SCIENCE NEWS

Science Service, Washington, D. C.

THE DISTRIBUTION OF NATURAL RESOURCES

THE collective organization of all human beings into some form of world community, with a planned coordination of human activities of all sorts, was predicted as a result of the war by Dr. Kirtley F. Mather, professor of geology at Harvard University, who spoke on January 28 at the Cranbrook Institute of Science at Bloomfield Hills, Mich. He pointed out that "Regardless of the outcome of the present World War, the old order will inevitably be replaced by a new order that is even now being forged on the ringing anvil of history. This organization of individuals into a world society is the inevitable consequence of the extensive use of natural resources that are unevenly distributed over the face of the earth. The ceaseless flow of things from mine and quarry, field and forest, to processing plants, mills and refineries and thence to consumers is a fundamental necessity in an age of science and technology."

Dr. Mather said that it is quite likely that the historian of the future will rate this middle third of the twentieth century as equal in significance to the closing third of the fifteenth century. To-day, just as in that ancient time, human civilization is moving from an era that is closing into a new era that is opening. There is actually an abundance of the needed raw materials. A careful appraisal of the world stores of non-renewable resources, including known substitutes for such resources as petroleum that are known to be present in insufficient amounts, reveals the fact that there is enough and to spare of all the necessary raw materials to provide the physical basis for the efficient, comfortable existence of every human being who is likely to be born anywhere on the earth during the next two thousand years at least.

"Science and technology are even now inaugurating a new relationship between man and the things he needs or thinks he needs. For a century or more the tendency has been to use more and more of the non-renewable resources, nature's stored capital, and relatively less of the renewable resources, man's annual income. For example, between 1900 and 1925 we used up more of the world's resources of the various metals and mineral fuels than had been used by man throughout his entire history prior to the year 1900. But within the last decade, scientific research has reversed the trend. The expanding chemical industries with their plastics and synthetic resins depend largely upon things that grow, and these are a product of the potentially inexhaustible resources of the soil. Long before the capital stored by nature throughout geologic time has been exhausted, man may well have learned how to live within his annual income. Thanks to discovery and invention, it may be truly practical literally to beat our swords into ploughshares, our spears into pruning hooks. Mother Earth is rich enough to nourish every man in freedom. It is man, not nature, that enslaves. The question whether it is better to starve as a free man or grow fat as a slave has often been a difficult one to answer, but that question need never arise if men use intelligence and good will in determining the relation between the individual and society."

TELESCOPE FOR THE NEW NATIONAL ASTROPHYSICAL OBSERVATORY IN MEXICO

THE second largest telescope for Latin America is rolling down to Mexico by truck after having been inspected by the staff of the Mexican Embassy. At dawn on January 31 this new and modern telescope left the Harvard Observatory, where it was built, with Dr. Harlow Shapley, director of the Harvard Observatory, driving the first lap of its long journey to a hill in the ancient valley of Cholula near Puebla, Mexico.

There the new telescope will go into service in the new National Astrophysical Observatory as a symbol of the spirit of Inter-American cooperation. Its dedication by President Avila Camacho on February 17 will be the occasion of an Inter-American Scientific Conference.

The new telescope is of the Schmidt type that is more effective for the exploration of the universe of stars and galaxies than more conventional instruments of much larger size. Its spherical mirror has a diameter of 31 inches while the correcting lens of 27 inches diameter insures excellent star images over a large range of sky.

The only larger instrument in Latin America is the 60-inch reflecting telescope of the Argentine National Observatory at Cordova, but the new Mexican instrument because of its more modern design will do several types of work better than the Argentinian telescope.

Despite war priorities and labor shortages, the new telescope was built in the record time of six months. The mirror and plate are optically accurate to within a few millionths of an inch. The mounting of duraluminum and cast iron weighs 4,500 pounds and consists of a tube fourteen feet long and four feet in diameter and a polar axis of 11 feet.

It was planned that the truck should be met at Laredo, Texas, by Professor Luis Enrique Erro, director of the new Mexican Observatory, and sped to Tonanzintla so that the telescope might be installed for the dedication.—WATSON DAVIS.

THE NEW WHIPPLE COMET AND THE TOTAL ECLIPSE OF THE MOON

WHEN the moon is totally eclipsed on March 2, a good view of the new comet just discovered by Professor Fred L. Whipple will be possible through even a small telescope.

Computations at Harvard Observatory, where the comet was discovered, showed that the comet is headed for the place in the sky where the moon will rise on the early evening of Monday, March 2, eclipsed by the sun. With the moon's light thus shielded, a good look at the Whipple comet, a little west of the moon, will be possible, although the moonlight a few days before and afterwards will blot it out.

As an extra attraction there will be an occultation, or a covering of a bright star, the 5th magnitude object called 59 Leonis, which is much brighter than the comet (which will be about 8th magnitude).

This triple attraction is expected to cause almost all amateur astronomers with small telescopes, many of them made by themselves, to go into action that evening.

Whipple comet is at present in constellation Coma Berenices in northeastern sky in the evening. On February 19 the comet will pass close over or just north of second magnitude star Denebola in the tail of Leo the Lion. Denebola rises about 9 P.M. EWT, on February 15, fifteen degrees north of east. Astronomers can not predict whether or not the comet will reach naked-eye visibility, but the chances are against it doing so.

At present the comet is of the ninth magnitude, visible only in two-inch refractor or six-inch reflector. An amateur would probably need a chart to find it. On February 19 the comet will be of the eighth magnitude and about March 15 it will be seventh magnitude, which is still far below naked-eye visibility for comets.

The comet will pass closest to the sun April 30 at a distance of 135,000,000 miles. It is coming down into our system at a high angle, nearly 80 degrees, which means that it will plunge through the plane of the ecliptic, then shoot up and out again.

FURTHER PAPERS READ AT THE DALLAS MEETING OF THE AMERICAN ASSOCIATION

Bigger yields of a number of field crops were obtained by treating their seed before sowing, and in some instances by spraying the plants in the field, with plant hormones or growth-promoting substances, in large-scale tests reported by Professor J. C. Ireland, of Oklahoma Agricultural and Mechanical College. Of special potential practical interest is the fact that the stimulant he found most valuable, levulinic acid, can be made cheaply from waste materials. Its most important present use is in the making of plastics. "The most outstanding results with levulinic acid were obtained in the treatment of cotton seed and cowpeas. The results show that there is not only more than a 50 per cent. increase in the yields over the untreated but that dusting with soyflour and 1 per cent. levulinic acid during the flowering period aids in the setting of bolls." An acre of cotton thus treated would yield 838 pounds, worth about $134, as compared with a yield from an acre of untreated crop of only 581 pounds, worth $93. Cost of materials for treating one acre with levulinic acid is about $3, so that the method appears to be commercially profitable.

A coconut served as foster-mother to embryo plants much as a cow or goat serves as foster-mother to infants of our own species, in experiments reported to the American Society of Plant Physiologists by Dr. J. van Overbeek, of the California Institute of Technology. Inducing very small plant embryos to grow outside their seeds is a feat comparable in difficulty with growing chick embryos outside their eggs. Working in cooperation with Dr. Marie E. Conklin, of the Brooklyn Botanic Garden, and Dr. A. F. Blakeslee, of the Carnegie Institution of Washington, Dr. van Overbeek succeeded in getting them to grow in glass laboratory dishes, feeding them on a solution of nutrient chemicals. At first the embryos would not grow. Recalling the physiological function of the milk in the coconut, in feeding the embryo of the coconut palm, he decided to add some coconut milk to his nutrient medium. It worked. The embryos he reared were those of jimsonweed. He succeeded in carrying them through from specks about the size of a pinpoint to a diameter of nearly a quarter of an inch, in six days' time. After a week in the coconut-milk-enriched fluid medium, they were "weaned" by transfer to a milkless solution, and later planted in ordinary garden soil. Dr. van Overbeek has detected evidence of the presence of at least three distinct enzymes, hormones or similar substances in coconut milk, that influence the growth of embryos. He is now investigating the chemistry of the one that seems to be most important.

Exploration of a huge crater thousands of years old, made when a massive iron projectile from interstellar space crashed into the earth, was reported by Professor E. H. Sellards, of the University of Texas. It is a funnel-shaped meteorite pit, surrounded by several smaller craters, located near the town of Odessa in western Texas. Excavations under Professor Sellards's direction are designed to demonstrate how the impact of the hurtling mass of iron-nickel smashed deep into the ground, fracturing rock layers and reducing a stratum of sandstone to fine rock flour. Geophysical prospecting methods show that the main mass of the meteorite still lies buried, 164 feet below the surface. That the Odessa craters are of considerable, though undetermined, age is proved by the discovery in the main crater of teeth and bones of the ancient native American horse, which became extinct at a date still unknown, but certainly long before the present horse population of the West was introduced by Spanish colonists.

Following the trail of America's earliest inhabitants to Alaska, where immigrants from Asia must have entered the New World long ago, Dr. Frank Hibben, of the University of New Mexico, has discovered two Folsom-like stone weapon points buried deep in the earth. These small clue objects of sharpened stone and traces of a prehistoric settlement now lying under ten feet of muck and an equal depth of peat, indicate that some ancient settlers came to southern Alaska and tarried at Cook Inlet. Dr. Hibben addressed the Geological Society of America at a special session for discussing the latest discoveries regarding early man. In the Alaskan interior where gold miners have opened up thick muck deposits, near Fairbanks, Dr. Hibben has detected flint weapon points of an early American style known as the Yuma type of weapon. Such finds indicate that Paleo-Indians were present in Alaska when the last Ice Age was ending or the present era was dawning, but the scattered finds are not yet clearly fitted into the pre-history of our continent.