

GENERAL SCIENCE

Discuss Science Problems Important to Americas

CROSS-breeding of races and modern immigration policies were among problems of Pan-American importance discussed at the Seventh American Scientific Congress, which met in Mexico City by invitation of the Mexican Ministry of Public Education.

Oil fields and mineral deposits in America, movements of the earth's crust along Pacific and Atlantic shores of the continent, and other subjects of geologic and geographic interest were discussed by specialists in these fields. Legal aspects involved in inter-American communication by highways, railways, airways, waterways, telegraph and radio are being surveyed.

Six official U. S. Government delegates to the Congress included Dr. J. McKeen Cattell, editor of *Science* and president of Science Service; Dr. Walter W. Atwood, noted geographer and president of Clark University, Worcester, Mass.; and Neil M. Judd, curator of archaeology of the U. S. National Museum.

Science News Letter, September 28, 1935

PHYSICS

Light and Flight Clocked Over Same Race-Course

FEW race courses in the world have been more accurately surveyed than the one over which Howard Hughes, millionaire oil man and Hollywood motion picture producer, recently swept to what may be a world's record for land planes, at 352.9 miles per hour.

The reason is that Hughes traveled over the Santa Ana terrain which the late Prof. Albert Michelson used in making his last experiment on determining the velocity of light.

Howard Hughes reached a velocity of nearly one-tenth of a mile a second. If he had averaged 360 miles an hour it would have been exactly that. Prof. Michelson in measuring the speed at which light travels was determining a velocity of approximately 186,000 miles a second.

Hughes, traveling nearly 528 feet a second, attained a velocity comparable to that of a Revolutionary War cannon ball, but he was going only 1/1,860,000 as fast as light.

Prof. Michelson needed, as does anyone who tries to determine a velocity, to know two things: distance and time. Velocity is the ratio of the two—distance/time.

By reflecting light back and forth inside the evacuated mile-long iron tube

on the Santa Ana ranch, Prof. Michelson measured time to better than 1/20,000 of a second. A high-speed rotating cylinder of glass, turning 730 times a second, had 32 flat mirror faces ground around the circumference. Light reflected off one mirror surface went eight miles and came back just in time to shine off the next mirror which had turned around into position meanwhile.

For measuring accurately the distance which the light traveled, the U. S. Coast and Geodetic Survey made 56 determinations of the base line from which the length of the mile-long tube was determined. The error in the measurement in length generally is considered to have been between one part in 500,000 and one part in a million: a feat of measurement which is much better than determining the height of an average-size man to within the thickness of a hair on his head.

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ASTRONOMY

Telescope's Aluminum Coat Credited With Discovery

THE use of aluminum coating for the giant telescope mirrors instead of silver may be responsible for the newest discovery of astronomy—the finding that the famous ring nebula of the constellation Lyra, which is almost overhead near the bright star Vega, is just about two times as large in diameter as astronomers have previously supposed.

Dr. John C. Duncan of the Whitin Observatory, Wellesley College, Mass., reported to the meeting of the American Astronomical Society that new photographs he had taken only last month at Mt. Wilson Observatory with the 100-inch Hooker telescope disclosed the enlarged size of Lyra's ring nebula.

It is well known that much of the light which makes the nebula shine is in the ultraviolet region of the spectrum. It is invisible to the eye but strongly affects photographic plates.

Photographs taken with the new aluminum coating on the 100-inch telescope disclose, for the first time, just how big the ring nebula really is. Previous photographs, taken with the former silver coating on the mirror, did not disclose the faint outlying portion of the nebula and, hence, led to the smaller estimates of the nebula's size.

The appearance of the Lyra nebula, Dr. Duncan explained, is now very similar to a small planetary nebula in Andromeda which, though well known to astronomers, is not to be confused with the "great nebula" of that constellation.

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IN SCIENCE

RADIO

Picture Radioed London and New York Simultaneously

FIRST photographs of Sir Malcolm Campbell's Bluebird racer speeding at 300 miles an hour over the Utah salt flats were dropped off in New York City on their way to London by radio transmission, it has been disclosed by the Radio Corporation of America.

London and New York received the much-wanted photographs at almost exactly the same instant and by the same set of signals from the transmitter in San Francisco.

The trick was to "split" the San Francisco signals into two parts at New York; one part activating the photographic recording device there and the other operating the trans-Atlantic transmitter at Rocky Point, L. I., which sent the radio equivalent of the pictures on to London.

Not only was time saved by the new method, but the picture received in London was as clear as the one in New York. Previously the replica of the New York picture was retransmitted and gave a double screen effect comparable with the fuzziness obtained when one attempts to make a photo-engraving from a newspaper halftone instead of from the original photograph.

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POULTRY HUSBANDRY

Chickens Now Tattooed To Foil Fowl Thieves

CHICKENS, tattooed on the wing, may soon become the present-day counterparts of the flank-branded cattle and horses of the Old West, and for the same reason—to foil thieves.

A system of identification, endorsed by the Northeastern Poultry Producers' Association, is based on needle-punctures made in the skin-webs of chickens' wings and then filled with indelible ink. Each poultry-raiser has his own "brand," which is registered, and entered in identification books distributed to law-enforcement agencies. Since the marks cannot be removed, even by boiling the chicken, this system may end large-scale thieving.

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E FIELDS

PHYSIOLOGY

Explains Why Sunburn Is Worse After Swimming

A THIN coat of perspiration gives protection against sunburn by absorbing some of the sun rays that burn, Prof. William H. Crew of New York University states. (*Nature*, Aug. 31).

His findings also explain why sunburn is usually more severe on a windy day or after swimming. The wind dries up the perspiration and the water washes it off.

Sunburn is induced principally by light of wavelengths between 2900 and 3100 Angstrom units, Prof. Crew points out. By careful physical measurements he found that a film of sweat one millimeter thick, which is about as thick as three sheets of a newspaper, absorbs light slightly at 3300 Angstrom units, very appreciably at 2900 Angstrom units and is practically opaque for 2700 Angstrom units.

Uric acid is probably the constituent of human perspiration which is the chief light-absorbing agent.

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PHYSIOLOGY

College Girls Don't Like Cauliflower or Coffee

CAULIFLOWER, onions and coffee head the list of foods disliked by a group of college girls, and cabbage, tomatoes and peppers are the foods most commonly blamed by the girls for causing indigestion, Drs. W. C. Alvarez, H. C. Hinshaw and Ruth J. Frank have reported to the Mayo Clinic.

The information was obtained from 100 college girls of Spartanburg, S. C., who were questioned as to their food tastes by Dr. Frank. Drs. Alvarez and Hinshaw, of the Mayo Clinic, wanted the information to round out a study they recently made of patients coming to the clinic suffering from functional types of indigestion. In this earlier study they found that 100 per cent. of such patients avoid eating one or more foods for fear of indigestion or discomfort of some kind.

What percentage of persons in the nation are similarly handicapped, Dr. Alvarez and associates wanted to know next.

The question is partly answered by the information from the college girls.

Of the hundred girls, only nine ate everything put before them, and 44 had aversion to a number of commonly used foods. No one complained of violent reactions to food. Thirty-six suffered indigestion with certain foods and eleven more believed that certain foods were responsible for hives, eczema and acne. In 47 cases either the girl or a close relative had an allergic sensitiveness to foods.

Besides cabbage, tomatoes, and peppers, the other foods most commonly blamed by the girls for indigestion were onions, fats, peanuts, strawberries, cucumbers and chocolate. The foods most commonly disliked were cauliflower, onions, coffee, cabbage, cucumbers, "sour foods," milk, pickles, peppers, radishes, and pork.

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SURGERY

Gelatin Noses and Ears To Replace Those Injured

NOSES, ears or other facial features made of gelatin and applied with a mastic cement were described by Dr. Oscar V. Batson of Philadelphia to the American Academy of Ophthalmology and Otolaryngology.

When the features have been destroyed by disease, accident or curative measures to such a degree that the patient feels himself disfigured, it is the duty of the physician to remove if possible the stigma, fancied or real, Dr. Batson declared. Plastic surgical measures should be considered first in such cases, but if the vitality of the skin has been lowered, they may not succeed.

For such cases Dr. Batson advised the use of artificial features or prostheses, to use the medical term. He considers gelatin the most satisfactory substance because it is flexible, moves with the changing expression and can be attached without mechanical support. In a suitable patient, Dr. Batson said, the gelatin prostheses are not obvious to the observer at conversational distance.

The gelatin artificial features are made by pouring gelatin, colored to match the skin, into molds made from wax models of the features to be restored. They are held in place on the face with a mastic cement. Depending on the time of year and the character of the patient's skin, they last from one to ten days. However, the patient may be supplied with moulds, suitably colored gelatin and cement, and can learn to make and apply his own features as needed.

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CHEMISTRY

Chemists Solve Problem For Home Jelly Makers

CHEMISTS at the Delaware Experiment Station, in Newark, triumphantly believe they have solved a big problem for home jelly makers—how to figure the quantity of sugar a jelly mixture needs.

Christening the device the "Jelmeter," George L. Baker, assistant chemist of the station, who invented it, states that it will take the guesswork out of jelly making.

Grandmother, and even mother, knew no way except guesswork to figure the sugar for a jelly mixture, explains Miss Pearl MacDonald of the Extension Service. When they followed a general "pound for pound" rule, the jelly might be perfect, or too sticky, or too stiff. The uncertain factor is the varying amount of pectin in the fruit juices used. It is this pectin which, with sufficient sugar and acid, makes it possible to produce a jelly.

Mr. Baker's invention is a viscosity tube which may remind the housewife somewhat of an hourglass. It measures the flow time of a fruit juice. If the juice takes a minute to flow between marks on the tube, the jelly will need sugar according to one-minute flow time as shown on a direction table.

Delaware's Agricultural Experiment Station has reduced its jelly tests and studies to a "Delaware Method of Jelly Making."

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SEISMOLOGY

Earthquake Near Equator In New Guinea Region

A VERY strong earthquake occurred in the region of the north coast of the island of New Guinea, in the East Indies, on Thursday evening, Sept. 19, at 8:48.8 o'clock, Eastern Standard Time. The location of the epicenter was given as in latitude 3.5 degrees north, 141 degrees east, by the U. S. Coast and Geodetic Survey and the Jesuit Seismological Association, after collating data gathered by wire and radio by Science Service.

Stations reporting were those of the Philippine Observatory, Manila; the Dominion Observatory, Ottawa; Georgetown University, Washington, D. C.; the University of Michigan, Ann Arbor; the University of California, Berkeley; St. Louis University, St. Louis, Mo.; and the observatories of the U. S. Coast and Geodetic Survey at Chicago and Honolulu.

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