MINERALOGY

Beautiful Beryl Colors In Crystal, Not Chemical

➤ THE COLOR of beryl, from the highly prized emerald to orange-yellow and sapphire-blue, is connected with crystal distortion in the mineral and not its chemical content. So reports Dr. Bibhuti Mukherjee, of the Fuel Research Institute of Dhanbad in the Indian province of Bihar, to the journal, NATURE (April 14).

Chromium and scandium have been considered the sources of the color of emeralds and of less precious beryls. But emeralds lose their chromium when ignited, while retaining their color.

Dr. Mukherjee has analyzed spectrographically seven Indian beryls, pale red, orange-yellow, apple-green, pale greenish-blue, sapphire blue, pale blue and bluish-white. He found only a trace of scandium in only one of the samples.

Impurities as well as crystal distortion might cause the different colors. Dr. Mukherjee does not consider this likely, however, because after long exposure to X-rays, pale blue beryl can be changed to light green and white beryl to pale brown.

Science News Letter, April 28, 1951

INVENTION

Flame-Resistant Fabrics By Two Separate Methods

➤ TEXTILES OF cellulose materials are rendered highly resistant to flames by two similar but separate methods of treatment granted patents with rights assigned to American Cyanamid Company of New York. Patent 2,549,059 was issued to Joseph W. Creely, East Bound Brook, and Theodore F. Cooke, Martinsville, N. J. Patent 2,549,060 was awarded to the same Joseph W. Creely. Both processes are claimed to give permanent flame resistance.

In both methods two of the ingredients used are the same, but third ingredients used are different. Both use a finely divided oxide of tin, titanium, antimony or bismuth, and a thermoplastic substance containing combined halogen. The first uses a water-soluble guanidine salt of a poly-acid of phosphorus. The second uses a water-soluble, metal-free, nitrogen-containing salt of an amino phosphoric acid.

Science News Letter, April 28, 1951

TECHNOLOGY

Low-Grade Coal May Yield Water Gas for English Fuel

➤ PRODUCTION OF water gas for household purposes from what is now waste coal looks promising as a result of experimental work under way in England. It is expected to help solve the present fuel problem.

The British Fuel Research Station, Greenwich, has an experimental plant in operation on the conversion of coal-washery slurry, a fine dirty coal, into water gas. This gas is the principal kind used in England for domestic purposes. Valuable chemical products are promised as by-products.

At present English water-gas is produced from high-grade coke at a relatively high cost. It is estimated that the new process, if successful, would reduce the cost of gas production by 50% and, at the same time, release considerably over a million tons of coke annually for industrial and domestic purposes.

The difficulty of using finely divided fuels hitherto has been caused by their tendency to pack so tightly by their own weight as to become virtually solid. The new British process employs a "fluid bed" technique. In this process, steam is blown in from below at a pressure which keeps the fine dust in suspension, and enables the steam to react with each particle of coal.

Science News Letter, April 28, 1951

DENTISTRY

New Fluorine Compound To Fight Tooth Decay

➤ A NEW anti-dental-decay compound of fluorine was announced by Dr. Wayne E. White of Ozark-Mahoning Co., Tulsa, Okla., to the American Chemical Society meeting in Cleveland.

It is a fluorine-containing alum complex that not only adds fluorine to the water but removes it when the concentration rises above about 1.5 parts per million. More than this may cause mottled teeth.

Extensive trials over the past decade show that fluorine in the drinking water in a proportion of one part per million will decrease markedly dental decay in the children's teeth. Many American cities are now beginning to add fluorine to their drinking water.

Science News Letter, April 28, 1951

NUTRITION

Cows Eat Less Food Under Hot Tropic Sun

➤ COWS EAT less in the hot, tropic sun. That is the conclusion of three Fiji Island agriculturists who studied the grazing habits of cattle. They found that, all year round, cattle on the island did about two-thirds of their eating at night and during the day sought the shade for grazing two-thirds of the time.

Also, they reported in the British scientific journal, NATURE (April 14), the total amount of food the cows ate went down during the warmer seasons.

Since these grazing habits are quite different from those of cattle in the temperate zone, they concluded, new techniques of dairy cattle management should be worked out for the tropics. The agriculturists are W. J. A. Payne, W. I. Laing and E. N. Raivoka, of the Fiji Department of Agriculture.

Science News Letter, April 28, 1951

IN SCIEN

MEDICINE

Rat Tests Show Nickel Can Cause Cancerous Growths

➤ FIRST PROOF that nickel has cancer-causing properties was announced by Dr. W. C. Hueper of the U. S. National Cancer Institute at the cancer research conference of the M. D. Anderson Clinic in Houston, Texas.

His experiments confirm a suspicion some medical scientists have long held about nickel's cancer-causing property. Part of the suspicion came from the fact that during recent years there have been an excessive number of cases of cancer of the lungs and nasal sinuses among workers in nickel refineries in England.

Nickel carbonyl, formed during the refining process, is now believed the cause in view of Dr. Hueper's experiments.

He injected powdered nickel into bone cavities or into the lung cavities of rats. Cancerous reactions developed in 30% of rats surviving more than eight weeks. In several of the animals, bone cancers as large as golf balls and tennis balls developed.

Science News Letter, April 28, 1951

OCEANOGRAPHY

Sea Is Vast Storehouse of Chemicals Needed for Life

➤ A VAST, untapped storehouse of the chemical elements necessary to all life processes can be "mined" by going to the sea.

We can get these elements by direct extraction or by harvesting the animals and plants which have already extracted and concentrated them. Marine animals and plants can concentrate the life-vital elements found in the sea far better than any of the physical and chemical processes humans know how to use.

The mining and use of these marine-separated trace elements is a challenge to chemurgists, Dr. H. K. Benson, chairman of Washington State Chemurgic committee, told the national Farm Chemurgic Council meeting in Cincinnati, Ohio.

The increasing importance of trace elements in the fertility of the land and the nutrition and growth of animals would "make it attractive to extract the minor elements from the brine residues after common salt, magnesium and potassium salts have been removed," Dr. Benson said.

Analysis of marine products shows clearly, he stated, that the plants and animals of the sea have an "amazing power" to separate from the sea almost all the chemicals that are involved in the processes that keep men and animals alive and nourished.

Science News Letter, April 28, 1951

SCIENCE FIELDS

CHEMISTRY

Farm Waste Materials Give Wonder Drug Broths

➤ FARM WASTE products are proving valuable sources of materials in which to grow antibiotic molds, the life-saving wonder drugs.

Farmers are feeding the antibiotics grown on these waste product materials back to their poultry and swine, giving them a diet that makes them grow faster, reach market sooner. Feed cost to the farmer is thus cut down, promising savings in meat cost to the housewife.

This double stimulus to farm prosperity was reported by Dr. Wilbur A. Lazier of Chas. Pfizer & Co., Brooklyn, N. Y. Terramycin, aureomycin, penicillin and streptomycin are at present widely used for speeding up poultry and hog growth, he told the National Farm Chemurgic Council meeting in Cincinnati, Ohio.

"Of greatest importance to our economy is the saving in animal protein requirements of feeds. By combining antibiotic and vitamin B-12 supplements," he stated, "all-vegetable proteins, such as corn, soybeans or peanuts, can be used more extensively in basal rations."

There are also opportunities to use antibiotics in farm-related operations, Dr. Lazier pointed out. Citrus fruit needs protection from molding, lumber from wood-destroying fungi, and milk from spoiling caused by micro-organisms.

Science News Letter, April 28, 1951

MEDICINE

Penicillin Alone Gives Best Results in Syphilis

➤ DOCTORS TREATING patients with syphilis can use penicillin alone and get satisfactory results. It is not necessary to give arsenic or bismuth or fever treatments with the penicillin.

This is the conclusion of eight syphilologists reporting jointly in the JOURNAL of the AMERICAN MEDICAL ASSOCIATION (April 21). The eight are: Dr. Arthur C. Curtis, Ann Arbor, Mich.; Dr. Delmas K. Kitchen, New York; Dr. Paul A. O'Leary, Rochester, Minn.; Dr. Herbert Rattner, Chicago; Dr. Charles R. Rein, New York; Dr. Arthur G. Schoch, Dallas, Tex.; Dr. Loren W. Shaffer, Detroit, and Dr. Udo J. Wile, Ann Arbor, Mich.

It is eight years since Dr. John F. Mahoney of the U. S. Public Health Service first used penicillin to treat syphilis. Since then, the physicians state, "the accumulated experience of many syphilis clinics in treating thousands of patients of all types clearly indicates the superiority of treatment with penicillin alone in the vast majority of cases. It is only in an occasional case that supplemental treatment is necessary."

"Penicillin alone," they state, "far surpasses any previously used antisyphilitic remedy when appraised from the therapeutic, economic, technical, toxicity rate or prophylactic aspects. And most important, its high index of therapeutic accomplishments is enhanced by the simplicity of administration and its availability."

Science News Letter, April 28, 1951

ENGINEERING

Mysterious Fires Not All Caused by Static Electricity

➤ A WAY to determine whether industrial fires of "mysterious origin" are caused by static electricity has been worked out by Robert Brenner of the engineering department at the University of California at Los Angeles.

"It has been all too convenient in the past to blame static electricity as a cause for fires of unknown origin," he says.

"With an application of engineering principles, we can determine definitely one way or another whether a fire originated from such a cause."

Mr. Brenner found that four fundamentals must be present before a static electricity fire can occur. Eliminate any one of them and the blaze must have had another cause.

They are: (1) a generating mechanism, (2) an accumulating medium, (3) a discharge path, and (4) a flammable environment.

Some of the industrial causes of static electricity fires, Mr. Brenner said, were fluid flow in pipes, dust flow, agitation of solids and liquids, transmission machinery actions, movements of vehicles and people, and natural causes such as lightning.

Science News Letter, April 28, 1951

INVENTION

Air-Brakes for Airplanes Operate Automatically

➤ AUTOMATIC AIR-BRAKE for speedy airplanes, to restrict the speed to the limits for which framework and wings are designed, brought Mark Robert Seldon, Stratford, Conn., patent 2,549,020. Patent rights are assigned to United Aircraft Corporation, East Hartford, Conn.

Latest jet engines and rocket engine developments make it possible to drive planes so fast that there is danger that the engine platforms, airframe and wings might fail. Manually-operated brakes have been used. With these the pilot operates a strut to extend surfaces into the air stream to produce drag. In this device, the struts which extend the drag-producing surfaces are operated automatically from a speed-measuring device.

Science News Letter, April 28, 1951

NEUROLOGY

Brain Disease Makes People Return to Their Babyhood

➤ A BRAIN disease in which the patients seem to return to babyhood in mind and body mechanics was described by Dr. Paul I. Yakovlev, physician of Middletown, Conn., in a report to the American Academy of Neurology.

In the early stages, when the body begins to slump and stay in the slumped position, as if paralyzed, the patient's postural unwieldiness when someone tries to help him dress or get out of bed may lead the attendant to call him "You big stiff."

Later, speech is obliterated, and the patient lies curled up in bed like a small baby or even in the pre-birth position. Before contractures set in on arms and head, the patients may lie in bed picking at themselves, pulling the stuffing out of the mattress, or "seemingly, entertaining themselves by twining and untwining their fingers or lustily chewing and sucking at their own hands."

The condition, Dr. Yakovlev said, is due to destruction of part of the brain which develops and differentiates in relation to man's ability not merely to hold his head up but to follow it up with his body from a horizontal position, as in swimming and crawling, to the erect position as in walking.

Science News Letter, April 28, 1951

OCEANOGRAPHY

Egypt to Have Oceanography Institute Similar to One Here

➤ THE WORLD'S most-travelled sea, the Mediterranean, will soon be studied in the light of modern oceanography for the first time.

Dr. Abdel Fattah Mohamed, now a graduate student at the University of California's Scripps Institution of Oceanography, has been chosen to set up an oceanographic institution in his native Egypt. It is designed to play much the same role in the eastern Mediterranean as the Scripps Institution does in the Pacific.

The new institution is to be the Alexandria Royal Institute of Oceanography, and Dr. Mohamed is to be its first director. It will be branch of Farouk I University in Alexandria.

It is but part of a broad oceanographic program instituted by the Egyptian government to learn more about the contrasting seas which border Egypt on the north and east—the Mediterranean and Red seas. A second oceanographic institute will be established later at Suez.

Dr. Mohamed, who is a professor in the department of oceanography, Faculty of Science, Farouk I University, came to the United States as recipient of a Fulbright travel grant and a Smith-Mundt grant-in-aid.

Science News Letter, April 28, 1951