

PHOTOGRAPHY

**Color Photography
Ripe for Market**

➤ MUCH of the basic research on improved color photography has been done and the problem of consumer use now is cost.

Eastman Kodak Company's new way to develop large color prints by a simple rotary processing apparatus, at high speed using few chemicals and high temperature, was a highlight of the Society of Photographic Scientists and Engineers symposium in Washington, D. C., on color photographic systems. This Kodak process will mean high quality prints for less time and money.

Standard Color Labs. Inc. of Chicago showed good eight-by-ten-inch color prints that the company can furnish for \$79 per 100. This low price is obviously an attempt to get to the color market.

The Polaroid Corporation aspires to the color-while-you-wait market. It has the only mass production plant supplying color prints that must stand side-by-side comparison with the original prints from which they were made. This is a hard test of accurate reproduction and has resulted in some unusual procedures being used in their plant.

Despite new advances, many experts at the symposium believed the old system ushered in by Kodachrome, the multilayer silver emulsion film with appropriate dyes replacing the silver image, is the best. But they do not doubt that color photography is being tailored to the wishes of users and that the field is moving fast, with companies keeping a steady eye on the market place.

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SPACE

**Gemini Mission Vehicle
Goes on Mock Flights**

➤ TO PEOPLE leisurely boating on the Chesapeake Bay, a 160-foot tower 10 miles east of Baltimore serves merely as a convenient land beacon. But within the tower unreels an important lap in America's furious race to the moon.

The tower encloses the first launch vehicle for Project Gemini, the two-man space missions scheduled to precede a manned lunar flight.

Martin Company technicians are taking the vehicle, officially called Gemini-Titan No. 1 (GT-1), on mock missions. But no fuel is used and the powerful engines are not fired; that part is pretended.

During these dry runs, GT-1 sends back thousands of bits of information about the full burning and shutdown of the first stage engine, the ignition of the second stage engine, the separation of stages and the hurtling of the astronauts' craft into orbit.

When technicians are satisfied that GT-1 is in perfect shape, they will take it apart and put it aboard a giant C-133 transport plane for its trip to Pad 19, Cape Canaveral, Fla.

There the vehicle's rockets will be fired for the first time in static tests. Then, some time this winter, the 109-foot GT-1 will be launched.

It will carry a model of the Gemini spacecraft, but no men. Scientists do not expect to recover GT-1.

Meanwhile, the tower at the Martin plant will house another Gemini vehicle, which already is being assembled.

After testing, it will go through the same routine as GT-1. Perhaps a third manless shot will be made before two astronauts climb into the business end of a Gemini-Titan vehicle.

The astronauts are to orbit for periods up to two weeks, testing space maneuvering and rendezvous techniques vital to moon missions, prolonged weightlessness and precision landings on earth.

Their launch vehicle is a modification of the Air Force's Titan II, this nation's largest and most powerful intercontinental ballistic missile. Because the propellants are hypergolic—that is, they ignite on contact—no ignition system is needed permitting a much shorter countdown period before launching.

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GENERAL SCIENCE

**Uruguay Holds First
National Science Fair**

➤ THE FIRST National Youth Science Fair exhibiting experimental projects of Uruguayan students opened Oct. 21 at Montevideo.

Timed to coincide with the Atoms at Work exhibit that is now being displayed there by the Uruguayan and U.S. Atomic Energy Commissions, the student fair inaugurated a program that has added new features to the Uruguayan science education program.

A five-man committee representing Uruguayan education conducted the fair with the support of the U.S. Atomic Energy Commission through SCIENCE SERVICE, the institution for the popularization of science in the United States.

About 750 Uruguayan boys and girls from among the 200 secondary schools submitted exhibits from which the best were selected to be on display to the public and the school children of Uruguay for five days at Miranda High School.

The exhibits covered the full range of science from astronomy to zoology. There is interest in space science in Uruguay and projects relating to industry, cattle raising and agriculture of this South American nation were also on display.

In Latin America, Science Fairs have been inaugurated in Brazil, Mexico, Colombia and Chile. The second National Science Fair in Chile is scheduled to be held some time in November in Santiago.

The committee conducting the first Uruguayan National Science Fair consisted of Dr. Hector Fernandez Guido, director, Municipal Planetarium, and professor, faculty of engineering of the University of Montevideo, and the following secondary school science inspectors: Agr. Juan C. Arruti (physics, cosmography); Dr. Enrique Emeric (chemistry); Dr. Juan C. Oliver Martorell (natural history, biology); and Prof. Rodolfo F. Sayagues (mathematics, cosmography).

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IN SCIEN

COMMUNICATION

**New Radio Channels
Foreseen Across Equator**

➤ POTENTIAL new long-distance radio communication channels across the equator at a very high frequency level may soon ease the crowded international radio spectrum.

Excellent responses were obtained from tests at a 3,000-mile distance using low powers, simple antennas and conventional receivers. Signals were observed regularly between 30 and 50 megacycles and sometimes as high as 75 megacycles.

During periods of higher sunspot activity, the reception of frequencies in excess of 100 megacycles over such a path can be expected, C. L. Washburn of International Telephone and Telegraph Corporation's Federal Laboratories in Nutley, N. J., reported in Utica, N. Y.

Sponsored by the U.S. Air Force Systems Command at Griffiss Air Force Base, N. Y., the tests were reported at the 9th National Communications Symposium of the Institute of Electrical and Electronics Engineers.

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CHEMISTRY

**Treasures From Waste
By Chemical Industries**

➤ THE MAGIC WAND of the chemical industry is transforming waste products into treasures needed by civilization.

Wood is turned into molasses; inedible animal fat is being used for animal feed; especially treated cottonseed meal is giving high nutrition to poultry; new wash and wear magic has been put into cotton for clothes.

Remarkable scientific accomplishments have taken place in industry, agriculture and science in the last three decades, Dr. Harry J. Prebluda, chemical consultant to the Chemurgic Council, said. Today we now make industrial products from farm products and wastes, as well as from woodlands, wastelands and the sea, he told the 12th annual meeting of the Agricultural Research Institute in Washington, D. C.

The organic chemical industry now turns out each year about 15 billion pounds of plastics, detergents, plasticizers and other chemical products. The growth rate in some of the chemical markets is as high as ten percent per year.

Most organic chemicals are synthetics based on petroleum or coal, he said, but at least several billion pounds of starch, linseed oil, soybean oil, animal fat and other farm products are used each year.

More than 120 delegates from all parts of the nation attended the Institute, a function of the National Academy of Sciences and the National Research Council.

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CE FIELDS

AGRICULTURE

Science Streamlines Food To Meet New Desires

► **SPRING LAMB** in October, strawberries in December, pumpkin pie in July—you may now have most any food you want, at almost any season of the year.

Today's American consumer is experiencing more opportunities than ever before to eat what he wants when he wants it.

This is another triumph of modern science over traditional agriculture and the seasons.

Agriculture and the food industry are extremely sensitive to what people prefer to eat and when, Dr. H. W. Schultz of Oregon State University said. More foods are being produced in line with these preferences, he told the 12th annual meeting of the Agricultural Research Institute in Washington, D. C.

Several factors have contributed to the increasing opportunities for consumers to have what they want, he stated.

For instance, more consumers are now able to pay for what they want. This is one of the most influential factors in directing patterns of food consumption, he added.

More foods are now available throughout the year, through changes in agriculture, improved marketing, and modern methods of processing and preserving.

A new science of testing the preferences of people is being developed in the food industry today to determine the likes and dislikes, and to satisfy these desires.

The two-day annual meeting was attended by about 120 delegates from all over the country, with about 45 states represented. The Institute is under the auspices of the National Academy of Sciences and the National Research Council.

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METEOROLOGY

Sky Watchers in Schools Gather Satellite Data

► **TWO THOUSAND** sharp young eyes observing clouds, wind and temperatures, as the weather satellite Tiros VII speeds overhead, are gathering important information for weather reports.

Project Skywatch is a new program involving more than 200 schools in the District of Columbia, Arlington County, Va., and parts of Maryland. Written observations by school children are helping Weather Bureau scientists interpret cloud pictures taken by the satellite.

This program fills gaps in the information collected by Tiros, an official of the Satellite Center of the U.S. Weather Bureau in Washington said. The Tiros weather satellite cannot take clear pictures of clouds that are less than a mile and a quarter in diameter. Fleecy clouds, for instance, may come out on the satellite picture as a haze

and weathermen would not know which they are.

This is where the school children come in. With each passage of Tiros overhead, groups of students outdoors draw the general outline of clouds and record the speed and direction of the wind, temperature, humidity and amounts of precipitation.

With directions supplied by the Weather Bureau, observations are recorded in five minutes, and sent daily to the National Weather Satellite Center. Each group is making observations once a day for a period of eight weeks.

Local newspapers publish a "Project Skywatch Alert" in the section that contains the daily weather map and forecast. This "alert" shows the times that Tiros VII will whiz over the area.

Science teachers and principals of the selected schools are enthusiastic over the project, the weather official said. Most children participating in this satellite program are in the fifth and sixth grades. If results are satisfactory, the Skywatch Project will be expanded nationwide.

The satellite, Tiros VII, was launched by the National Aeronautics and Space Administration on June 19, 1963. Traveling at the rate of 17,000 miles an hour, it circles the earth once every 100 minutes.

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GENERAL SCIENCE

U.S. Science Fair Winners To Show Projects in Japan

► **THREE TEEN-AGE** students who were among the winners of Defense Department awards at the 14th National Science Fair-International last May, will present their exhibits in the Japan Student Science Awards' Exhibition in Tokyo, Nov. 3-11.

This is the first time students from science fairs in the Continental United States will exhibit in the Japan Fair, sponsored by the Yomiuri Shimbun, Japan's largest newspaper. For the past six years Japan has sent its two best exhibitors to the NSF-I in the U.S. and each year they have won awards here.

The Air Force will sponsor the trip to Japan for a winner of one of its awards—Eric E. Sundberg, 318 Mar Monte Dr., Watsonville, Calif., whose project at the national fair was entitled "Characteristics of an Unconventional Rocket Engine-Plug Nozzle."

The Army will sponsor the trip of Rhea L. Keller, 3232 Congress Ave., Fort Wayne, Ind., whose project is "Subcutaneous Induction of Malignant Melanoma in the Syrian Hamster with Cell-Free Extracts."

The Navy winner making the trip is Paul V. Roling, 3280 Pennsylvania St., Dubuque, Iowa, whose project is "Organic Qualitative Analysis for Minerals."

The students will fly to the West Coast where they will join an escort officer and Joseph H. Kraus, coordinator of the NSF-I, for the trip to Tokyo. They will be housed with American service families and also will spend some time as guests of Japanese families.

The National Science Fair-International is an activity of SCIENCE SERVICE.

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METEOROLOGY

Huge Florida Water Loss Blamed on Fickle Flora

► **HURRICANE FLORA** caused trouble even by *not* striking.

Large amounts of precious fresh water were lost in southern Florida because the deadly hurricane veered into the Atlantic Ocean and missed the United States coast.

Many millions of gallons of fresh water flooded into the ocean, released by southern Florida flood control and water management agencies who anticipated heavy deluges from the hurricane, and hoped to reduce possible damage from flooding.

Hurricanes are not all bad, point out water experts of the U.S. Geological Survey in Florida. From the standpoint of water supplies, they can be very beneficial to southern Florida, provided proper precautions are taken.

Florida's water supplies are derived entirely from rainfall, most of which occurs during the hurricane season in the fall. Some experts believe that Flora's rains would have ended the prolonged drought in southern Florida which has plagued the area since hurricane Donna in 1960.

The amount of fresh water lost in preparing for hurricane Flora fortunately represents a relatively small part of the overall water resources of the area, say water management experts.

The Florida regional water-management system provides for areas in the interior conserving large amounts of water. These areas were unaffected by the opening of the dams in the coastal regions. Water released from these interior lands will replenish the coastal areas if low water levels persist.

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MEDICINE

Cause of Bleeding Due To Aspirin Discovered

► **IF YOU TAKE** large amounts of aspirin for arthritis or other chronic ailments, your stomach or intestines may bleed.

Although it is known that aspirin taken by mouth can cause blood loss, the reason for this has puzzled scientists.

Ten of 12 volunteers who took aspirin after fasting had "significantly higher" amounts of deoxyribonucleic acid, or DNA, in their stomachs than those who took no aspirin, Dr. D. N. Croft, medical registrar at St. Thomas's Hospital in London, said.

This increased content and rate of accumulation of DNA in the stomach after taking aspirin is believed to result from the sloughing off of cells from the lining of stomach and intestines, Dr. Croft reported in the British Medical Journal, Oct. 12, 1963.

DNA is the nucleic acid found in the nucleus of cells. It controls the transmission of all hereditary traits from parent cell to offspring at the time of cell division, and also codes and signals information to the rest of the cell, directing the synthesis of important biological compounds. Some viruses also are composed of DNA.

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