

MEDICINE

Blood Transfusion Banks Are War Preparation

IF and when war breaks out in Europe, one of the new medical weapons at the front will be refrigerated blood for transfusions.

French physicians have a plan for collecting blood from civilian donors in every province. Blood from slightly wounded and convalescent soldiers also will be obtained.

According to the Paris correspondent of the *Journal of the American Medical Association* (Oct. 1), earlier plans for transporting blood to the front by airplanes and automobiles equipped with refrigerating apparatus have been supplanted.

The use of a specially constructed box to contain a large number of flasks of conserved blood which can be kept at a temperature near 4 degrees Centigrade, a little above freezing, is being considered. Such boxes can be transported by ordinary army trucks. The blood can then be warmed before transfusions.

Extensive studies have shown that refrigerated blood retains its therapeutic qualities for from 10 to 15 days. During the first week refrigerated blood resembles fresh blood so closely as to make it safe for use as a substitute.

In Spain twenty or more transfusion centers are now in operation, it is said, with non-mobilized civilians, especially women, as voluntary donors.

Science News Letter, October 8, 1938

GENERAL SCIENCE—PSYCHOLOGY

Advance of Knowledge Is Breaking Down Barriers

GRADUALLY the barriers between the sciences are being battered down by the advance of knowledge. The problem itself has become the important matter, not the viewpoint of the investigator.

In one laboratory, brainwaves, those electric impulses that are messages originating in the brain itself, are being studied cooperatively by psychologist, physiologist, physicist and electrical engineer.

Epilepsy, age-old medical enigma, is today being attacked by researchers using methods of the psychiatrist, the psychologist, the electrician, and even the slow-motion picture photographer. No attempt is being made to sort out the findings and relegate them to the several realms of medicine or mental phenomena.

In the study of mental disease, many

scientists have given up altogether the attempt to distinguish between the physical and the psychic. Such definitions are not only meaningless, but profitless, is the feeling.

At the Harvard Psychological Clinic, individuals are studied by psychologists, psychiatrists, physicists, criminologists, and others with the single objective of understanding that person's difficulties with a view to advising him.

Gradually, it is being realized that physical health and mental well-being are not just medical problems or psychological problems or economic problems or political problems or social problems, but human problems. They can be successfully attacked only by a team of researchers with varied backgrounds of training and perspective working in the closest of cooperation.

As the frontier of scientific discovery is pushed forward, boundary lines of all sorts become more and more artificial.

May it not be hoped that eventually political boundaries will assume as nominal a form as scholastic barriers are now taking on? M. Paul Elbel, French delegate, has told the League of Nations that one third of the amount now being spent on armaments would finance the cooperative research necessary to abolish our present intolerable incongruity of empty stomachs and full granaries.

Science News Letter, October 8, 1938

PSYCHOLOGY

Apes Work Vending Machine By Recognizing Colors

YALE's money-changing apes, famous for their ability to operate slot machines, have learned a new trick, reported by Dr. Meredith P. Crawford to the American Psychological Association.

Now they can operate food-vending machines when it is necessary to release colored holders in the order, yellow, green, red, and blue, regardless of their changing positions on the machine. Nor is that the limit of their increasing talents.

They have been taught to work in pairs, separated from each other by a grille, so that one partner had to watch the other and work his own holders in proper sequence with the manipulations of his fellow worker. When one partner hesitates, the other will urge him by gesture or by pushing him toward the proper device.

Dominant animals command, subordinate ones beg for the necessary help from their partners.

Science News Letter, October 8, 1938

IN SCIENCE

MEDICINE

Training For Emergencies Proposed For Physicians

WAR emergency training courses have been proposed for English physicians. The courses would prepare those doctors who have never treated patients, but instead worked in research laboratories, to handle injuries following air raids. Such cases may require more than first aid treatment and no practising physician may be available.

Model courses in treatment of compound fractures, severe wounds and burns, methods of giving the newer anesthetics and the technique of blood transfusion might be given by the British Postgraduate Medical School. This proposal is made by *The Lancet* (Sept. 17) in response to requests for such war preparation by medical men and women who have never engaged in practice.

Science News Letter, October 8, 1938

AERONAUTICS

France's New Flying Boats Will Be Sixty-Tonners

FRANCE's six new transatlantic flying boats, now in preliminary production, will weigh 60 tons, half again as much as the Boeing Clippers now nearing completion in Seattle for Pan-American Airways transoceanic services, it is reported.

Though they will gross that much, they will be designed to carry only 24 to 32 passengers across the "big pond," as compared with 50 overnight passengers the Atlantic type clippers can carry. Cruising speed is to be 200 miles an hour, while the range will be sufficiently great to permit a 1,000-mile margin over the New York-Azores stretch.

Three types are under construction, two each by three different companies—Latecoère, Potez and Liore—all well-known French aircraft manufacturers. One concern is using a flying scale model one-third actual size in the engineering job. The Glenn L. Martin Company of Baltimore, a noted American flying-boat building concern, used a flying scale model to aid in its construction activities, but it was much smaller.

Science News Letter, October 8, 1938

E FIELDS

PUBLIC HEALTH

London Makes Plans For Air Raid Protection

SCIENTIFIC plans for the protection of the civilian population of London against air raids are being developed by a special committee, which includes such leading English men of science as Profs. J. B. S. Haldane, J. R. Marrack, and J. D. Bernal (*Nature*, Sept. 3).

Experience in Spain and China has shown, the committee points out, that civilian populations will not be passed over in favor of factories, rail centers, dockyards and other specifically "military" targets as was the case in the World War. In the "total war" of the future, civilians will come in for gas, explosives, machine-gun "strafing," and incendiary bombs.

Because of this, fullest possible protection or avoidance of air raids must be included in any satisfactory plan. Accordingly removal to the country of all children, as well as the aged and the sick, is the first thing called for. Hospitals are to be built in the country, and school camps established.

For the adult population, the plan calls for a series of tunnels, lined with steel, to be dug deep in the famous close-grained London clay, below the reach of even the heaviest high-explosive bombs, and provided with all essential facilities for semi-permanent occupation. Copies of the plan, in pamphlet form, are now being sold in London for threepence.

Science News Letter, October 8, 1938

BIOLOGY

Male Called Weaker Sex By Edinburgh Biologist

WEAKER sex! That wilting epithet, long bestowed by the lordly male upon his meek and submissive mate, now snaps back into his own face. And a male scientist is responsible, too: Prof. F. A. E. Crew of the University of Edinburgh.

"The male in man is inherently the weaker sex," declares Prof. Crew in the British weekly journal, *Nature*, "more prone on account of his relative consti-

tutional weakness to developmental anomalies, to congenital debility and to death from diseases of all kinds."

The Edinburgh biologist, in issuing this pronouncement, is indulging in no snap judgment. In his article he sets forth an array of facts most embarrassing to male notions of superiority—if any such still survive.

More boy babies than girls are born, as is fairly well known. British vital statistics show 105 male births to 100 female. But immediately the boys start dying off faster than the girls, until the ratio between the sexes in the 15-to-19 age bracket is evenly balanced. Thereafter there are more women than men, until in extreme old age, from 85 years on, there are twice as many surviving females as there are males.

Prof. Crew has sought hereditary causes for this state of affairs. He has three suggestions:

There may be lethal genes riding on the male sex chromosome. This chromosome is absent in women, so the lethals would also be lacking. However, Prof. Crew thinks this factor plays relatively little part.

Tendencies to certain defects may be carried by the genes of both sexes, but because of physiological differences they may be expressed only in males. Color-blindness, and the hemophilia or "bleeding" that afflicted the unfortunate older son of Alfonso XIII are examples.

Finally, physiological peculiarities connected with the primary or secondary sex glands may load the dice of death against males.

Prof. Crew specifies that while the weakness of the male is fact, his suggested explanations are only speculation and he calls for criticism and experimentation to test them.

Science News Letter, October 8, 1938

SOCIOLOGY

A. R. P., Butchers—Still Life

See Front Cover

SYMBOLIC is the scene in peaceful Cambridge, England, on this week's cover, snapped by a Science Service staff member during the recent British Association for the Advancement of Science meeting there. The butcher boy is still wheeling his peaceful errands (at this writing) and Aerial Raid Precautions seem to be less imminently needed.

Science News Letter, October 8, 1938

An airedale in Philadelphia is wearing an artificial leg made of aluminum.

OCEANOGRAPHY

California Submarine Canyon Rivals the Grand Canyon

RIVALING the Grand Canyon of Arizona in magnitude, a newly discovered submarine abyss cut into the ocean bottom off Carmel and Monterey, Calif., is described by Prof. F. P. Shepard of the University of Illinois, at present working at the Scripps Institution of Oceanography, University of California.

The subsea canyon is about 7,000 feet deep, and sections already traced have shown contours resembling those of the Grand Canyon of Arizona. Study now being conducted from the laboratory yacht *E. W. Scripps* includes soundings, dredging, and readings of the water temperatures.

Science News Letter, October 8, 1938

MEDICINE

New Morphine Compound May Be Addiction-Free Drug

A NEW pain-relieving drug which may be the means of freeing the world from the poppy's bondage has been developed at the University of California.

The drug, dinitrophenylmorphine, was first reported by Dr. Chauncey D. Leake, professor of pharmacology at the University, at the meeting of the British Pharmacological Society at Oxford University. Collaborating with Dr. Leake were Dr. George Emerson of the University of West Virginia and Benedict Abreu and N. M. Phatak, graduate students at the University of California.

The new drug, called DNPM for short, is a combination of morphine and dinitrophenol. The latter is a fever-producing drug which caused disastrous results and some deaths when used without proper supervision as a weight-reducing medicine. The new drug is said to have none of the action of dinitrophenol but to be much more like codeine and morphine.

Experiments on animals and normal human subjects show that it has pain-relieving properties and respiratory effects similar to morphine and greater than codeine. Animal experiments also suggest that it may be less habit-forming than morphine.

Dr. Leake and associates pointed out, however, that any chemical which relieves pain and causes a feeling of well-being may become habit-forming in persons desiring to escape from an unpleasant health environment.

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