

or at least that part of it that carries the dominant gene. Muller has found cases of this character in flies derived from treated germ cells.

This interpretation will enable us to understand why it is that white ommatidial areas appear more frequently among heterozygous females than among males. If the dominant gene is lost through chromosomal elimination at any cell-division in the somatic cells of the female, the descendant-cells will show the effects of the recessive gene, in this case white ommatidia. In homozygous females the loss, by chromosomal elimination, of one of the dominant genes would not be detected, because of the presence of a dominant gene in the other X-chromosome. Finally, in males the chromosomal elimination of the dominant gene of the single X-chromosome would result in the death of the cell, and hence white ommatidia would not appear.

The limited scope of this note does not permit a report on many other interesting facts that have come out in the work. However, I shall mention briefly three facts that are of more than general interest. The first has reference to the age of the larvae at which X-radiations produce white ommatidia. Briefly stated, the general rule is as follows: If eggs or very young larvae (ten to twenty-two hours old) are treated, the resulting white areas will be large (*e.g.*, the two cases of 133 and 239 ommatidia); if raying is done at twenty-four to forty-eight hours of age, the white areas will have from three to fifteen ommatidia; if the treatment is given during the late larval stage, there is formed, usually, a single white ommatidium; finally, raying pupae stages failed to produce white ommatidia. This means that if a mutation occurs during the early stages of development, when there are yet but few cellular elements present in the eye rudiment, the white area will be amplified by cell divisions of the affected cell. If mutations are induced at successively later stages, there will be, in each instance, fewer cell-descendants, and, consequently, a series of white areas of decreasing size will be produced.

The second point of importance has reference to the production of gene mutation in the germ cells of the rayed larvae. From the cross between normal gray-red females to yellow-white males, forty-four males and twenty-nine females developed from rayed larvae were tested out for gene mutations. Thirteen females from the controls were also tested. Twelve of these were fertile and gave 1,732 offspring, among which no visible mutation was found. Fourteen of the twenty-nine females from treated larvae were fertile and gave 1,861 offspring, of which five showed visible mutations. Twenty-three of the forty-four tested males were fertile, and gave 944 male offspring, of

which twenty showed visible mutations. There were four cases in which two or more flies showed the same visible mutation. This is due to the fact that an early germ cell divided two or more times after the mutation took place. Some of the mutations obtained are new, others, such as "white" and "garnet-like," are like those previously known. Several of these have been further tested and found to breed true and do not produce "mosaics."

The final point of general interest has reference to the effects of X-radiation on somatic characters other than that of eye color. Nearly every treated culture yielded flies showing somatic modifications. Some of these very closely resemble certain of the normal mutations previously described (*e.g.*, "star" and "notch"). However, these induced somatic modifications differ from those of the normal mutants in two important respects; first, they are usually asymmetrical, and second, genetic tests show that they are never inherited.

Throughout this study I have had the advantage of free access to Dr. Muller's extensive stocks of *Drosophila*; for this and many other courtesies, I am indebted to him.

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## SOCIETIES AND ACADEMIES

### THE AMERICAN ASSOCIATION OF MUSEUMS

THE twenty-third annual meeting of the American Association of Museums was held in Washington, D. C., from May 23 to 25. A feature of the conference was the opportunity which it afforded for wide contacts through the fact that the American Federation of Arts held its meeting at the same time, and the Association of Art Museum Directors met on the two preceding days in the same city.

The past year—the fifth since the establishment of the association in its headquarters at Washington—has witnessed work which looks farther into the future than that of any previous twelve months, according to the report of the director of the association rendered at the opening session of the meeting on May 16. Development of international relations, rapid extension of outdoor educational work and publication of books and reports were cited among other achievements.

The following excerpts from the report indicate the character of the year's activity.

The director spent part of the winter in Europe on two missions. First, by invitation, he visited the International Office of Museums at Paris and helped to develop a basis of cooperation between national and re-

gional groups throughout the world. He then went to London to confer, by request, with the British Royal Commission on Museums concerning general museum matters in the United Kingdom. While abroad, he visited 115 museums in six countries, and established immediate contact with five museums associations.

Another branch of international work promises to develop as a result of a grant of \$3,000 made by the Carnegie Foundation for International Peace. The Association's Committee on Pan-American Cooperation has the use of this fund and is maturing plans.

On the closing day of the Washington meeting further reference was made to this project. It was announced that following the committee's recommendation, Director Coleman had been authorized to visit the museums of Latin-American countries during the summer of 1928. The report continues: .

The Committee on Outdoor Education, under the active leadership of Dr. Hermon C. Bumpus, has completed a trailside museum building at Bear Mountain, Palisades Interstate Park, and has been privileged to see the work of installing equipment and exhibits go forward under a cooperative arrangement between the Park administration and The American Museum of Natural History. The Committee has also nearly finished a trailside museum building in the Grand Canyon National Park.

During the year Dr. Bumpus visited the previously constructed museum in Yosemite Valley to observe it in operation. These three projects have been financed by substantial grants from The Laura Spelman Rockefeller Memorial.

Quite recently the Memorial made two new grants to the Association for extension of its work in national parks. A sum of \$118,000 was appropriated as follows: \$112,000 for building, equipping and furnishing museums and trailside museums in Yellowstone National Park, and \$6,000 for expenses of the Committee. Also a sum of \$10,000 was granted through the Association for the expenses of a new committee, to be appointed by the Secretary of the Interior, to make a survey of educational work in national parks and monuments.

Coleman's "Manual for Small Museums," of which a few advance copies appeared early in 1928, was released by the publisher in September. Reports of its use in founding new museums are heard from Russia, Japan and India.

Further efforts on behalf of small museums have been made under a grant of \$5,000 from the Carnegie Corporation carried over from last year, and this work will be continued under the balance of the fund which still remains.

"Industrial Art and the Museum," a report by Professor Charles R. Richards on studies made in Europe, has appeared as a bound volume and has had wide circulation.

Professor Edward R. Robinson, of Yale University, has completed the first phase of a psychological study of

museum visitors, and the report has been issued as Number 5 of the Association's new series of publications. This represents the first results of a scientific scrutiny of factors which have not previously been investigated.

Assistant Secretary Smith has completed the compilation of a three-hundred page volume to be known as "A Bibliography of Museums and Museum Work," which will be off the press July 1.

At the request of the National Conference on Outdoor Recreation, the director has prepared a report on "Contributions of Museums to Outdoor Recreation" which has just been published by the conference.

The report speaks of the two serial publications—*The Museum News* and the *New Series* of monographic papers—and of the information service of the Washington office. During the year the last has entailed preparation of service reports of greater or less length. Work of three regional conferences is cited, and the statement closes with a summary of the treasurer's report and the financial outlook as follows:

The Laura Spelman Rockefeller Memorial has continued its annual subsidy of one dollar for each two dollars produced by memberships and contributions. The Association is indebted also to the museums which hold membership, since all but a few of them have now complied with the request that their dues be determined by their budgets on the basis of one dollar of dues for each thousand dollars of their expenditure for operations.

The report of the treasurer reflects, in the general fund, a current surplus of \$3,608.22, which brings the total of surplus to \$25,894.95. There have been seven special funds, of which six show balances and one is now closed out.

Assured income—namely, that from memberships, sales and interest—promises soon to stand at a total of \$10,000 a year. The Association requires at least \$10,000 more in order to work with any effectiveness. This balance has been met in past by contributions and the Memorial's grant, but soon it should be capitalized. To hope for annual subsidy indefinitely is futile, and further to be continually under the necessity of soliciting gifts is subversive of usefulness. Endowment to the extent of a quarter million dollars must be secured. Twice that amount would put the Association in a position of strength without inflating it.

Fortunately, there is every reason to hope that the need will be met. This opportunity for benefaction seems too clear to be long overlooked. Its significance is indicated by the fact that it stands ready to bestow upon some patron a permanent and commanding place in the history of public service and in the annals of cultural development.

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