

A National Psychological Laboratory

Psychology

Following are further reports on papers in psychology presented at the New York meeting of the American Association for the Advancement of Science.

A national psychological laboratory, somewhat like that famous government laboratory, the U. S. Bureau of Standards, was proposed by Dr. Knight Dunlap, of Johns Hopkins University.

The laboratory would not be under government control, he explained. Its advantages would be that it could undertake programs of research too lengthy, too expensive, and too complicated for the laboratories connected with universities and other institutions.

Dr. Dunlap deplored present conditions in psychological research, which lead to so much isolated and fragmentary knowledge and leave fundamental problems unsolved. Complexity of conditions under which experiments are conducted is one of the present handicaps, he showed. Experiments with a single type of

complicated apparatus, such as the galvanometer, which is used in investigations of the emotions, may produce results which no other experimenter can repeat because nobody knows the exact conditions of the experiment. Frequent shifting about of psychologists, each carrying his own pet interests to his new post, makes for inefficiency in the laboratories, since apparatus for hearing experiments bought for the use of one scientist is inherited by another who is interested in studying the formation of animal habits as displayed by innumerable rats put through a maze.

In a national psychology laboratory, truly cooperative results of the highest value could be obtained, Dr. Dunlap said. Scientists working in their own laboratories on details of the big problems undertaken at the national laboratory could arrange to transfer their work there during a

year's leave of absence or during the summer vacation. Work done there could be subjected to criticism while in progress, instead of afterwards. Standards of research could be elevated.

Personality Growth Measured

The rate of growth of a boy's personality as he progresses from picture blocks to marbles and then to baseball and to dancing depends more on his physical growth than on his intelligence. This was the report made by Dr. Paul H. Furfey, of the Catholic University of America.

"This means that within a group of boys of a given age, we are more likely to find the larger boys enjoying the same type of activity than we are to find the brighter boys doing so," the psychologist stated.

Dr. Furfey described a test he has designed to measure the stage of development (*Turn to next page*)

Pollens Tell of Ancient Forests

Botany

Following are further reports on papers in botany and allied sciences presented at the New York meeting of the American Association for the Advancement of Science.

A hundred thousand years ago, more or less, when the ice of the great glaciers was retreating slowly to the north, Lake Erie was much larger than it is now. As the climate modified, the lake shrunk, and the newly exposed bottom became forest land, mostly boggy in nature. What those forests were like can be told by studying the microscopic pollen grains still to be found in the layers of the buried bogs, and it was a picture of these ancient forests that was presented by Prof. Paul B. Sears and Miss Phyllis Irene Draper, of the University of Oklahoma.

The two botanists have developed a method of identifying pollen grains by microscopic examination, which will tell the kinds of plants they came from almost as accurately as if the investigators were walking through the woods of the early post-glacial period. Between the first and second shorelines of the Lake Erie of that early day they found that the forest contained conifer trees at first, but in the course of time was succeeded by a hardwood forest. Within a shoreline representing a

more ancient stage of the lake, however, they found that the evergreens had predominated.

Regulation Good For Grazing

Regulated grazing in national forests, the result of scientific research, has resulted in marked improvements in the value of the areas as sources of food, W. R. Chapline of the U. S. Forest Service told members of the American Society of Agronomy.

"The continued prosperity of the range livestock industry depends upon improving and maintaining the range resource which furnishes nearly 70 per cent. of the feed for all live stock in the 11 far western states," said Mr. Chapline. "The productivity of national forest ranges has increased about 25 per cent. in the last 15 to 20 years through regulation and the application of improved principles developed by research. On the other hand most other range areas, including the unregulated public domain, have continued to decline until, on the average, they are at least 50 per cent. below their producing possibilities.

"Improvement in the density and volume of range plants greatly re-

duces surface runoff and erosion, affords a more stable water flow, and reduces floods and the excessive silting of reservoirs and other damage thereby resulting. On the other hand excessive grazing through the decrease of the density and volume production of range plants, may seriously influence the watershed values of range lands."

Best of Corn Leaf Near Tip

A corn plant can afford to give up half its leaves rather than the outer ends of all of them. The food-making value of the outermost half of the leaf seems to be higher than that of the parts nearer the stalk.

These and other effects of cutting and breaking corn leaves were reported by Prof. George H. Dungan of the University of Illinois.

Prof. Dungan mutilated corn leaves in various ways, and then compared the yields in grain from the stalks. Cutting off the outer or tip half of each blade was much more injurious than the removal of half the number of blades, and slightly more severe than the loss of one side of all the blades. Breaking the midrib of each leaf was more harmful than slitting the blade (*Turn to next page*)

Psychology at A. A. S.—Continued

that an individual's personality has reached. We know that the girl who enjoys social dancing is more mature than the girl who plays with dolls, and that the boy who likes basketball is more mature than the boy who prefers tag, he pointed out. The stages of development are usually described in such general terms as the "age of dramatic play", the "questioning age", and the "gang age".

"By use of these terms we recognize the fact that the child, as he grows older, changes not merely in intelligence and bodily size but in his general reaction patterns as well," Dr. Furfey said.

To meet the need of a way to measure the developmental age of the individual, he has worked out a test which shows the stage of the child's play interests, reading interests, and attitudes toward various ideas. When the developmental, or personality, ages of a large number of boys were compared with their

mental ages and their physical growth, it was found that high or low intelligence have less to do with the maturity of a boy's interests than his height and weight have.

Bad Tempers and Illness

Persons who have had a greater number of diseases in the course of their lives appear to be more irascible than those who have had fewer diseases, according to Dr. George M. Stratton, of the University of California.

Dr. Stratton described the progress of an investigation in which adults' emotional reactions to certain situations were recorded and then compared with their disease histories from babyhood.

"Persons who have suffered disease in the first five years of their lives appear in general to respond more intensely to anger situations than do persons whose diseases came later," the psychologist stated.

Fair Deal for Dull Children

Children who are mentally dull or backward in their studies should not be left to struggle along through the regular school classes where they become indolent and discouraged, Dr. J. E. W. Wallin, of Miami University, declared.

At present a great many of these children are not sorted out early and given a fair chance to learn as much as they can in special classes, he showed. Out of more than 4,000 cases of deficient children referred to two psycho-educational clinics conducted by Dr. Wallin, about 2,000 were ten years old or even older. In an efficiently organized school system most of these handicapped children would have been examined at six or seven years of age by psychologists and assigned to classes for the mentally deficient or to classes for the backward, according to their needs.

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Plant Sciences at A. A. S.—Continued

to the midrib on each side. Injury to the leaves while they were young resulted in a greater decrease in grain yield than corresponding injury inflicted when they were more advanced.

The experiments were conducted with a view to gaining data that might be of use in studying hail injury to the corn crop.

Potatoes Need a Mother's Care

That young potato plants need maternal care and nourishment until they are pretty well along in life was strikingly demonstrated by Dr. F. E. Denny of the Boyce Thompson Institute for Plant Research at Yonkers, N. Y.

In describing his researches, Dr. Denny stated that he had devised a way by which a young potato could be unearthed and deprived of its mother tuber—"seed" potato in ordinary parlance—without disturbing its root system. This operation was performed on potato plants of several strains, at various stages of their development, and the same procedure was gone through with, except for the removal of the mother tuber, on a series of check plants.

All plants deprived of their mother tubers just as their sprouts were emerging, and also plants orphaned when they were only two inches high, yielded smaller crops of tubers than

the check plants allowed to keep their mother tubers. Potatoes of the Irish Cobbler variety were apparently almost ready to make their own way in the world when they were ten inches tall, for when the mother tuber was removed at that stage of development their subsequent crops were only slightly reduced. But other varieties of potatoes still showed the effects when the operation was performed as late as this.

Diseases Tax Sugar Bowl

One of the average American's most vulnerable spots, his sweet tooth, is hard hit by various fungous diseases and other germ-caused ills. The sugar-bowl tax levied by fungi, bacteria, protozoa and other life that lurks invisible in the soil or floats in the air was discussed before the meeting of the phytopathologists.

Dry rot canker of sugar beets is very uneven in its exactions on the growers of the West, some years taking heavy toll and others letting them off nearly scot-free. Dr. C. M. Tompkins of the U. S. Department of Agriculture declared that this is because the organism that causes it grows best at a higher temperature, so that in a cool spring the beets get a good start and hold the fungus at a considerable disadvantage. When

the early growing weather is warm the fungus catches up with the beets and works havoc.

Cooperation with nature was suggested by Dr. Tompkins and his associate S. B. Nuckols as a means for controlling the damping-off disease of sugar-beet seedlings. Beet seedlings always have to be thinned out by hand. The government phytopathologists suggest that this thinning be postponed until the seedlings have reached the six-leaved stage. By this time the disease itself will have thinned out the weaklings and most susceptible plants, and those that survive but are already visibly ill can then be plucked up and discarded also.

Another source of worry was added to the burden of sugar-cane producers when Dr. Melville T. Cook, of the Insular Experiment Station, Porto Rico, reported on some stages in the life history of an organism closely related to the one causing the familiar club-root of cabbage. The sugar-cane parasite lives in the water-conducting vessels of the cane, but unlike the cabbage organism, does not form galls. The microbe travels through the water tubes to a considerable distance in the plant. It is distributed in the seed cuttings and possibly in other ways.

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