

ELECTRONICS-CHEMISTRY

Electro-Chemical Research To Boost India's Progress

► A NOTABLE STEP in India's progress in science and the application of science to economic advancement was the recent corner-stone laying in Karaikudi of an electro-chemical research institution. Its work will be along the lines followed by similar institutes in America and elsewhere.

The first building of the institute, a laboratory, will be ready for use in about a year. Other construction will require another year or two. The investigations to be made will cover problems in electrolytic and electro-thermy fields. They will include the production of heavy water, other inorganic and organic chemicals by electro-chemical methods, electrode position, electro-metallurgy, primary and secondary cells and electric furnaces.

Adjacent to this research institute, which will be on a 300-acre tract of land presented by a private citizen, will be an engineering college, a research institute in higher mathematics, and a technological and polytechnic institute. Together they will become an important center to bolster India's industrial activities and promote the use of Indian raw materials.

While the per capita consumption of electricity in India is low compared to the United States and Britain, it is expected that before long it will increase very much, thanks to the setting up of vast hydro-electrical power projects all over the country. This, coupled with the availability of key raw materials and labor resources, will probably lead to a rapid growth of the electro-chemical industries.

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ZOOLOGY

Where Gerbils Stop and Baboons Begin Is Found

► WHERE the gerbils stop and the baboons begin has been discovered by the University of California African Expedition.

It is where desert animals, such as the gerbil, a mouse which stores fat in its tail, begin to disappear and animals of the African Sudan are seen.

Dr. Ernst Schwarz, zoologist with the U. S. Navy medical group, headed a group which traveled down the east bank of the Nile, from the southern border of Egypt through Anglo-Egyptian Sudan to the border of Uganda.

At the Atbara river, in northern Sudan, the dividing line seemed to be found. Baboons and antelopes were seen instead of gerbils, the Dorcas gazelle and the Mediterranean fox.

Another zoological dividing line was found in the Sudan, at the Sobat river, where Uganda animals were first found. But this division was less clear cut, because

of an ancient forest which was once there. In the mountains of the region are found strange monkeys, including the blue monkey, the black mangabey and blue duiker.

Investigation by Dr. Schwarz has disproved previous reports that the Norway rat, common pest in both Europe and America, was found in this part of Africa. He found the black rat, or plague rat, which is less common in the U. S. and Europe, but no Norway rats.

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PUBLIC HEALTH

People Live Longer in West North Central States

► PEOPLE LIVE LONGER in Nebraska than in any other state. Healthiest section of the nation, from the standpoint of length of life, is the West North Central states: Minnesota, the Dakotas, Nebraska, Iowa, Kansas and Missouri.

These facts were disclosed in new tables for white population worked out by the Statistical Bureau of the Metropolitan Life Insurance Company under the auspices of the National Office of Vital Statistics of the U. S. Public Health Service.

Women in the West North Central states live to be more than 69 years old, while men average over 65.

Shortest length of life is in the Mountain states: Idaho, Montana, Wyoming, Colorado, Utah, Nevada, Arizona and New Mexico. Men average 60.98 years and women, 66.03 in that region. High death rates for the Spanish-speaking populations of Arizona and New Mexico helped lower the average, it was pointed out.

Shortest average length of life for men is in Arizona, while women have the shortest life span in New Mexico.

Lowest death rates for a person between 25 and 45 years old are in New England. But at 45, the average New Englander has a life expectancy of only 25.37 years, compared with 27.56 years for the West North Central states.

Dividing the country into three sections, the statisticians found that the North has the longest average length of life, followed by the South and the West.

Men in the North have an average life expectancy of 63.43 years at birth; women, 67.51 years. Men live to be slightly older in the South than in the West, but women live longer in the West.

The newly-published figures for regional life expectancy were compiled for the years 1939-41.

Reasons for the differences in length of life in different regions include several factors, it was pointed out. General standard of living, degree of industrialization, density of population, adequacy and availability of medical and hospital facilities and climate are mentioned as some of the possible reasons for the differences found in the new tables.

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PUBLIC HEALTH

Doctors Increase Faster Than U. S. Population

► THERE ARE 17% more doctors today than there were in 1940 while the population of the United States has increased only 12% in the same length of time.

Dr. Frank G. Dickinson, director of the American Medical Association's Bureau of Medical Economic Research, estimates that on June 1 there were 199,755 living physicians in this country. In 1940 the A. M. A. Directory listed only 170,163.

Some of these doctors are retired, some are not in practice and some are employed by federal, state and local health agencies, Dr. Dickinson points out.

Five states with more than 10,000 doctors are New York, 30,970; California, 16,069; Pennsylvania, 14,633; Illinois, 13,307; and Ohio, 10,091. Dr. Dickinson cautions that these figures are tentative, owing to unrecorded deaths, interstate migrations, and to other factors.

Five states with fewer than 500 doctors are: Nevada, with 198; Wyoming, 252; Delaware, 439; North Dakota, 467; and Idaho, 470.

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PHYSICS

Tiny Crystals Put in Thin Casts for Study

► CRYSTALS which are invisible in any existing microscope are now being put in casts a millionth of an inch thick so that their structure can be seen.

The tiny crystals are so small that they can not be seen with an ordinary microscope, and they will not let streams of electrons through them for study with an electron microscope.

C. J. Calbick of the Bell Telephone Laboratories, Murray Hill, N. J., reported at the International Congress of Crystallography held at Harvard University that models of the crystals which can be studied with an electron microscope have been made.

Each crystal is coated with a thin film of silica, the main ingredient of sand. Then the crystal is dissolved in acid, leaving the thin silica wall as a replica of its surface. This shell is transparent to electrons.

Two different views of the crystal shell, seen through the electron microscope, give a three-dimensional picture of the crystal. The same principle is used to give depth to pictures seen through a parlor stereoscope.

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CE FIELDS

ENTOMOLOGY

Flies That Survive DDT Discovered in New York

► NEW EVIDENCE that some house flies are getting too tough for DDT was reported at the annual open house of the New Jersey Agricultural Experiment Station, New Brunswick, N. J.

Drs. John B. Schmitt and George W. Barber, both of Rutgers University, said that DDT-resistant flies had been tested in the laboratory after they were captured in a New York resort hotel.

An exterminator discovered the flies when three sprayings with DDT failed to kill them, where one spraying had formerly done the job. The scientists checked the exterminator's methods and then reared three generations of the flies which were resistant to DDT.

Other insecticides, including Chlordane, were found to kill the flies which survived DDT. Detailed results of the experiments will be published soon.

U. S. Department of Agriculture scientists have reported raising DDT-resistant flies in the laboratory through more than 30 generations.

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PSYCHOLOGY

Personality Is Guide To Choice of Friends

► "CAN tell good jokes."

"Doesn't hurt people's feelings."

"Saves me a seat so I won't have to sit with the girls at lunch."

These are typical of the reasons boys and girls have for picking their best friends, as found by Drs. Mary C. Austin and George G. Thompson of Syracuse University. The psychologists questioned 404 sixth grade pupils in seven elementary schools.

It is personality that is important among friends in this younger set—more important than mutual tastes or interests. And when friends are dropped from the list—as some were after two weeks—it is the ex-friends' behavior that is to blame.

Cheerfulness, kindness, honesty and generosity are the most important qualities to children when it comes to picking friends. They revealed this in what they put down when they made a list for the psychologists showing their three best friends and their reasons for choosing them and in the list they made two weeks later showing how their opinions had changed.

"She has not been wanting to be friends—he thinks he is 'hot'—he stole my girl friend away—she is always treating me mean," they charged when they dropped a friend.

Sixth graders tend to be fickle. Approximately 60% of them made some changes in their list of best friends within two weeks.

Children naturally made more friends with others who lived nearby, but nearness alone was not enough. "Out of sight, out of mind" seemed to be generally true since lack of recent contact accounted for 14.5% of the broken friendships.

The psychologists concluded from this that parents could help their children's social progress by providing play rooms and shops which would attract other children, since it is very important to popularity-rating for a child to keep in contact with others.

They also noted that broad interests and tastes are important to children's happiness. Parents who try to restrict their children's interests are hindering their social development.

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NUTRITION

Canned Fish Spreads Are Being Developed

► YOU MAY be adding fish spreads to the menu soon if the experiments of Norman D. Jarvis, food technologist for the Fish and Wildlife Service, are successful.

Finished formula for the spread has not yet been perfected, but Mr. Jarvis hopes to have it ready by the end of the year.

The fish spreads contain tomato, dried skim milk, margarine, flour and a small amount of seasoning as well as fish. The tomato is for color, flour acts as a binder and milk adds food value.

Mr. Jarvis has tried more than 40 species of fish. Best ones for making fish spreads are chum salmon, mackerel, pollock, lake herring, and rosefish.

Fish spreads on the market now are imported from Europe and made for a limited, high-priced market. Mr. Jarvis' canned fish spreads are inexpensive and planned for possible use in the Federal-aided school lunch programs.

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MEDICINE

Five-Year Grants to Aid Young Medical Scientists

► FUNDS for helping relieve the shortage of teachers in medical schools and for encouraging research in medicine are being granted to young medical scientists by the John and Mary R. Markle Foundation in New York.

The grants are made for five years at a rate of \$5,000 a year to young scientists who have completed their training. Now being awarded are grants for the school year 1949-50. Men and women receiving these grants will be appointed as full-time teachers on the staffs of medical schools. Schools will nominate candidates.

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ARCHAEOLOGY

Outlines of Mysterious "Lost Colony" Fort Found

► THE OUTLINES of the fort which was built and then mysteriously deserted by Sir Walter Raleigh's "lost colonists" at Roanoke Island, N. C., have been located in recent archaeological surveys made by J. C. Harrington of the National Park Service.

The Roanoke colony, which represented the first English attempt to colonize within the continental United States, was first settled in 1587. Then Governor John White left his colony and returned to England. When he returned in 1591 he found no trace of the settlers but the strange word "Croatan" carved on a tree.

The fort has an unusual outline, with bastions on the sides of the basic square rather than on the corners. Two pointed bastions commanded the approach to the water. There is a rounded bastion on the south side which may have enclosed a building and an entrance facing west, probably toward the settlement.

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PSYCHOLOGY

Fear Is Produced in Laboratory Experiments

► FEAR has been produced in the laboratory for experiments by putting a man in a chair and suddenly letting the chair drop backwards at a 60-degree angle. This was done so that what happened to the subject psychologically could be measured.

This scientific use of the chair "gag" was described by Dr. Martin L. Reymert, director of the Mooseheart Laboratory for Child Research, as a guest of Watson Davis, director of Science Service, on Adventures in Science over the Columbia network.

These experiments disproved a theory held by earlier psychologists that the emotion of fear is a result of the way the body changes when faced by a frightening experience. According to the old theory, first we see a bear, then we begin to run and then we feel fear.

Pounding heart, rapid breath and other body changes, just like those which result from fear, can be produced by running upstairs or sawing wood. But in this case there is no real feeling of fear, experiments show.

There are many emotions—love, hate, sorrow, anxiety, shame—but no unique pattern of body changes to distinguish each, Dr. Reymert pointed out.

According to a more recent view, emotions are governed by a particular section of the brain known as the thalamus.

This idea fits the facts better than did the earlier theory but there is a great deal of work still to be done before emotions are really understood, Dr. Reymert said.

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