

The painting, 19 x 27 feet in size, will be hung on the ceiling of the hall containing exhibitions of the evolution of prehistoric culture, just as the famous paintings in Altamira appear. It will be some time, however, before this can be done.

The Altamira paintings were discovered in 1879 by the small daughter of the scientist Sautuola, who had accom-

panied her father on an exploration trip into the cavern. They have subsequently been determined by the famous French anthropologist, Abbé Breuil, as representing the highest stage in development of Old Stone Age art. Nothing to equal them was done afterwards for thousands of years, until the rise of civilization in the Mediterranean basin.

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GENERAL SCIENCE

World Fairs Planned to Show The Sciences in Action

Synthetically Fed Animals; Chemical Garden; Electrified Farm; Black Light Are Features Planned

See Front Cover

MR. and Mrs. America, 75,000,000 strong, will see the greatest science show on earth next year when the Golden Gate International Exposition in San Francisco and the New York World's Fair open for business.

Themselves two stunning examples of science in action, the two giant 1939 fairs, far surpassing anything ever done in the United States by way of taking the lid off science, will put on a breathtaking demonstration of what goes on amongst the quiet men who man the laboratories and what they teach for today and promise for tomorrow.

Advance reports, one year before elaborate ceremonies marking opening day, from both coasts promise exhibitions that will take visitors into every corner of the domain of science—from the tiny atom to the giant universe.

Huge industrial exhibits; striking stories of health and the war on disease; a pageant of transportation; laboratories on parade; plants grown without benefit of earth; magic carpets riding over cities of the future; "black light" wizardry painting pictures in the dark—these and many more will dramatize the part of science in today's and tomorrow's routine.

Railroad Pageant

Keynoted by a \$1,500,000 pageant, "Railroads on Parade," which will tell in an amphitheater seating 4,000 people, the story of the American railroad, New York's World Fair will take the visitor through an awe-inspiring succession of

exhibits painting a picture of scientific progress.

Working perhaps for the first time in public gaze, scientists on man-made Treasure Island in San Francisco Bay, will present a portrait of life in the future.

Laboratory rats will be fed on synthetic foods and will be shown to be healthier than their normal fellow-rodents. Synthetic foods will be manufactured in small quantities on the spot, while onlookers through the Exposition laboratories. In the Hall of Science, microbes will be employed to do amazing

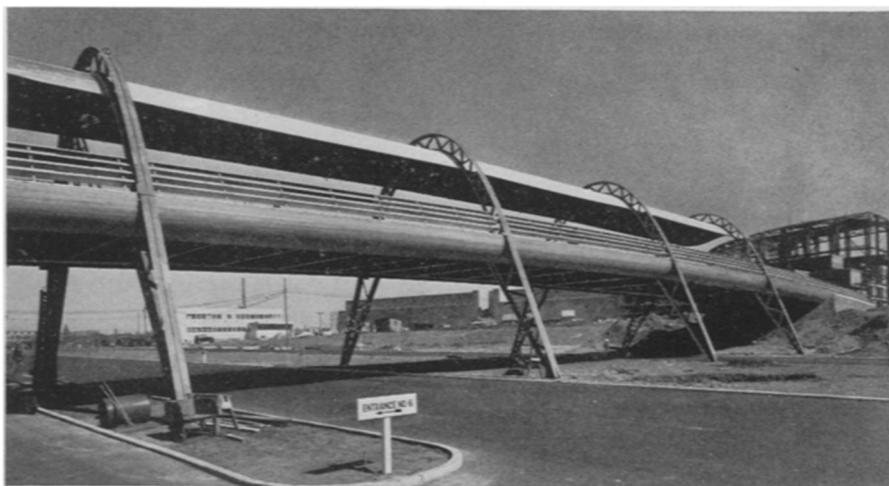
things. These germs introduced to different media will be made to produce a whole variety of products, such as flavorings, perfumes and medicines. Visitors to the Exposition will also have the opportunity of seeing the much-discussed but little-known hormones and vitamins manufactured.

A complete "chemical" garden growing indoors under ordinary incandescent lighting and without the usual soil promises to be a popular demonstration. Corn, peas, melons, squash, spinach and lettuce are some of the crops which will be grown in the Hall of Science without soil or sunlight.

An up-to-the-minute showing of General Electric's famous "House of Magic," in which electricity and electrons are made to perform astonishing feats will be a feature of the Hall of Electricity. "Willie Volcanite," Westinghouse's electrical robot who has even been caught smoking, will be put through his paces in this same building. Television demonstrations will be held. Visitors to the Hall will have an opportunity to listen to the footsteps of insects, as a part of a demonstration of the latest in sound amplification equipment.

Model Farm

A model farm, completely electrified for both housework and forced crop production, will be another unusual feature of the electrical show, it is stated. For the protection of orchards, tested color lamps will be used to attract crop destroying insects to a wire network high-



BRIDGE OF TOMORROW

Already in service on the grounds of the New York World's Fair of 1939. The graceful structure connects the second floor of the Administration Building with the site of one set of pagodas in the central exhibit area. Of marine inspiration, clear-varnished fir, steel and insulating board are materials from which it is built.



MODEL

Fritz Gutheim, program director for the U. S. Golden Gate International Exposition Commission, looks over a scale model of the Federal government's social welfare exhibit at the San Francisco Fair. Both fairs will be featured by coordinated Federal exhibits built around a number of central themes in place of the uncoordinated exhibits of the past.

ly charged with electricity. Crop production will be stimulated by the use of electric cables to warm the soil, and by the application of ultraviolet rays.

New York Fair visitors, in addition to being treated to spectacular science shows, will obtain a glimpse of the city and countryside of the future inside the 200-foot Perisphere, a 5,700,000 pound globe which, with the 700-foot Trylon spire, will serve as guiding landmarks to the fair ground.

Visitors will be carried over the panoramas on two 100-ton "magic carpets" shaped like gigantic washers. The pillars supporting the platforms while they revolve will be made invisible by special lighting to create the illusion of riding through space. Water fountains outside the Perisphere, supported by eight columns, will hide the pillars to give the illusion that the huge white ball is floating in space.

Science is playing a notable role in the construction of the \$175,000,000 New York Fair, located on what used to be a dreary swamp flat outside Flushing, L. I. Soil chemists saved Fair sponsors half a million dollars by devising chemical means to convert the acid swamp soil into turf suitable for planting the 10,000 trees brought out to the site. They could have brought turf, but the intensive chemical treatment they gave the soil was cheaper.

Black light will be used to paint beautiful murals at the Pageant of the Pacific, main attraction of the Golden Gate Exposition. The two largest murals in the world, each 165 feet long and 65 feet high, will be built of metals, enam-

els, glass and marble. Highlights and studied sections of the scenes will fluoresce under ultraviolet rays from trough reflectors above and below, adding life and change as well as the rich glows characteristic of fluorescence.

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GENERAL SCIENCE

Coordinated Federal Exhibits Replace 'Jumbled Mess'

Scientific Activities of Government Will Be Prominent; Housing, Social Welfare To Be Included

FOUR and a half million dollars will be spent during the next year to present to visitors to the 1939 world fairs in New York and San Francisco the first scientifically-designed exhibits explaining the functions of the United States government ever shown, officials of Federal commissions charged with erecting the exhibits disclosed.

For the first time Uncle Sam's shows will be coordinated and streamlined instead of consisting of a "jumbled mess of dull pictures and duller charts" as in the past, it was stated.

Twelve themes will predominate in the \$3,000,000 Federal area at the New York Fair, while eight will tell Uncle Sam's story at the Golden Gate International Exposition in San Francisco.

Not only are the themes to be designed scientifically, but science and the scientific activities of the government will be prominently displayed in each exhibition, spokesmen for the two commissions explained.

Conservation; food; shelter; industry; transport and communication; social welfare; education, arts and recreation and other phases of the nation's life will be some of the New York Fair themes. San Francisco's exhibit will be built around science, social welfare, conservation, housing, national defense, recreation, economic affairs and Indian life.

The social welfare exhibit at the Golden Gate Exposition has already reached the detailed model stage, Harry R. Stutsman, special aide to Secretary of Commerce Roper, pointed out, with other exhibits on the way.

Social welfare will be presented in the form of an "American Biography," taking the average American through life from birth to old age and showing what the government does for him. Pub-

lic health, labor conditions, education, social insurance and delinquency are some of the topics covered.

A new scheme of exhibit planning, making use of "induced circulation" of people through the exhibit rather than the older "forced circulation" type will predominate at all the government exhibits in the west coast exhibition. Fritz Gutheim, program director for the U. S. Golden Gate International Exposition Commission, explained.

"Forced circulation" makes exhibit visitors follow a given route by simply providing no alternatives. The principle underlying the method to be used at San Francisco places exhibits at those points where people normally go. For example, an important chart will be on the right side of the entrance, for it has been found that people look toward the right when entering a doorway.

Nine semi-classic buildings and a twin-towered Federal building will dominate the Federal area at the New York World Fair, Theodore T. Hayes, Executive Assistant United States Commissioner in charge of Federal participation in the New York celebration, revealed. Exhibits will be housed in the nine buildings, with the Federal building devoted primarily to historical matter. It will consist of two towers, the Tower of Judiciary and the Tower of Legislature, flanking a thirteen-pillared portion representing the Executive arm of government and the thirteen original states.

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Wild sugar cane that endures long stretches of freezing weather in its homeland in Turkestan is being tried out by the U. S. Department of Agriculture.