer, and stimulated the healthy cells into exceedingly rapid multiplication.

A third microscope showed yeast cells in a similar state of rapid proliferation. These, however, had not been treated directly with injured cells, but with an extract taken from such cells. In a tiny tube nearby were a few yellowish crystals, laboriously purified out of injured-cell extract.

Dr. Loofbourow stated that these crystals have not yet been analyzed. Preliminary steps in analysis indicate that they consist of the higher chemical fractions of proteins. But that does not tell much as yet, even to chemists.

Many kinds of injured cells, both plant and animal, have been shown to be

capable of yielding the new intercellular hormones. They cause rapid growth or proliferation of a wide variety of uninjured cells. Of especial interest, from the practical point of view, is the stimulation of two kinds, fibroblasts and epithelial cells.

Fibroblasts are cells typical of one kind of cancer; and when you say cancer, everybody pricks up his ears. The least step in the advance of understanding why the accursed things grow, the least hope that means may be found of checking that growth, are reasons for very legitimate excitement.

Epithelial cells constitute an important part of the complex we know as the skin, as well as the covering of other, internal body surfaces. The ability of the new-found substances to make these grow and spread rapidly has already been turned to account in the treatment of burns.

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#### BOTANY

### Cold Essential To Growth Of Northern Wild Flowers

**W**ILDFLOWERS to star next spring's northern woods are now deep-blanketed under snow. They are not, however, shunning all the cold. Indeed, it is necessary for spring beauties, dogtooth violets, trilliums, bloodroot, and a number of other wildflowers to take a thorough chilling now, or they would not come up at all to blossom in May.

Prof. Herman Kurz of the Florida State College for Women has demonstrated, in experiments with 20 kinds of northern wildflowers, that their rootstocks or other underground parts must be held at a temperature near or below freezing for several weeks if normal growth and flowering is to take place in the spring. His report will be published in the *Proceedings of the Florida Academy of Sciences*.

It all started when Prof. Kurz decided he'd like some northern wildflowers in his garden. The ones he had sent him, left out through the mild winter of