



BOMB-BAY DOOR

Plywood of a special kind is used on new bombing planes as a bomb-bay door which is opened just before the bombs are released. Though the doors are 14 feet long, each one weighs but 41 pounds and is able to bear more than 3,000 pounds of weight.

CHEMISTRY

Germans Hail New Fabrics Made From Coal, Lime, Water

Chemical Relative of Our Vinyon, German Product Is Claimed To Be Resistant to Chemicals, Fire and Decay

FABRICS made from a synthetic resin, polyvinyl chloride, are being hailed in Germany as a great advance over rayon, Lanital and other materials derived originally from plant and animal sources.

An enthusiastic description of the new fiber, written by Dr. Herbert Rein, is printed in the July 28 number of the journal, *Die Umschau*, just received in the United States after weeks of delay in transit.

A chemically related product of American origin is already on the market in this country, under the trade name of Vinyon.

The polyvinyl chloride fiber is given the convenience-name "PeCe" (pronounced "pay-say"). It is derived from coal, lime, water and chlorine. The coal and lime are combined in the electric arc to form calcium carbide. This in turn is united with water to make acetylene. The acetylene, with the addition of chlorine, becomes vinyl chloride. Vinyl chloride molecules are linked together (polymerized) to form polyvinyl chloride.

Up to this point the process is not unlike that followed in American chemical

plants to make the transparent plastics used in such things as the "sandwich" layer in safety glass, stretchable belts and suspenders, and similar products. It is also somewhat akin to the making of the synthetic rubber, Neoprene.

However, the German manufacturers here dissolve the plastic into a gummy mass and then spin it out into fine fibers, very much as rayon, nylon and other synthetic fibers are produced in this country. These are then spun into thread, to be woven into cloth, knit into hosiery, twisted into cordage or otherwise processed.

Many advantages are claimed for the new fiber. It is highly resistant to both strong acids and strong alkalis, so that it can be used for safety-garments in chemical factories, as lines and handles where cotton or hemp are quickly corroded and destroyed, and as filters where ordinary cloth or paper do not stand up at all. It is fire-resistant to a certain extent: while it can be ignited, it is easily extinguished, and does not smolder afterwards. It is also resistant to decay through the action of molds and bacteria.

Nevertheless, it has some drawbacks,

which probably would militate against its successful competition with such a fiber as nylon. PeCe is thermoplastic, it is explained; that is, it softens and loses strength and shape when heated. For this reason, it cannot be washed in really hot water, and ironing, even with a quite moderate iron, is regarded as inadvisable. For the same reason, exposure to steam is injurious to PeCe fabrics and filters used for industrial purposes.

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ARCHAEOLOGY

Ice Age Americans Had Their Ups and Downs

EVEN Ice Age America, back in the days of a mammoth and bison hunter population, had its economic ups and downs. This is the latest revelation of this country's past, unearthed in Colorado by Dr. Frank H. H. Roberts, Jr., Smithsonian Institution archaeologist.

Finding a stratified corner at the now-famous Lindenmeier site, a camp and workshop occupied by Folsom Man in the Ice Age, Dr. Roberts has charted about 1,000 years of very early American prehistory.

The story, told in gradually accumulated layers of earth, each containing a typical kind of stone weapon point, reveals Folsom Man as first and oldest at this convenient camping ground. Folsom hunters arrived some time between 10,000 and 25,000 years ago, and more likely it was 25,000, Dr. Roberts infers from the geologic evidence.

Following bison herds through rich pastures south of the retreating ice sheet, Folsom hunters returned to this camp many summers. Their weapons were the beautifully shaped and grooved Folsom dart points, and they had time for careful work, an eye for beauty—judging by simple efforts to decorate belongings—and they even sewed their garments with eyed needles. Folsom Man's—or Woman's—needles are pronounced by Dr. Roberts evidence that early America used true needles when they were a sign of progress also in cave homes of Europe.

Harder times or more uncouth people followed within a few centuries, judging by the next distinct layer of earth above, containing a degenerated sort of Folsom weapon, hastily made. If the new arrivals were not Folsom descendants, they did at any rate have some of the advantages of Folsom culture. Before they came, the camp had lain abandoned and blanketed with debris. The newcomers made brief stays only at the camp, and it looks as though they lacked the com-

parative ease of "better times" in America.

The campsite eventually lay vacant again, until a third wave of hunters arrived, leaving a quite different dart point.

The stratified find establishes the sequence of early Americans using these strange old weapons, and will aid archae-

ologists to judge the relative age of such weapons found in other parts of western United States.

Dr. Roberts believes that still another type of Folsom weapon, which has been found scattered in eastern states, represents a still later chapter of this little-known era of American prehistory.

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war, doctors and health authorities are too busy trying to check the epidemic and care for the sick to have any time for investigating where and how the epidemic started and travelled. Such investigations, however, could give valuable information for prevention of widespread sickness and death in the future, Dr. Gordon explained.

To gather such information on the ground, for the benefit of the U. S. Army, Navy and Public Health Service, Dr. Gordon and some of his associates will study patients in the 100-bed hospital. At the same time, field units, consisting of two physicians and three nurses, will go out with laboratory trucks to investigate epidemics at the point of their outbreak, using the hospital and its "zoo" of laboratory animals as a base.

Each of the 22 buildings of the hospital will be an almost completely self-contained unit. This is partly to minimize damage in case of air attacks and partly to provide more complete isolation of patients suffering from different contagious diseases, such as measles, scarlet fever, influenza and the like. The latest shatter-proof and blackout-features and bomb shelters will be provided for all the units as protection against air raids.

Dr. Gordon is now organizing the staff of the hospital, which will consist of some 75 doctors, medical technologists and Red Cross nurses. They will leave for England about January first.

Dr. Paul B. Beeson, Boston specialist in chemical treatment of infections, will be physician-in-chief of the hospital. Dr. Gerald F. Houser, also of Boston, will be administrative superintendent. Miss Patience L. Clark, of Detroit, will head the staff of 50 Red Cross nurses.

More than three applications have been received for each post available on the hospital staff, Dr. Gordon said. Physicians, nurses, medical technicians, ambulance drivers from all over the nation have sought appointment.

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Before the war, there were 350,000 fanciers of *pigeons* in Belgium.

Copper deposits in western Germany are reported to be more extensive than had been supposed, and large-scale development may be a war industry measure.

British housewives put out for collection such "*doorstep ammunition*" as bones, which provide glycerine for explosives, old metal, paper, and scraps convertible into animal feed.

PUBLIC HEALTH

Nation's Medical Defense Most Far-Reaching in History

More Than 30 Committees and Subcommittees Have Been Mobilized To Advise Army and Navy on Health

THE NATION'S medical defense set-up, announced by the committee on information of the National Research Council's division of medical sciences, is believed to be the most far-reaching that the United States or any other nation has ever had.

The only possible exception may be Germany; no one knows exactly what medical defense arrangements have been made there.

More than 30 committees and subcommittees of the nation's leading medical authorities have been mobilized to advise the Army and Navy on medical matters. These committees have been organized under the leadership of Dr. Lewis H. Weed, chairman of the division of medical sciences of the National Research Council. This is in line with the purpose for which the Council was created, at the request of President Woodrow Wilson in 1916, to serve as the active agent of the National Academy of Sciences in organizing the scientific resources of the nation for defense.

Chairman of the committee on chemotherapeutic and other agents, which will study and advise on the best chemicals or other substances for treating infections in war wounds, is Dr. Perrin H. Long, of Johns Hopkins Medical School, who was one of the first American physicians to use sulfanilamide.

The committee on transfusions is headed by Dr. Walter B. Cannon, professor of physiology at Harvard Medical School.

Dr. Russell M. Wilder, of the Mayo Clinic, is chairman of the committee on medicine, which has under it numerous subcommittees on special branches of medicine related to war.

The committee on surgery, under which also are numerous subcommittees, is headed by Dr. Evarts A. Graham, of Washington University School of Medicine.

Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, is chairman of the committee on information.

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PUBLIC HEALTH

Influenza, Pneumonia, Measles Chief Threats in England

INFLUENZA, measles and pneumonia will be the major health hazards to the English people under simultaneous siege from war and cold weather this winter, predicts Dr. John E. Gordon, director of the American Red Cross-Harvard Hospital shortly to be erected in southwest England.

Protection of America from the same war-borne health hazard, if war should come to this country, is the objective of the studies Dr. Gordon and associates will make in the 22-building hospital now being pre-fabricated in the United States for shipment abroad next month.

When epidemics strike a nation at