red. One plains tribe, the Atsina, used to kill large numbers of bison by driving them over cliffs. But if they found one white animal in the mass thus slaughtered wholesale, only the direst necessity could drive them to take the meat or hides of any part of the whole herd.

Science News Letter, November 12, 1938

PHYSIOLOGY

Vitamins From A to Z Are Fact, Not Fancy

THE IDEA of the vitamin alphabet stretching from A to Z is no idle myth. It really does. Fortunately, however, you need not remember all of them when you sit down at the dinner table.

Vitamins V, X, and Z, to start at the wrong end of the alphabet, are only important in the nutrition of bacteria. Some of the other end-of-the-alphabet vitamins are a necessary part of insects' diets.

T is about as high as vitamins for higher animals go. Vitamin T is found in egg yolk and sesame oil. It increases the number of platelets in rat and human blood. Platelets play a part in making the blood clot so you won't bleed to death after a cut.

About midway in the alphabet there is vitamin L, found in yeast and liver, and needed by young mother rats for nursing their first litter. Another midway vitamin is P, a substance closely related to anti-scurvy vitamin C, and also found in lemon juice and red peppers. A newcomer among the vitamins, its exact function is not certainly known, but it seems to help the body retain vitamin C.

New and unlettered vitamins are a gizzard erosion factor found in grain and needed by young chicks, and a grass juice factor that influences growth in rats.

Going to the other end of the alphabet, there is growth vitamin A, probably formed in the liver from the yellow coloring substance of foods like carrots and butter. Vitamin B has been split into at least nine parts. Most important are the first three: thiamin, nicotinic acid (prevents pellagra) and riboflavin. Vitamin C, from fruits and vegetables, prevents scurvy. Vitamin D, from sunshine or cod liver oil, prevents rickets. Vitamin E, from wheat germ, is necessary for reproduction. Vitamin K, another newcomer found first in alfalfa, prevents hemorrhage in some conditions.

Science News Letter, November 12, 1938

ASTRONOMY

Telescope Mounting Awaits Assembly at Mt. Palomar

Pieces Weighing as Much as 50 Tons Have Made Trip Up Winding Mountain Road and Are Laid in Position

See Front Cover

THE mounting for the great 200-inch telescope of the California Institute of Technology lies in pieces in the huge telescope dome on Palomar Mountain following a unique transportation job.

Pieces weighing as much as 50 tons each had to be taken by truck and trailer up the winding road that leads to Mt. Palomar's peak, destined in a short time to be the mecca for astronomy. Loads had to be transferred from one trailer to another at sharp turns in the road and sometimes top-heavy pieces had to be guyed to stone ballasts on auxiliary trucks to keep them from toppling where the road banked. But in expert hands the job went without mishap.

The last and largest of three shipments has now reached the observatory from San Diego, where they had come by steamer from the machine shops of the Westinghouse Electric and Manufacturing Company in South Philadelphia. More than half of the 300-ton load was contained in the bearing for the northern end of the telescope mounting. It arrived in three chunks, each weighing more than 50 tons.

When put together with dowel pins again these pieces will make up an accurate 30-foot circle with a V-shaped bite taken out of it so that the telescope can look right up along the axis of rotation to the North Pole in the sky.

The various structural parts, including the bearings and the 60-foot tube, are now laid out on the floor of the dome in positions carefully planned to facilitate assembly. Capt. Clyde MacDowell, supervising engineer for the project, arranged for everything to dovetail even though there were no precedents for such a job.

A special 70-ton crane had to be purchased for the occasion and it was a ticklish matter to lift the massive parts from the rolling ships with the floating crane.

While the structural parts are being assembled, the optical work on the mirror itself is proceeding smoothly in Pasadena.

The illustration on the cover of this week's SCIENCE NEWS LETTER shows the dome in cross-section as pictured by Russell W. Porter, of the California Institute of Technology.

The telescope proper is the vertical structure while its massive mounting points upward to the right. The longest focal length, and the largest images, are obtained with the coude form of use in which the observer (1) standing at the left looks up the polar axis of the telescope mounting. In the coude form the light rays enter vertically downward, are reflected back up to a smaller convex mirror at the top, then back down to a small plane mirror and hence down the polar axis to the observer. In the Cassegrainian form the rays leave the great 200-inch mirror, go upward to a convex mirror and then back down and out through a hole in the great mirror to an observer in position (2). When used at its principal focus an observer (3) sits in a small cage near the top of the telescope and observes with only a single reflection off the great mirror. This is done where weak light requires a minimum of light losses due to multiple reflections. The aperture of the telescope at principal focus is f 3.3, at Cassegrain focus f 16 and at coude focus f 30.

Science News Letter, November 12, 1938

MEDICINE

No Nobel Prize Awarded In Medicine This Year

THE Nobel Prize in medicine will not be awarded for 1938, the Caroline Institute has decided. The money will be funded until next year.

Science News Letter, November 12, 1938

Tularemia is never transferred from man to man: infection comes from contact with an infected rabbit or other small field animal or from an insect that has fed upon an infected animal.