

MEDICINE

1930 Nobel Prize Won By Blood Group Discoverer

DISCOVERY that human blood is of four different types and that blood of one type does not always mix with blood of another type has won the 1930 Nobel prize in medicine for Dr. Karl Landsteiner of the Rockefeller Institute for Medical Research.

The enormous importance of Dr. Landsteiner's discovery has been evident to patients who have had the life-saving operation of blood transfusion performed. For this operation the blood of the donor and that of the patient must mix well, or serious and even fatal results may occur. Consequently before each transfusion, samples of the two bloods are tested or "matched" to see if they are compatible and belong in compatible blood groups.

When the blood liquid of one normal, healthy person and the red blood cells of another are put in the same test tube, instead of mixing freely the red cells often clump together as if they were glued, Dr. Landsteiner observed during the course of some investigations made in Vienna in 1900. Scientists call this glueing together or clumping, agglutination. When it happens in a man's vein, following blood transfusion, death may result.

Agglutination did not take place at random, Dr. Landsteiner found, but depended on certain definite properties of the blood. It is on the basis of these properties that blood was divided into different groups or types. Three of the types were discovered by Dr. Landsteiner and the fourth by two of his students.

Every human being belongs to one or the other of the blood groups. To a certain extent, blood groups are inherited, and this fact is often used to determine paternity. If the blood groups of each parent are known, one can state to which groups their child might belong.

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BACTERIOLOGY

Bacteria Eat Plants They Normally Feed

BOLSHEVIK bacteria, forsaking their normally useful lives of labor and rioting and robbing because they are hungry, have been discovered by scientists at the Rothamstead Experimental Station near London. They are the ordinary nodule bacteria of clover,

which capture nitrogen from the air and make it available for the food of higher plants. Ordinarily they are not harmful parasites, demanding only a little carbohydrate food from their hosts in exchange for their work. But if this fails they begin to feed on the living protoplasm of the clover cells, and then attack the cell walls themselves.

It has been found that this bolshevistic behavior of bacteria follows boron starvation in the host plant. The higher plants require the element boron in extremely minute amounts, to be reckoned in millionths of an ounce. If this tiny helping of boron is missing their system of transportation tubes breaks down and the tissues no longer receive their normal supplies of food. The bacteria, finding themselves on short rations, then proceed to stage their bread riots.

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ARCHAEOLOGY

Undisturbed Tomb Found in Mesopotamia

DISCOVERY of an ancient tomb that has remained undisturbed for many centuries is reported from Tell Billa in northern Mesopotamia, where an expedition sponsored by the University of Pennsylvania Museum is excavating under the direction of Dr. Ephraim A. Speiser.

The tomb contains a sarcophagus made of terra cotta. There is an assortment of pottery and some beautiful bronzes. In a preliminary report of the discovery, received here, Dr. Speiser states that the tomb appears to date from the Persian Achaeminid dynasty which ruled from about 540 B.C. to about 330 B.C. when the conquests of Alexander the Great ended its reign. Ancient tombs which have not long ago been plundered of their contents are seldom found by archaeologists, museum officials stated in commenting on the importance of the discovery.

Tell Billa, one of the largest and most imposing mounds in ancient Assyria, attracted the attention of Dr. Speiser four years ago. At that time a surface examination of the site revealed that the huge mound contained extensive remains, both pre-historic and historic. The find that spurred Dr. Speiser on to further research was an inscribed brick bearing the seal of Sennacherib, Assyrian king of Biblical fame. This indicated that the mound contained one of the summer palaces of this famous royalty.

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IN SCIENCE

CHEMISTRY

Impossible To Dye Clothes Without Shrinkage

DYEING clothes without shrinking them is practically an impossibility today, Paul C. Trimble of the National Institute of Dyers and Cleaners, Silver Spring, Md., has found through experiments.

In warning cleaners against incurring liability for the shrinkage of dyed clothes, Mr. Trimble said that there is almost no exception to the rule that modern fabrics shrink in the dyeing process. Clothing worn by our grandmothers was better in this respect, he said. The old practise was to shrink clothes in finishing them, whereas modern methods of manufacture require that the material be stretched by the finisher instead of being shrunk in accordance with the old tradition.

Sometimes after the material is stretched by the finisher, it is set with gelatine to hold it to its new dimensions. Such material, according to Mr. Trimble, sometimes even shrinks while still on the bolt.

The dampness of perspiration is sometimes enough to shrink fabrics treated in this manner.

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SOCIOLOGY

\$280 a Year Per College Girl For Clothes, Figures Show

THE AVERAGE college girl spends \$280.13 during the calendar year for clothing, and over a third of this goes for dresses and similar garments. This average figure was obtained from the actual expenditures of 341 girls in two typical colleges, one in Iowa and the other in sunny Florida. The investigation was made by Callie May Bliss of the Iowa State College at Ames.

The average for the northern college is practically the same as that for the Florida institution; the Iowa girls bought fur coats, but the Florida girls spent more for dresses.

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E FIELDS

ENGINEERING

Torch of Steel Cutter Hastens Skyscrapers

See Cover Picture

A TOUCH of beauty found in the erection of the steel frame for the world's tallest structure is presented on the front cover as a photographic study of a steel cutting torch at work. The picture was taken by Lewis W. Hine, of Hasting-on-Hudson.

With his oxy-acetylene torch the operator will halve the huge steel beam in just a few minutes, an operation that would require hours with a saw. This is a method of modern building that hastens the erection of skyscrapers.

The Empire State building in New York City, on which the photograph was taken, will tower 1,248 feet above Fifth Avenue and Thirty-fourth Street. Eighty-four floors will rise to a height of 1,048 feet, and above this level there will be a mooring mast for dirigibles and an observation gallery. Work was begun March, 1930, and it is expected that the building will be completed by May 1, 1931.

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ARCHAEOLOGY

American "Stonehenge" Found in Colorado

INDIANS in Colorado long ago constructed for their religious rites mysterious circles of stones that call to mind the great stone circle at Stonehenge in England, is the discovery by Prof. E. B. Renaud, of the University of Denver, as the result of an expedition on behalf of Science Service.

Professor Renaud, who has just made a long difficult journey over prairie trails to investigate the local rumor of an Indian fort, found that the "fort" was really a series of circles of gray and brown sandstone slabs set on a high cliff overlooking the Apishapa River and the surrounding country.

The circles of stones would have had no usefulness as a defense. Nor are they like rings marked off for wigwams. The labor involved in carrying the slabs and aligning them according to a pattern can hardly be justified unless the

enclosure had some ceremonial function, Professor Renaud concluded.

The Colorado circles are not constructed on so grand a scale as the prehistoric Britons achieved at Stonehenge, but the Indians had a most impressive setting for their rites. One group of circles ranged from one pace to nine paces in diameter, and the group was more or less surrounded by a slab fence with an opening at one end. At another site along the Apishapa, Professor Renaud discovered another group of circles made of larger monoliths, and here he found that each circle had an upright stone post in the center.

"A solar cult may be suggested by the circular shape and the presence of a central monolith," Professor Renaud reported.

Nothing similar to the stone circles has been reported heretofore, to Professor Renaud's knowledge, in the Southwest states.

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ARCHAEOLOGY

Scientist Hastens to Save Ancient Picture Writings

THE RACE to save the mysterious rock pictures of the Susquehanna River before a huge power project submerges the rocks beneath tons of water will be won, is the confident belief of Donald A. Cadzow, director of archaeological research of the Pennsylvania Historical Commission.

For weeks Mr. Cadzow and his group of a dozen men have worked twelve hours a day and sometimes far into the night, rescuing as many of the ancient picture writings, as they can before the work starts on the \$35,000,000 dam to be built by the Safe Harbor Water and Power Company. The construction work, which will bury the picture rocks under 40 feet of water, is to be started in 1931.

"We are 'finger-printing' the rock carvings that can be found," Mr. Cadzow explained. "We are making charts, moulds, and plaster models of them all. When this work is finished most of the legible carvings will be lifted bodily from the river and shipped to Harrisburg. Once in the State Museum, they will be available to the general public and for study by the archaeologist."

That the petroglyphs, or rock carvings may be very old, older than the Algonkian and other tribes known to have inhabited the region, is the suggestion advanced by Mr. Cadzow.

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MEDICINE

Pneumonia May Be More Than One Disease

"THERE is no one disease, pneumonia," declared Dr. Rufus Cole, director of the Hospital of the Rockefeller Institute, speaking at the Graduate Fortnight of the New York Academy of Medicine. Success in preventing the disease or diseases will not be realized until physicians are able to diagnose them according to cause, and not according to anatomy.

Instead of one disease, pneumonia, a whole group of diseases of the respiratory tract exists. These differ among themselves in cause, in their effect on the tissues, body and in symptoms.

For many years infections of the respiratory tract have been designated according to the part they attacked. For example, the term bronchitis suggests that only the bronchi are involved. Bronchopneumonia is the name used when only the air spaces close to the bronchi are supposed to be involved, while lobar pneumonia indicates that the entire lung is involved.

Progress in prevention of the acute infections of the intestinal tract, of which typhoid fever is an example, has been greatly aided because these diseases have been classified according to cause. Similar classification of the respiratory diseases would be a step forward in their prevention, Dr. Cole thinks.

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ENGINEERING

Bad Odor Made Standard Warning to Miners

A DISAGREEABLE odor, resembling that of decayed cabbage, rancid butter or banana oil, will be used to warn workers in metal mines of fire. It will be shot to threatened miners at the rate of thousands of feet a minute mixed with oncoming fresh air.

Recognizing this method of warning as the most effective, the American Standards Association has made it a part of the American Standard code for fire fighting in metal mines. As a result of its becoming a part of the national code, the method will undoubtedly be employed in many mines, an official of the American Mining Congress states.

While pleasant odors have been experimented with, disagreeable odors have been found preferable because of their more positive effect.

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