PHYSIOLOGY

Artificial Blood in Dogs Shows Red Cells Guard Hemoglobin

THE RED CELLS of the blood in man and the domestic animals act as guardians of hemoglobin. Their chief function is to prevent the escape of this precious stuff on which the body depends for its supply of oxygen.

These are the conclusions reached by a group of scientific investigators at the University of Tennessee College of Medicine in Knoxville, Drs. William R. Amberson, Arthur G. Mulder, Frederic R. Steggerda, James Flexner and David S. Pankratz. A preliminary report of the research appears in *Science*.

In vertebrates, the class of animals to which belong man and other animals having a backbone, hemoglobin normally occurs only inside the red blood cells. But in some spineless or invertebrate animals, the oxygen-carrier is found in solution in the circulating blood. The general assumption was that in the vertebrates hemoglobin could not carry on its function of oxygen transportation when it got outside of the red cells of the blood.

The University of Tennessee research team has found that this is not the case. Hemoglobin continues to carry oxygen to the tissues quite successfully when it is in solution instead of inside red blood cells. Dogs and cats lived and carried on normal activities, such as walking, running, seeing, and hearing when the blood in their veins and arteries was replaced by a synthetic blood mixture containing hemoglobin in solution instead of inside red blood cells. They showed no signs of lacking oxygen or of respiratory failure for a period of several hours after the synthetic blood mixture had replaced entirely their own blood.

However, the hemoglobin began to escape from the blood and was excreted from the body like waste products. When the supply had been exhausted, the animals died from oxygen lack and respiratory failure.

Such a disastrous escape of hemoglobin from the blood stream is prevented by the red cells, which hold the hemoglobin securely within membrane walls through which the hemoglobin cannot pass.

Science News Letter, August 19, 1933

ECONOMICS

Crop Limitation Saved Colonial Tobacco Planters

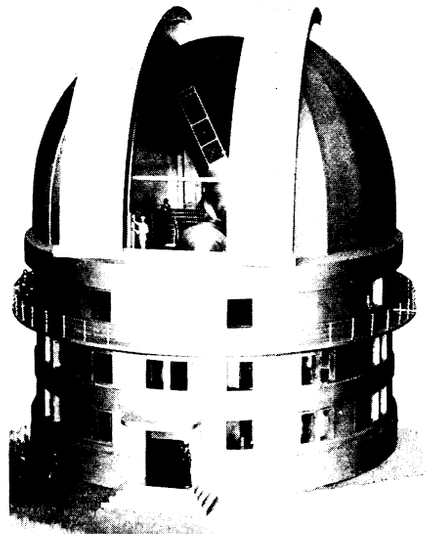
CROP LIMITATION is no new thing under the sun. In the pre-Revolutionary American colonies of Virginia and Maryland it once became necessary to save the tobacco planters from the consequences of the too-rapid expansion of their industry by establishing a maximum crop for each plantation.

The story of this early American crop limitation scheme was turned up by Dr. Rexford G. Tugwell, Assistant Secretary of Agriculture. In the early eighteenth century the over-production of tobacco in Virginia and Maryland, in the face of a market that expanded only slowly, was bringing hardship to the planters and to the entire community. So legislation was adopted aiming at an adjustment of supply to demand.

In that early day, said Dr. Tugwell, a man did not always know how much land he had, but he did know how many slaves he had; so each planter was restrained to setting out 6,000 tobacco plants for every Negro between 16 and 60 years of age on his plantation.

Another early example of crop limitation, this time in France, is cited by Dr. Tugwell from that Bible of individualistic economics, Adam Smith's "The Wealth of Nations." Early in the eighteenth century the grape growers, burdened with an over-production of grapes, obtained a government order prohibiting the planting of new vineyards and the renewal of old ones.

Science News Letter, August 19, 1933



FOR MOUNTAIN TOP

How the McDonald Observatory 80-inch telescope will appear when it is erected on a Texas mountain peak within the next few years. Model by Warner and Swasey Co. who are building the telescope. The telescope, as pictured on the cover, is shown here housed under its dome.

ASTRONOMY

Construction Begun On 80-Inch Texas Telescope

See Front Cover

THE GIANT 80-inch reflecting telescope that will spy upon the stars from McDonald Observatory to be erected on a peak of Davis Mountains, Texas, is now under construction.

A contract for the telescope has been approved by the University of Texas board of regents, and Warner and Swasey Company of Cleveland are the builders, it has been announced by Dr. Otto Struve, joint director of the Yerkes and McDonald Observatories.

Universities Cooperate

McDonald Observatory, with its 80-inch telescope which will be exceeded in size only by the present 100-inch Mt. Wilson reflector and the projected 200-inch California Institute of Technology telescope, is a joint undertaking of the University of Texas and the University of Chicago. With a bequest left by William J. McDonald, the University of Texas will erect and maintain the observatory, while the University of Chicago utilizing the experience of its Yerkes Observatory at Williams Bay, Wis., will staff and operate the new observatory.