

## GENERAL SCIENCE

# Science Kits for Egypt

Students in secondary schools will use kits inspired by THINGS of Science to foster the experimental approach and arouse interest in science and technology.

► EGYPTIAN youth in that nation's secondary schools are concentrating on science and technology as a part of a program of technical development being instituted under the present government.

Physics, chemistry, biology and mathematics have been taught at the high school level by methods that are familiar in England and the United States.

A development underway is the contemplated utilization of experimental kits that will be issued to students in order that they may perform basic experiments without the use of elaborate and costly apparatus.

These kits are now in pilot production by the Ministry of Education and will soon be under test in selected classes. Suggested by the THINGS of Science kits developed and produced by SCIENCE SERVICE, the Egyptian kits will be simplified and integrated into the actual courses of instruction.

It is believed that use of the experimental method that will be fostered by the use of the kits will not only inform and instruct the pupils, but inspire them to think for themselves and undertake projects and tests that they think up for themselves.

The THINGS of Science kits that have been issued monthly to a selected list of American members for the past 15 years have accentuated the new and the novel. For instance, paper made of glass, the metal titanium, synthetic rubber, new plastics and hundreds of other products and materials have been sent to the THINGS members who now number 15,000.

## Illustrate Fundamentals

The Egyptian kits, on the other hand, will be primarily concerned with fundamental facts that illustrate and reinforce the usual content of the science and mathematics courses. There will be kits on chemical indicators, crystallization, analysis by chromatography, and sugars and starches in the field of chemistry. In biology there are kits on seed germination and sea shells as found in the Nile, the Mediterranean and Red seas. Physics courses will show magnetism by use of a lodestone, static electricity by rubbing an amber prayer bead, current electricity by building a simple battery out of coins and vinegar.

The kits have their instructions written in Arabic. They are called "Al-elmubainayadika" which means "Science within your hands." The materials contained in them are only those that can not be obtained easily in their homes or stores by students.

The kit on sugar and starches contains only a little packet of lactose and the student is asked to bring ordinary sugar from his dinner table and a piece of sugar cane stalk that can be purchased from a street peddler.

The kit on sugar and starches is the first completely produced in Egypt through cooperation with a committee of chemistry teachers.

Through invitation of the Egyptian Minister of Education, Maj. Kamal el Dine Hussein, and the Secretary General of the Council of Ministers, Dr. I. H. Abdel-Rahman, two Science Service staff members spent two weeks in Cairo adapting the experimental kits to Egyptian conditions. In this a committee of science supervisors, inspectors and teachers, headed by Dr. M. A. Barkouki, cooperated and they are carrying on the development of additional kits to be fitted into the Egyptian courses of study.

## Furnished to Students

The ideal is that eventually every student taking science will use a series of his own science kits issued to him lesson by lesson. Each kit will be expendable, like the daily newspaper, and can be taken home for hobby use. There his parents, brothers and sisters and neighbors will be able to see it and even use it.

While the kits themselves will be effective in the teaching of the courses, the idea and the spirit contained in the experimental approach fostered by the use of the kits is of still greater importance.

A mutual exchange of the rights in the kits produced in Egypt and the United States has been arranged so that the youth of both countries will benefit from the developments achieved in both nations.

Science News Letter, July 7, 1956

## ORNITHOLOGY

## Birds Do Not Respond To Foreign Bird Calls

► AMERICAN birds do not understand the calls of French birds, even those of the same species, a report to the Second International Congress on Acoustics in Cambridge, Mass., indicated.

French crows, three species of which flock together, learn to react to a wider variety of calls and therefore respond better to the calls of American birds than the American birds do to the French.

This "language difficulty" among birds was revealed when laboratories in France

and the United States exchanged bird recordings and tried them out on their own birds.

Results suggest that birds must learn to understand bird calls just as humans must learn a particular language.

The distress cry of the French jackdaw is, however, strikingly effective in France with all three species of French crows. But this same cry had no observable effect on American crows. Neither had the distress call of the French carrion crow.

A few individual American birds were attracted by the nestling cries of the French crows, but many more flew toward the speaker when it was playing the assembly call of the American species.

French crows react the same to the American crow assembly call as do the American birds themselves.

Neither the food-finding call nor the alarm call of the American herring gull had any effect on French gulls of the same species, although American gulls are strikingly attracted by the food-finding call and fly away from the danger signal.

The research in France was reported to the meeting by Drs. R.-G. Busnel, J. Giban and Ph. Gramet of the National Institute of Agronomic Research, Jouy-en-Josas, France. Their American colleagues are Drs. Hubert and Mable Frings and Dr. J. Jumber of Pennsylvania State University and the Mount Desert Biological Laboratory, Salisbury Cove, Maine.

Science News Letter, July 7, 1956

## TECHNOLOGY

## Hydrogen Peroxide Used To Power British Sub

► HYDROGEN PEROXIDE, usually thought of as a bleach for blondes, is being used to power Britain's latest experimental submarine, Explorer.

The underwater craft is thought to be the first stable ocean-going vessel to use peroxide as fuel. In World War II, the Germans used the chemical to launch V-1 missiles, to drive fuel pumps in V-2 rockets and to propel torpedoes. The Germans are also reported to have built five peroxide-powered submarines, but never put them in service because there was no peroxide.

A principal advantage of hydrogen peroxide for submarine propulsion is that no exhaust bubbles reach the surface. The Explorer has a conventional diesel engine and a peroxide propulsion system. When hydrogen peroxide breaks up, it releases heat, which is one source of energy. The resulting free oxygen combines with fuel, such as diesel oil, to produce both steam and carbon dioxide to drive the turbine.

Use of the peroxide is reserved for special bursts of speed in attacking and escaping. The Explorer will carry no armament, and will not take part in operations, but will be used for training anti-submarine forces.

The design team that developed the new submarine was led by Dr. G. H. Forsyth of Vickers Armstrong.

Science News Letter, July 7, 1956