

the rayon skin is more intensely colored. The fibers were first permitted to take up all the dye they could absorb, then washed in alcohol to bleed out some of the dye. They were dried after all color had bled out of the core, but before much had been lost from the skin. Then an end-on view of the fibers was photo-

graphed.

The specimens were prepared by Dr. P. H. Hermans, director of the Institute for Cellulose Research, Utrecht, The Netherlands. Full details on staining viscose rayon fibers are given by Dr. Hermans in the *Textile Research Journal* (Jan.).

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GENERAL SCIENCE

Plan Tri-State Project

Educators meet to formulate plans for the development of Louisiana, Mississippi and Arkansas so that brains, brawn and raw resources be better utilized.

► THERE are raw materials, good rich soil, plenty of sunshine and human brawn and brains in the area of the Middle South on both sides of the lower Mississippi river.

The brains of this area are going to do something about making Louisiana, Mississippi and Arkansas more useful to the nation and to the peoples of these three states.

The leading educators—college presidents and research directors—of these three states sat down together when Greenville, Miss., cotton town near the junction of the three states, welcomed politicians, industrialists, and others to dedicate a new tri-state drive powered by the public utilities of the region. It was the first time the educators have seized the opportunity to start pulling together on the major problem of meshing the colleges and laboratories with industries and agriculture into the daily life of the region.

One of the principal exports of this region to the North consists of human beings. Population flows out of the area, along with other raw materials such as cotton, sugar, rice, tung oil, shrimp, petroleum, natural gas and other products.

But the major export of population—human beings who move north for better opportunities—consists largely of unskilled labor. This Middle South is actually an importer of professional and managerial people. Educators at the Greenville meeting were told this is a real problem. And the youth of the area who are educated in the area or who go to the Eastern colleges for advanced study are likely to get sucked away to other more aggressive regions.

Cultivation of brains, in the fields of science, technology and social applica-

tions, is a prime objective of the tri-state educational council formed under the chairmanship of President Rufus C. Harris of Tulane University.

In the long haul, this is deep plowing for the solution of agricultural problems, dispersed small industries using the raw materials available, and chemical processing of the oil, gas, sulfur, minerals, etc.

GENERAL SCIENCE

Work or Fight in Next War

► IT will be work or fight for all of us in the next war, with expected civilian casualties running so high that large numbers of doctors must be kept at home to care for them. This is the picture drawn by Army, Navy and civilian medical authorities at the meeting of the Council on National Emergency Medical Service of the American Medical Association in Chicago.

"Every ounce of available manpower will be needed," Rear Admiral Morton D. Willcutts declared. "Selective Service rejections during the last war at times exceeded 40% of those registered. That won't do in the next war.

"Those with chronic diseases, even of the psychiatric type, must find their stride and fight or work," he warned.

The Pearl Harbor blow of the next war, he forecast, will come as a special weapon for mass destruction. Whether this will be an atom bomb, a chemical agent or some unnamed weapon he said was beyond his province to name. But the death rate, he declared, will be "appalling" and the question of disposal of the civilian dead will be formidable. The new weapon will leave persistent agents of destruction so that to re-enter or ap-

proach them will be dangerous. Already science has remade practices and methods on the Mississippi delta. Sugarcane would be nearly extinct if breeders had not been successful in remodeling this plant to resist the blight. Good beef cattle are raised, thanks to such new tricks as liming the soil, year-round grazing and feeding on dehydrated sweet-potatoes.

Diseases have been conquered in the region and as a result of medical research better health has flowed to other parts of the nation and the world.

Research is an important activity in these three states. Textile developments are a prime interest of the U. S. Department of Agriculture's Southern Regional Laboratory. The technique of controlling unruly rivers is practiced on the great Mississippi by Army engineers.

But the educators of these three states see the need of more research, more graduate schools, more trained brains—and they want to start down at the "grass-roots" in the homes and the schools where boys and girls get their basic education and develop directions for living.

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proach them will be dangerous.

A total of 116,000 physicians, or one to every 1,250 of the civilian population, is the civilian medical manpower need expected to be recommended by the American Medical Association's council.

These must be "effective, able-bodied practicing physicians," it will be stressed. This is the number that will be needed to maintain civilian medical care and treatment during all phases of national emergency, and for continuing medical education and research programs.

The medical association is also expected to recommend that under a temporary draft or UMT the younger physicians who have not had military service as medical officers should be called first. The recommendation will also probably state that physicians within the military age limit requirements who have had no military training should likewise be called.

Advice on this problem of how to bring the Navy medical corps up to strength was asked of the association by Admiral Willcutts, speaking for the Navy's Bureau of Medicine and Surgery.

Only eight of the 48 states, Hawaii, the Panama Canal Zone, Virgin Islands

and the District of Columbia have state disaster relief programs in effect, Dr. Richard A. Meiling, of Ohio State University, reported. As secretary of the AMA National Emergency Medical Service Council, he requested this information two months ago from all states

and territories. Answers were received from 37. None of the eight with programs in effect nor any of the others with programs in the planning stage have included a medical adviser from the state medical association.

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MEDICINE

Clue to Artery Damage

Mechanics of damage from large fat particles explained. They are trapped in artery walls by scavenger cells. Years of this thickens and hardens arteries.

➤ ONE kind of artery disease results from the simple, well-known fact that oil and water do not mix.

The artery disease is known to doctors as atherosclerosis. It is a fatty degenerative kind of arteriosclerosis, hardening of the arteries to you.

The mechanics of how it develops, beginning with the difficulty of mixing oil and water, have been worked out by Dr. John E. Moreton of Salt Lake City.

Because oil and water do not mix, the fats and oils in blood plasma, which is about 90% water, must be carried in a special form, Dr. Moreton explains in a report to the journal, *Science* (April 9).

The fats from food that get into the blood via the intestines are not carried in the same finely divided state as fatty materials normally in blood plasma.

When a man eats about two ounces of butter fat, a shower of these big fat

particles descends on his blood stream about four hours later. Reporting this finding last fall, Dr. Moreton said that the size of these fat particles gave a clue to how artery damage could result from fat-rich meals eaten over a period of many years.

Today Dr. Moreton gives more links in the chain leading from many fat-rich meals to artery damage. When the big fat particles get into the innermost part of the artery, it is a signal for certain body cells to go into their primitive scavenger act by which they protect the body against disease germs and other harmful substances. These cells arrest, engulf and trap the big fat particles, holding them in the artery walls.

By gradual, infinitesimal stages, the trapping of big fat particles thickens and hardens the artery walls to the point where the bore of the artery is closed and blood cannot get through.

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the course of the cancer in animals untreated. But if the ancestors of these untreated animals had been exposed to radioactivity through living in the laboratory where the chemicals were being tested, they would not give an accurate control to compare with the treated animals.

Besides excluding all radioactive isotopes or animals treated with them, the Jackson Laboratory will have special isolation rooms and units where any chemicals with cancer-causing properties will be used.

The laboratory, long famous for its specially bred strains of animals for cancer and other research, is now conducting a drive for additional funds to rebuild the laboratories and re-establish the animal colonies that were largely destroyed by forest fire last fall. The drive is to meet the present emergency, it was pointed out. It will not be an annual one, and is not in competition to the current drive of the American Cancer Society which conducts an annual campaign for cancer-fighting funds.

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GOURMET'S DARLINGS — Ordinarily shy, and inclined to race for the water when humans approach, when the terrapin once digs a nest, she will not leave until she has carefully covered and camouflaged her eggs. Nest is ingeniously covered so that airpocket remains, preventing eggs from spoiling. Spoon-fed for years in North Carolina waters under a joint federal-state project, terrapins are now being put out on their own. (See SNL, April 10.)

MEDICINE

Radioactive-Free Oasis

➤ A LITTLE world where there will be no dangerous radioactivity, no atomic bomb by-products, is now being created. It will be peopled by highly pedigreed mice, rats, rabbits and guinea pigs. But humans exposed to dangerous radiation at work or in any future atomic bombings will benefit.

The radioactive-free oasis is being established at the Jackson Memorial Laboratory at Bar Harbor, Maine. Its unique reversal of present trends at medical research laboratories was announced by its director, Dr. Clarence C. Little, at the laboratory's emergency committee headquarters in New York.

"Our object is to develop for research throughout the United States, Canada and Europe a source of experimental

material which at any time can be guaranteed to be a normal control population for a group of animals being used elsewhere," Dr. Little stated.

Radioactivity can permanently change living cells, among them the reproductive cells from which all future generations are formed. In order to understand such changes, to foresee them, to prevent, direct or evaluate them it is absolutely essential to have control animals completely isolated from any source of radioactivity or atomic energy. Radioactive isotopes are now being used in more and more laboratories in a search for cancer cures and in a search for better means of fighting atomic energy damage.

Results of use of a radioactive chemical in cancer must be compared with