

PHYSIOLOGY

Human Eyes Able to See By Ultraviolet Light

THE RANGE of human vision is considerably greater than hitherto suspected, according to latest experiments by Dr. C. F. Goodeve, of the Ramsay Laboratories, University College, London. It has been assumed that no light of wavelength shorter than 4000 Angstroms (about one six-hundred-thousandth of an inch) is visible. Dr. Goodeve and six other observers have now been able to see by ultraviolet light down to a wavelength of only 3125 Angstroms.

The light of this wavelength produces, according to Dr. Goodeve's report in *Nature*, a violet color sensation. In order to see an object clearly by such light it must be within four inches of the eye. The object appears, however, to be about three times farther, the illusion being apparently due to the fact that the ultraviolet rays are more highly refracted, or bent, as they penetrate the eye.

On removing the object to a distance of more than four inches, it appears to recede to a great distance, and suddenly becomes out of focus. It is due to this fact, no doubt, that all ultraviolet light has been hitherto considered to be "invisible."

No vision or fluorescence was obtained with ultraviolet light of wavelength shorter than 3125 Angstroms, probably because rays of that type are absorbed by the protein material of the eye-lens.

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ASTRONOMY

Our Own Galaxy Only Half Former Estimated Size

THE STARRY galaxy or Milky Way universe in which we live is only half as large as astronomers have supposed hitherto. Shrinking by half the distances of the stars from the earth, latest researches at the University of Wisconsin by Prof. Joel K. Stebbins and his assistant, Prof. C. M. Huffer, reduce our "island universe" to about the size of the other galaxies that are found scattered about at great distances in the heavens.

Thus once more the part of the universe near us is proved not to be unique.

The astronomical "electric eye" was turned upon 733 stars so hot that they

appear bluish in the heavens. All were in the Milky Way. The electric eye measures to a thousand-million-millionth of an ampere the energy sent to earth by stars. With this instrument, which contains photoelectric cell and amplifying vacuum tubes, Profs. Stebbins and Huffer confirmed the presence in the Milky Way of a thin layer of dark scattering material which they call dust particles, whose interfering effect has dimmed the starlight and caused astronomers in the past to judge the stars about twice as far away as they really are.

The blue-hot stars, with temperatures of 20,000 to 30,000 degrees Centigrade, three to six times the sun's temperature, have a reddish hue, and this grows more intense the closer they are to the Milky Way's center. This reddish color is caused by a thin stratum of absorbing material near the Milky Way. The Wisconsin astronomers believe that this layer is similar to the dark lanes that we see in other galaxies viewed edge on.

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CHEMISTRY

U. S. Still Largest Importer of Chemicals

THE UNITED STATES is still far and away the world's biggest importer of chemicals. In dollars America's imports rose from \$70,300,000 in 1932 to \$87,400,000 in 1933, according to recent figures prepared by the U. S. Department of Commerce. At the same time, however, a favorable trade balance is shown in that exports exceeded the imports. In 1932 America exported \$92,000,000 worth of chemicals and in 1933 the figure mounted to \$106,400,000.

The biggest chemical exporter of all was Germany, which sold to other countries in 1933 chemicals worth \$162,000,000. Germany's imports of chemicals were only \$53,800,000.

Russian and Japanese participation in chemical markets was especially strong in 1933 and the early months of 1934. More Russian chemicals were sold in European markets than ever before, while Japan exported widely to Far Eastern countries.

While Germany maintained first place in the world chemical export market by a sizeable margin, her exports really declined. The United States, the United Kingdom, Switzerland, Japan, Canada and Spain registered gains.

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IN SCIEN

PSYCHOLOGY

Electric Currents Reveal Brain Differences

A NEW clue to the brain conditions behind mental deficiency is to be found in the way in which the muscles of the mentally subnormal respond to electric currents, Dr. George Kreezer, of Vineland Training School, Vineland, N. J., told the American Psychological Association meeting at New York. This indirect method of studying the mind was likened by Dr. Kreezer to the chemist's method of finding the chemistry of distant stars by an analysis of their light rays. There is no direct method for studying the brain; the nearest approach has been the anatomical study of the brain after death.

Muscles of idiots having a mental age of only three years respond differently to very mild electric currents than do normal persons. Their reaction resembles somewhat that of an animal who has had an injury to the higher centers of its brain or that of a fetus.

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ZOOLOGY

Monkey of Mountain Snows Comes to Smithsonian

MONKEYS and snow are seldom thought of as near neighbors; but the Smithsonian Institution has just received a specimen of a monkey whose home is in the mountains of central Asia, just below the line of everlasting snow. It is one of the rarest monkeys in existence, and very few specimens have ever been brought to either European or American museums.

Scientifically, the monkey is known as *Rhinopithecus*, which is Greek for "nose-monkey"; the creature has a sharply pointed, decidedly retrousse nose. Its ogreish face ranges in color from green to turquoise, in which are set very large, bulging eyes. Surrounding the face is a fringe or beard of long orange hair. The rest of the body is covered with hair six or seven inches long and varying from gold to silver.

Science News Letter, October 6, 1934

CE FIELDS

MEDICINE

Pneumonia Helped By Treatment For Tuberculosis

LOBAR pneumonia is being treated with encouraging results by a method originally devised for the treatment of tuberculosis of the lungs, Dr. Francis G. Blake of Yale Medical School reported at the meeting of the Connecticut Clinical Congress.

The method, known to scientists as artificial pneumothorax, consists in putting the affected lung to rest by decompressing or collapsing it. In tuberculosis this promotes healing and prevents extension of the disease.

The mortality rate from lobar pneumonia can be greatly reduced by this method of treatment, experience with a large series of cases at the New Haven Hospital showed. The lung must be collapsed on or before the third day of the disease. If no adhesions are present from previous pleurisy, the treatment causes a dramatic drop in temperature and relief from pain.

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CHEMISTRY

Titanium Common, But Hard to Separate

ONE OF the commonest chemical elements of the 92 within the earth is titanium. Few people have ever heard of it. Only eight elements known to science are more prevalent. Yet titanium, paradoxically, is called "rare" by scientists because it is most difficult to obtain in its pure form.

Huge deposits in mountain regions like those of the Adirondacks show titanium mixed with iron but how to get the iron separated from the titanium is still a problem in the experimental stage of technology.

Yet titanium has its uses and is made commercially, Profs. M. A. Hunter and A. Jones of Rensselaer Polytechnic Institute reported to the Electrochemical Society at its New York meeting.

The very fact that titanium is so difficult to separate from other elements with which it has formed chemical com-

pounds means that it is a great "joiner" among the metals. Disliking to exist alone when anything is near with which it can combine, titanium forms compounds difficult to break down.

This "gregariousness," if one can give a metal a personality, is the keynote of its usefulness in industry. In the iron and steel industry titanium is used as a "scavenger."

In its scavenger role titanium "eats" oxygen and nitrogen. A small amount of it dropped into a great ladleful of steel soon finds the titanium going after oxygen and nitrogen present with great avidity. Combining readily with carbon to form titanium carbide the metal can remove an excess of this element also.

Science News Letter, October 6, 1934

METEOROLOGY

Above-Normal Rainfall For Drought States

THERE is no doubt about the Drought. That unexpected evil is definitely gone, for this year at least.

U. S. Weather Bureau rainfall records for September, as supplied to Science Service by Senior Meteorologist J. B. Kincer, show abnormally heavy rainfall in most of the principal crop states of the Midwest, Northwest and South. The month's soaking ranged from 213 per cent. of the normal September rainfall in Missouri, about the worst afflicted of all the Corn Belt states, to just about normal in states like Arkansas and Ohio.

As if to show how really efficient raining could be accomplished if one tried hard enough, the District of Columbia established an all-time record with something over 17 inches of moisture during the month—over five times its normal September rainfall. A single day's down-pour came to more than three inches.

Some of the states that were reported as still in the subnormal column at the end of the first twenty days of September have pulled up to normalcy in rainfall percentage. Thus, Montana and Ohio, which were on the minus side of the ledger on Sept. 20, each reported 201 per cent. of the normal September rainfall at month-end. Unfortunate North Dakota, however, is still a drought state, with only 45 per cent. of normal precipitation for the month. Subnormal precipitation in some of the Southeastern states is less serious, since these have been receiving good rains during the summer.

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ETHNOLOGY

Indian Awed by Story Of Dionne Quintuplets

THE white race gets a scarcely merited credit for a high birthrate, in the mind of at least one Montagnais Indian of the Big Woods of northern Quebec Province. Prof. John M. Cooper, anthropologist of the Catholic University of America, brought the story back with him, on his return from a sojourn among the primitive tribes of the James Bay region, where he has been gathering data on the old Indian ways and beliefs, before the old people who remember them all die off.

Prof. Cooper was talking with a middle-aged Indian. The conversation turned on twins in Indian families. To keep up his end of the discussion, and not weary his companion with too many questions, the American scientist told the Indian about the remarkable case of the Dionne quintuplets.

The redskin was silent for a little while. Then he spoke: "Huh! No wonder there are so many white men!"

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PSYCHOLOGY

Workers' Pay Is Not Based on Intelligence

PECUNIARY rewards in our present economic system are based but little on the intelligence or educational capacity of the workers. This declaration was made before the New York meeting of the American Psychological Association by Dr. Paul S. Achilles, of the Psychological Corporation, as one of the conclusions from a statistical study of 10,000 unemployed persons examined at the Adjustment Service for unemployed adults, in New York City.

The highest salary previously obtained by these 10,000 persons was, on the average, \$37.50 a week for the men and \$30.33 a week for the women. The majority were white collar workers, 60 per cent. being high school graduates and about 20 per cent. of these having also college degrees. The ages ranged from 17 to over 60, with the average about 26.

No relationship was found between emotional stability as measured by the Bernreuter inventory, and the length of unemployment. The scores on this test were, however, found to be related to the type of home the individual lived in.

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