an adequate picture. It is possible that at that time the phenotype had an effect on the genotype and that, in accordance with the general sense of Lamarck's theory, if not in accordance with its formulation, an environment contributed to the modification of organisms which transformed themselves, moreover, to a great extent independently of the environment, in conformity with the correlations resulting from their intimate structure. It seems that at the present time we do not know whether stabilized nature and genetics will inform us of the modalities of this stability. Are these conclusions of genetics valid for the periods and the conditions during which each group became diversified? Or rather, as seems more probable to me, do the evolutional transformations depend on some other causes which still elude us? I am not concealing from myself the fact that it is very improper to imagine that the causes known at present are insufficient to explain the past and I ask pardon. But I still prefer to adopt such a supposition rather than to deny evolution or to confine myself to a statement of the contradictions between the results of our inadequate experimentation and the facts attested to by the past.

I ask your indulgence for having preempted your attention so long, only to end with such doubtful conclusions; but, as I said in the beginning, my intention was above all to emphasize the difficulties of the problem and to provoke reflections, suggestions and even contradictions among the experts present.

SCIENTIFIC EVENTS

THE INTERNATIONAL CONFERENCE ON BITUMINOUS COAL

THE Third International Conference on Bituminous Coal will be held at the Carnegie Institute of Technology from November 16 to 21, it is learned from Dr. Thomas S. Baker, organizer of the meeting and president of the Carnegie Institute of Technology.

Prospects for the third congress are excellent. "Because of the deep concern that is felt all over the world as a result of the great depression in the coal industry, it is felt that it is a particularly appropriate time to hold our conference," Dr. Baker said. "There has been some pressure to have the meeting postponed for another year. These suggestions have come principally from some of the European scientists, but it is thought that because of the condition of the industry it is very important that we go on with our plans."

One of the objections of the foreign scientists to coming to this country this year, apart from the difficulty of securing necessary funds, is the fact that so many industrial plants are shut down that they will be unable to study American methods of business. In spite of these conditions, there will be a larger number of European delegates than were present at the previous conferences.

"The conferences in the past have been devoted to the scientific aspects of coal utilization," Dr. Baker continued. "As this meeting is sponsored by a technological institution, the emphasis has been placed on new methods of utilizing and treating coal which are continually being developed. When the first meeting was organized in 1926, it was undertaken with the hope and expectation that it would be of service to the coal industry and the subsequent meetings have been planned with this in mind.

"Although in comparison with the previous meetings, the scientific program next November will be of equal, perhaps greater, importance, it is impossible to discuss coal at the present time without reference to the economic aspects of the industry. Therefore the various processes that will be presented will deal very definitely with economics and less with theoretical questions. There will be a certain number of papers that will be solely economic in character."

The congress will unite scientific men from all over the world, who will bring to Pittsburgh the latest developments in soft coal utilization. Some of the foreign delegates will speak also on the coal industry as a business in their respective countries, and it is felt that suggestions will be made by them that will be helpful to American coal men.

The conference will be attended by representatives from Austria, Belgium, Canada, Czechoslovakia, England, France, Germany, Italy, The Netherlands, Poland, Roumania, Spain, Sweden, Switzerland, South Africa and U. S. S. R.

PAINTINGS OF PREHISTORIC LIFE AT THE FIELD MUSEUM OF NATURAL HISTORY

THE series of twenty-eight large mural paintings depicting life on the earth in successive prehistoric ages from about one and one half billion years ago down to the beginning of the modern era, which has been in the course of preparation for the Field Museum of Natural History during the past several years, has just been completed with the installation of the last three paintings, it has been recently announced by the director of the museum.

The paintings are a gift to the museum from Ernest R. Graham, an architect of Chicago, who provided a fund of $125,000 for them and certain other material illustrating historical geology. The hall in which they are exhibited has been named in Mr. Graham's honor by the museum's board of trustees.

Charles R. Knight, of New York, known as a fore-

most painter in the very specialized field of paleontological restorations, is responsible for all the paintings. Museum authorities state that in them Mr. Knight has performed some of his most notable work.

The paintings are in two sizes, the largest being 25 by 9 feet, and the others 11 by 9 feet, being thus designed to form a continuous series about the walls of Ernest R. Graham Hall. Twenty-five previously completed were placed on exhibition and announced at various times during the past five years as they came from the artist's studio.

Of the three final paintings, one depicts the primitive hoofed animals known as Uintatheres and the four-toed horse called Orohippus which lived approximately 55,000,000 years ago; another shows flying reptiles, primitive birds and small dinosaurs of 175,000,000 years ago; and the third illustrates primitive African reptiles of the Permian age, some 215,000,000 years back.

Other subjects illustrated in the complete series include the following: The cooling earth before life began; the beginnings of the lowest orders of life; a sea beach of Ordovician time; a coral reef which existed in Silurian time on the present site of Chicago; North American reptiles of Permian time; a forest of Devonian time; large flying and marine reptiles of Jurassic time; swimming reptiles; armored dinosaurs; plant-eating dinosaurs; horned and carnivorous dinosaurs; egg-laying dinosaurs; duck-billed and crested dinosaurs; titanotheres; primitive whales; early camels and suillinos; early elephants and rhinoceroses; giant kangaroos and wombats; New Zealand moas; South American ground sloths and armadillos; saber-tooth tigers and vultures; mastodons; cave bears; mammoths and woolly rhinoceroses, and the great Irish deer.

The restorations on canvas are intended to show how prehistoric creatures are believed to have appeared when living, as indicated by careful scientific studies of fossils. In the work the artist has had the advice of Dr. Oliver C. Farrington, curator of geology at the museum, and also of many other scientists in other institutions. The series as a whole represents one of the most extensive and elaborate attempts ever made to reconstruct the prehistoric world, and is expected to be of great educational value.

COUNTY HEALTH DEPARTMENTS

"APPROXIMATELY 600 county health departments should be in operation throughout the United States before the close of 1931," Acting Assistant Surgeon Fred T. Foard, of the Public Health Service, states in a recent issue of "Public Health Reports" as reported in the *United States Daily*.

The movement for full-time county health departments throughout the country has made great progress during the nineteen years since the first full-time unit was established on July 1, 1911, in the state of Washington.

About 24 per cent. of the rural population is now being served by a health service that is reasonably effective, but in which there is still room for improvement. There are about 3,000 counties in the United States in which full-time county or district health service is applicable. The development of this tremendous field in the future can take place only as fast as personnel can be trained to take charge of the individual units.

With so great a demand for trained personnel during the next ten or twenty years, and with the many added responsibilities which are being incorporated into the public health program in increasing numbers each year, the public health official must be progressive if he would successfully meet the situation. The time when the political appointee can expect to be tolerated in the public health field without progressing with the movement is about past. The people the country over are very rapidly coming to know what the prevention of disease and the promotion of the public health mean in a literal sense.

They realize its importance both from the standpoint of the prevention of unnecessary suffering and death and from the standpoint of dollars and cents saved. Public sentiment, therefore, is demanding higher standards and more efficient health-protective service than could be given a decade ago, when public health appointments were made primarily to fulfil political obligations and, perhaps, secondarily, to the lowest bidder for the position.

Since the full-time county health department movement started a little less than twenty years ago, the national death rate from all causes has dropped from a little more than 14 per 1,000 population to 11; the tuberculosis (respiratory) death rate has dropped from 138 per 100,000 population to 68; the infant-mortality rate has been reduced from 129 per 1,000 children born to 68; the typhoid fever rate has been reduced 80 per cent., and the diphtheria rate has been reduced about 65 per cent. in the same period of time.

With such an enviable record to look back upon the public health field has greater progress to look forward to and to work for in the future. Although many of the public health executives are still handicapped by lack of funds to carry on rapidly expanding programs, it is nevertheless true that the health officer who possesses the qualifications of leadership, statesmanship and organization ability can frequently overcome handicaps which would otherwise completely retard his progress. The Public Health Service should carry on with ever-broadening viewpoints of the rapidly growing and fascinating field of public health