

fication of  $p_A - p_B$  will afford, relative to  $\sigma$ , a value as a normal deviate which will give a good value for  $P$ , because the great irregularity in the distribution of  $p_A - p_B$  makes it impossible to fit any normal curve at all closely to the values of the chances for different values of  $p_A - p_B$ . Fig. 1 shows the distribution when we have 7 in one series and 5 in the other, where the differences advance by  $1/35$ , and also the normal curve which "fits" in the sense that its standard deviation is that of  $p_A - p_B$ . With the great oscillations on the two sides of the curve, it must be clear that the summation of the chances to a given abscissa can not be expected to be closely equal to the area under the curve.

It may be remarked that for the experiment with its control we do not logically have a four-fold table to be

treated as that table usually is treated. What we have is two independent point-binomials. Moreover, what a  $\chi^2$ -table gives us is the chance for an observed table as bad as we have, *i.e.*, for one of equal or less probability (apart from fluctuations due to small numbers). But the probabilities of the different tables are not in the same serial order as the differences  $p_A - p_B$  in the different tables. Hence there is neither logical nor arithmetic likelihood that the use of  $\chi^2$  should solve well our problem of determining whether the effects of treatment in experiment and control are statistically significant. It is still true, of course, that if numbers are sufficiently large,  $\chi^2$  will give the correct probabilities, but they have to be larger than is customary in such experiments.

## SCIENTIFIC EVENTS

### THE SCIENTIFIC EXHIBITION AT DALLAS

THE American Association for the Advancement of Science, under the presidency of Dr. Irving Langmuir, associate director of research of the General Electric Company, will meet at Dallas, Texas, from December 29, 1941, to January 3, 1942, inclusive.

Fourteen sections of the Association and twenty-nine of its associated and affiliated groups will actively participate in the meeting. Among these groups will be the American Society of Zoologists, the Botanical Society of America, the American Society of Naturalists, the American Phytopathological Society, the Genetics Society of America, the American Meteorological Society and the American Society of Parasitologists.

The Adolphus and Baker Hotels, located diagonally across the street from each other, will serve as joint headquarters. The association registration and the annual exhibition will be on the mezzanine floor of the Baker Hotel. Most of the sessions will be held in the downtown section of Dallas, many being scheduled for the headquarters hotels.

The Texas Academy of Science and the Southwestern Division of the association, active in preparations for the meeting, are anticipating a large attendance from southwestern United States. The vast resources of this area, including cheap natural gas, and its easy accessibility to all parts of the United States have attracted large industries, and defense operations have stimulated many older industries, including the smelting of tin and zinc, the mining of mercury, extraction of magnesium and bromine from sea water; production of toluol, manufacture of paper, of airplanes and the building of ships. Scientists in these and other industries will contribute to the program of the meeting, and it is expected that many of the industries will be represented at the exhibition.

Announcements and diagrams of the exhibition hall

will be mailed to prospective exhibitors at the end of June. For information regarding exhibits, write to the undersigned, 3941 Grand Central Terminal, New York, N. Y.

DORIS LEISEN,  
*Director of Exhibits*

### THE PEARL DIVERS GROUP IN THE AMERICAN MUSEUM OF NATURAL HISTORY

THE new Pearl Divers Group in the Hall of Ocean Life at the American Museum of Natural History was opened on June 10. It was constructed under the direction of Dr. Roy Waldo Miner, curator of the Department of Living Invertebrates. It represents an underseas scene in the enclosed pearl lagoon of the coral atoll of Tongareva—a small ring-shaped island in the South Seas about 2,000 miles due south of Honolulu.

Through the large central opening of the group, which measures 35 feet across the front, 12 feet in depth and 14 feet in height, two Tongarevan pearl divers are depicted plunging down into a coral gorge beneath the water's surface.

One of the central features of the group is a cluster of pearl oysters adhering to the coral of the sea bottom. One of the native divers is gathering oysters to bring them to the surface, while the other is swimming down to reach the oyster bed. These are the large pearl oysters, with shells six to eight inches in diameter, that the world uses for knife handles, buttons, inlays and other decorations.

A bed of *Tridacna* clams (known as "man-trap" clams) is half buried in the rocky slope which rises to the cliff-like coral wall at the left, their sinuous openings gaily festooned with brightly colored mantle edges. This species of *Tridacna* is smaller than the