

which, when now found, were buried deep in covered grave pits.

Adorning Indian children in the ancient Virginia burial ground, Dr. Stewart has discovered copper beads and pendants which point to the important event of white men's coming. Before white man arrived, copper was rare stuff in this part of the East.

Spaniards, adventuring up from St.

Augustine to attempt a Virginia settlement 30 years before the English settled Jamestown, probably brought this copper to the delight of the Virginia Indians, it is deduced. Had the copper trinkets been gifts from Capt. John Smith or his settlers, it is inferred that there would be glass beads somewhere among the Indians' buried treasures, also. But no glass has been found.

Science News Letter, March 1, 1941

PSYCHOLOGY

Public Opinion Poll Seen as Aid to Democratic Process

Scientific Sampling Makes It Practical to Secure Public's Views on How Programs Should Be Administered

THE PUBLIC opinion poll, known to the public as a popular means of predicting elections, is seen as a practical method for making the administration of Government more democratic by Dr. Rensis Likert, psychologist head of the division of program surveys of the U. S. Bureau of Agricultural Economics.

For a democracy to function, individual citizens must take the responsibility for solving their own problems, Dr. Likert says in a report incorporated in the new Yearbook of Agriculture.

Rapidly changing conditions such as are characteristic of the world we live in today naturally rouse violent emotions in the individual. These emotions are likely to hinder solving of vital problems raised by the new conditions. If the individual is enraged, he tries to get rid of his problems by smashing through them. If he is overcome by fear of insecurity, as is more common, he tries to escape and evade his responsibilities.

It is this fear that causes individuals to turn to dictators as a child would turn to his father for protection and relief from responsibility, Dr. Likert explains. But the dictatorship, he points out, while it may give a temporary sense of security, fails to satisfy the basic needs of the individual. The dictatorship must rely on fear to maintain itself. And security cannot be built on fear.

A genuine sense of security is built, Dr. Likert says, on the ability of the individual to develop skill in solving his own problems. A democracy must provide extensive facilities and opportunities for its citizens to develop these habits of living and thinking.

Such an opportunity has been found in the scientific sampling of public opinion now used by the Department of Agriculture for the administration of farm policies. It is now possible, he re-

ports, to secure in a relatively small number of interviews the information administrators require in order to direct in a thoroughly democratic manner any programs for which they are responsible.

The "sample" of farmers interviewed must be truly representative—it must have the same proportion of each age group as the population affected by the program being studied; the same geographical representation; the same distribution by income, type of farming, and size of farm; and the same proportion of owners, tenants, and wage hands. And interviewers must avoid "loading" the results by leading questions or other methods.

With these precautions, it is possible to administer government programs in the way that the people want them administered. And it can be done swiftly enough to keep pace with the rapid changes in conditions in an emergency.

Science News Letter, March 1, 1941

In 1931-1934, the United States averaged production of only \$30,000,000 worth of *machine tools* a year; 1941 production is to exceed \$650,000,000.



TANKING UP

Breathing helium and oxygen and pedaling on the bicycle, Milo Burcham drives the nitrogen gas out of his body and "supercharges" himself for rapid ascent.