the composition of the Chinese dragon, but the great bulk of him—and it was a really great bulk—remained (quite properly) reptilian.

It is even reported that tons of stony dinosaur fossils have been swallowed by centuries of generations of ailing Chinese, ground up into powder and mixed with wine, to restore strength and youth and make the world seem all right again. Well—Chinese wine is said to be potent!

Probably if the naive Chinese medical men could have had access to later Occidental scientific investigations, they would not have been so eager to prescribe dragons' bones so indiscriminately. For by no means all the dinosaurs were fierce and aggressive, if modern judgments are at all correct. Many of them, and practically all of the biggest, like the giant Brontosaurs for example, were probably as placid as cows, and much more stupid. Their teeth prove that they were vegetarians, and their skull-cavities allow space for a brain hardly larger than a teacup—and that to run an animal bigger than a house!

No, the Celestial physicians, if they were prescribing today, would without question insist on authentic Tyrannosaur bones for strength and fierceness, or Thalattosaur bones for skill in sea-faring, or the bones of the flying Pterodactyl for lightness and lifting up of the heart.

Science News Letter, July 28, 1934

Rare and famous dinosaur skeletons in the Royal Museum of Natural History in Brussels are beginning to deteriorate from the moisture in the air, and will be lost to science unless removed to glass enclosures.

MEDICINE

Death Predicted by Means of Spectroscopic Test of Blood

Patients In Extremis Are Subject to Profound Chemical Changes Affecting Color Elements in Blood

FORECASTING death by means of spectroscopic investigation of the blood of ailing patients was reported at the second annual International Spectroscopy Conference in session at the Massachusetts Institute of Technology.

In several cases physicians attending the patients were of the opinion that death was imminent, it is reported, and were amazed to find the spectroscopic prediction verified within as small a time as 24 hours.

The report was made by P. and L. Lecompte de Nouy, two French scientists associated with the Pasteur Institute, who did not attend, but communicated their report to Prof. George R. Harrison of the Massachusetts Institute of Technology, chairman of the conference, who delivered it in their absence.

Analyzing over 8,000 samples of the blood of men, horses, and sheep, these scientists have found that curves plotted by a spectroscopic examination of the serum and white plasma of the blood show remarkable constancy, "so great that they can be really superimposed on each other."

When departures from this general curve are noted, it is stated, it can be safely interpreted as an indication of pathological disturbances. Such alterations are rare and seem to correspond to fatal cases.

"Alterations in the curves," reads the report, "must correspond to very deep chemical modifications affecting the chromophoric (color) elements which belong to very stable chemical groups.

"We predicted a man's death, which followed in 24 hours. He was partly paralyzed, owing to a malignant tumor of the spine, with metastases in the lower jaw, and urinary infection. He was expected to live, however, for many months."

Science News Letter, July 28, 1934

PHYSICS

Explosion Sound Bears News of Stratosphere

EXPLORING the stratosphere by means of explosions set off on the earth's surface is one of science's new methods of gaining information about this mysterious region without leaving the ground.

The experiments are described by Dr. Kurt Wolcken of the University of Goettingen in the Berlin scientific journal *Forschungen und Fortschritte.*

It has often been observed, Dr. Wolcken writes, that a great explosion can only be heard within a radius of 80 to 100 miles. Beyond this limit there is a ring of silence, and then another zone, where the sound can again be heard. There is a skip zone for the sound just as there is for short radio waves.

Two theories have been proposed to explain the phenomenon. One is that the effect is due to the increase in wind velocity which occurs with the height. Sound is more often heard to the east in winter and to the west in summer, and other correlations with wind velocity and direction have been noted.

Another theory is that the effect is due to a rise in temperature in the upper stratosphere but there is no experimental evidence in its support. Sounding balloons have seldom risen above 20 miles (the record is 22 miles). They

have shown that the temperature diminishes to about minus 67-degrees Fahrenheit at a height of 8 miles and then remains sensibly constant up to the greatest heights reached. Moreover, it is difficult to see why there should be a rise in temperature at greater heights, unless the upper layers of the stratosphere are more strongly heated by the sun's rays.

To test this temperature theory, experiments were made in the polar regions during the polar night 1932-33. Twenty-eight explosions were set off, using 13,500 pounds of explosives. The return sound was heard despite the fact that the sun's rays had not reached the air at a height of 65 miles for six weeks. The delay in the sound was about the same as in middle Europe, so that the sound must again have reached this height before returning earthward.

The conclusion drawn was that if there is a rise in temperature in the upper stratosphere, it cannot be due to the sun's rays. It might be due to the cosmic rays or to the ozone layer.

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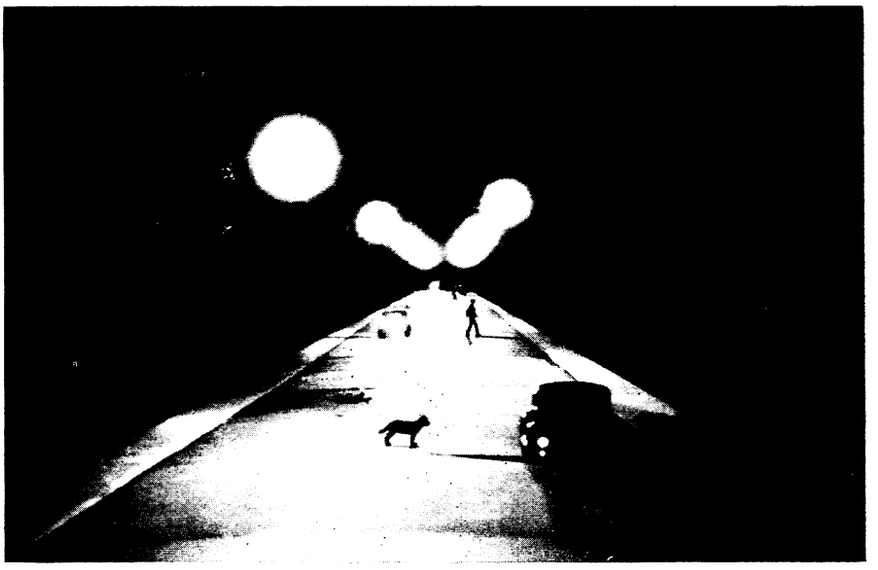

A HIGHWAY MODEL

This model of a highway is very lifelike even to the pedestrian and the dog. It is built to a scale of one-eighth, its 240-foot length representing a 2,000-foot stretch of highway. The purpose of the model is the comparison of tungsten-filament illumination with the more recently developed sodium-vapor and mercury-vapor lamps as sources of light in research conducted by the General Electric Company.

ASTRONOMY-METALLURGY

Scratch-Proof Mirrors Made for Telescopes

A NEW improvement in the coating of mirrors for astronomical use with aluminum wherein a hard, tenacious, nontarnishing and highly-reflecting surface is attained is reported by Robley C. Williams of the physics department of Cornell University in a letter to the Editor of the *Physical Review*.

Carefully cleaned mirrors are coated with chromium by evaporating the metal on the glass surface. Onto the thin chromium layer is evaporated a film of aluminum sufficient to produce an opaque layer. When washed with alcohol and water such laminated films have remarkable properties, Mr. Williams reports.

Rubbing the film with a blunt steel instrument or even steel wool affects the layer only slightly. Rubbing the film with cheesecloth as hard as possible by hand reduced but little the reflecting power of the layer. Even when kerosene soot containing sand and grit was placed on the film and then cleaned off with alcohol and water 20 successive times only slight surface scratches were observed. The same test for a hardened aluminum film alone showed comparable scratching with only four washings. So tenacious is the layer that several kinds of adhesive tape attached on the film may be ripped off without bringing the film away also.

The film of chromium and aluminum, reports the Cornell scientists, is essentially an aluminum film as far as mirror optics are concerned for the aluminum is evaporated on thickly so that it alone causes reflection. The backing layer of chromium is employed to gain the properties of adhesiveness and hardness.

The Cornell work is the latest in the rapidly expanding field of covering mirrors for astronomical and other scientific work with coatings of aluminum having superior properties of reflection in certain portions of the spectrum.

Engaged in this field of research are three groups of workers; the Cornell University group including S. L. Boothroyd, H. C. Ketcham, R. C. Williams, and G. H. Sabine; the California Institute of Technology group including Dr. John Strong and Dr. C. H. Cartwright and the University of California at Los Angeles group headed by Dr. H. W. Edwards.

The largest mirror so far coated with aluminum is the 36-inch diameter Crossley reflector at the Lick Observatory of the University of California, which was coated by Dr. Strong. While no predictions are being made it is hoped that the process will be sufficiently well developed so that by the time the great 200-inch mirror now being built for California Institute of Technology is complete, it too may be given a coating of aluminum.

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