



SAFETY WITH EFFICIENCY

The workman, who is spraying a crankcase of a Double-Row Cyclone aircraft engine, does not wear a protective face mask because a powerful fan forces the unused spray towards a water curtain in the background that carries off the excess paint. This photograph is from the Wright Aeronautical Corporation's paint shop in Plant No. 2.

Coast and Geodetic Survey, the K-index was established as a valuable abstract of the magnetograms, providing even single observatories with good estimates of world-wide magnetic conditions. This index is now currently derived from data obtained by seven American-operated observatories, and is published weekly by Science Service. It gives, for the first time, a detailed homogeneous series for the intensity of solar corpuscular radiation affecting the earth, useful both in its terrestrial aspect—as in scientific or commercial radio work—and for its bearing on solar physics. Violent magnetic storms with $K = 9$ occur only a few times near a sunspot-maximum, but it is equally rare that any full 3-hour interval is perfectly free from disturbance. This means that the earth is almost constantly, even near sunspot-minimum, under the influence of (presumably solar) particles, weak as this influence may be at times.”

Science News Letter, December 21, 1940

Embryo Growth Rates

STUDIES of the rate of growth of various organs in early stages of the human embryo have been made by an ingenious indirect method, described by Dr. George W. Corner, the new director

of the Institution's department of embryology.

Since it is obviously impossible to make direct measurements when the whole embryo is not any larger than a millet seed, and besides has already been sliced into thin sections and mounted on a microscope slide, a different method has to be used. The one adopted by the Carnegie embryologists consists in tracing on paper of uniform thickness the exact outlines of the parts to be studied as they appear under high magnification, and then cutting out the outlined sections and weighing them on delicate balances.

Some of the things that have been discovered about two embryos in the fourth week of their development are: relatively enormous spread of nutritional surface, extremely small amount of heart tissue at this early age, and faster growth of brain than spinal cord even in the fourth week of human prenatal life.

Science News Letter, December 21, 1940

Compounds Between Stars

FOR a long time astronomers have known that the space between the stars is not as empty as it was once thought, but that certain elements in the form of very diffuse gases exist there.

These are principally calcium, sodium, potassium and titanium.

Recent researches at the Mt. Wilson Observatory, the report announces, combined with theoretical studies at the Dominion Astrophysical Observatory in Victoria, B. C., show that there are compounds as well as single elements in interstellar space.

In spectrum photographs which analyze the light from distant stars have been found all the important lines that, it was predicted from theory, would result from the compounds CN and CH. The position of these lines shows that they originate between, rather than in the stars. CH and CN do not exist as separate compounds on earth, only in combination with other atoms. CH is a molecule which consists of an atom each of carbon and hydrogen; CN of carbon and nitrogen.

“It is highly probable,” states the report, “that the two or three remaining unidentified sharp lines which are fairly prominent will also be found to be due to the molecules of familiar gases.”

Science News Letter, December 21, 1940

Colorless Corn Plants

ALBINO animals are interesting freaks, often valuable because of their rarity. Albino plants beyond the seedling stage are practically unknown, because they automatically starve to death, lacking as they do the green pigment, chlorophyll, necessary for the manufacture of basic foods.

Physiologists of the Institution, however, under the leadership of Dr. H. A. Spoehr, have been able to keep albino corn plants alive for four months and more, by feeding them on sugar and other nutrients. In this way they have begun to obtain an understanding of some aspects of plant nutrition hitherto inaccessible. It has been discovered, for example, that such plants can manufacture plenty of starch if supplied with ordinary cane sugar, a process hitherto considered impossible. It has also been found that they cannot get adequate nutrition out of glycerine and other compounds, which have until now been looked upon as possible plant foods.

Parallel experiments have been carried on with plants artificially albinized by putting them into the dark while still young. Sunflowers so kept on a diet of sugar and the necessary minerals have grown and even blossomed, producing normal yellow-rayed flowers although their leaves wholly lacked green color.

Science News Letter, December 21, 1940