cends regional boundaries, in the belief that the full cultural development of a democracy requires that its science be universal in its scope and free from the burdens of a continual justification of its utility.

(4) To set up a roster of Southern research talent, thus making readily accessible the essential information regarding the available brains and training for (a) specific Southern problems as they arise and (b) Southern contributions to national defense.

A. J. Westland, S.J.,
Secretary

Spring Hill College, Mobile, Ala.

REPORTS

REPORT OF THE GENERAL DIRECTOR OF THE NEW YORK ZOOLOGICAL SOCIETY

In this my first report, it would be ungrateful not to thank my three distinguished predecessors, Hornaday, Townsend and Blair, for the physical and scientific heritages which they have bequeathed.

Forty years ago, Dr. Hornaday remarked that the first year of the actual existence of a zoological park or garden was necessarily its year of severest trial. Not only were there sources of anxiety in adapting the animals to their new quarters and to their curators and keepers, but the adjustment of the institution itself to the needs of the public was of paramount importance.

Two years later, Dr. Townsend, reporting on the first two months of the Aquarium, said that most of his time was devoted to studying the needs of the plant which he had just taken over and to preparing plans for its further development.

There still are trials and anxieties. The continuing adjustment of these great institutions to the needs of the public is *still* of paramount importance. Plans *still* must be prepared for further development. To be static to-day is tantamount to decay. However, it is not the purpose of this report to discuss problems, but rather to render to the society an account of six months' stewardship.

First a note of appreciation for the whole-hearted cooperation of the entire staff, from directors and curators down to messenger boys. The proven potentialities of the personnel permits a report of improvements, having a contract value of over $25,000.00, effected entirely by the staffs of the two institutions. This type of super-maintenance makes the Zoo and Aquarium much more attractive to the public which they serve.

The greatest accomplishment has been the completion of the contract for the first two units of the African Habitat Group, provided through the generosity of a member of this society. Dr. Hornaday once said, "The actual task of new and previously untried accommodations for animals is, to those who plan and erect them, inevitably a source of great anxiety." The lions have already trod their new island in the new development and have also tried the moats surrounding it. The benefit of seeing animals at close range without intervening bars is, however, worth all the anxiety in the world, and we are confident that the African Plains will be a source of great educational value and enjoyment to the public when they are opened this spring.

My colleague, Belle Benchley, confesses that when she takes visitors around her Zoo in San Diego she usually shows space where she *plans to build* rather than cages and enclosures *already built*. I hope to enjoy the same healthy outlook. Twenty adjacent acres of the old bison range remain available for the expansion of the African Group, and it is hoped that my second annual report will boast of additional units being built for the elephant, the hippopotamus, the rhinoceros and the giraffe.

Other noteworthy improvements include the complete reroofing of the lion house by the city and the start of construction, by the WPA, of a model farm group, east of the Bronx River, where domestic farm animals will be exhibited.

Reaffirming the tenet set forth in our charter that the institutions operated by this society are for the promotion of zoology and kindred subjects, as well as for the instruction and recreation of people, special efforts have been made to provide our visitors with greater interest and entertainment. On the one hand, for example, improved labels help to identify mixed bird collections, while on the other, recognizing the fact that people will feed animals, healthful food is now on sale and most of the animals may be fed without any fear of resulting illness, to the great enjoyment, incidentally, of the public which feeds them.

Elephants, camels and llamas have joined the ponies in providing children with rides, an easy (and profitable) way of overcoming the fear of animals which children so often experience.

Improvements have been effected in food and trinket merchandizing, and there have been healthy increases in these revenues, as well as in parking receipts. These monies are earmarked, as you know, for the purchase of more animals.

Working hours of the staff have been changed so that the greatest available number of employees are on duty during the peaks of attendance.

Two and a half million people came through Zoo turnstiles in 1940 and there were two million visitors to the Aquarium, representing a slight increase over 1939 in the former and a slight decrease in the latter.

Education and science are not being neglected. In 1940 65,000 children in organized groups visited the Zoo and 45,000 visited the Aquarium. In 1941, for the first time, there will be a regular docent service available in the Zoo. Education can not be forced down the public's throat, and the pill will be sugar-coated. We thank the society and other forward-looking groups at the World's Fair for this lesson.

Research continues undiminished, with Dr. Breder's exploration of La Cueva Chica in Mexico, Dr. Beebe's 41st field expedition in Bermuda and the mass of routine research going on all the time behind the scenes which is never of public knowledge, but of tremendous public value.

To education, science and research it is gratifying to add art. There has been tremendous public interest in the few special exhibits held at the Zoo. Starting in October with amateur photography, in a contest in which nearly 800 enlarged prints were submitted for judgment, and continuing with one-man shows by two able young free-lance artists, the revitalized Museum of Heads and Horns attracted 20,000 interested visitors up to the end of the year.

I close with an expression of gratitude to the officers of the society for having provided me with the opportunity of continuing my public service along such thoroughly worthwhile lines, and hope that a year from now I may report on all manner of new things to bring us all definitely nearer to our objective of making the Zoo and Aquarium the finest in the world.

ALLYN R. JENNINGS
NEW YORK ZOOLOGICAL SOCIETY

SPECIAL ARTICLES

THE EFFECT OF AN EXTRA-CHROMOSOMAL INFLUENCE UPON TRANSPLANTED SPONTANEOUS TUMORS IN MICE

FOR several years we have had two strains of mice in our laboratory which were descended from animals that developed from fertilized ova transferred to the uteri of females of another stock. This work was done by Elizabeth Fekete, who made the transfers and developed the two strains of mice. Fertilized ova taken from JAX–dba mice were implanted into the uteri of pregnant JAX–C57 black females, and *vice versa*.[1] Unfortunately, the mice which themselves developed directly from the transferred ova are not at present available for tumor transplantation studies. However, the first to the tenth generations of inbred descendants from these mice have been employed in this study.

In order to determine what extra-chromosomal influence, if any, was exerted on the ova during their development in the uteri of females from unrelated strains, the descendants of the mice that developed from transferred ova received implants of transplantable tumors from each of the two stocks of mice employed. Two different transplantable tumors were used. One was originally an osteogenic sarcoma (L946A) which appeared spontaneously on the tail of a virgin JAX–C57 black female in 1936.[2] It now grows as a fibrosarcoma called L946AII. The other tumor (S91) is a malignant melanoma that originated spontaneously in 1937, in a JAX–dba female at the base of the tail. Both tumors show a high frequency of pulmonary metastases.

Since the work was preliminary, and the mice descended from transferred ova animals were available only in limited numbers for any one generation, the generations and ages were lumped together. However, the results are suggestive, as shown in Table 1. As is usually observed with pure strains of mice, samples of these stocks gave 100 per cent. of positive takes when inoculated with a tumor that arose spontaneously in a member of the stock inoculated. A sample of 300 JAX–C57 black mice all developed tumors when inoculated with L946AII, and similarly 200 JAX–dba animals were all positive to S91, the dba tumor. On the other hand, only 6 out of 52 black mice grew the dba tumor (S91) and 13 of the 52 dba mice were positive when inoculated with the black strain tumor (L946AII). When a pure strain mouse was descended from an ovum that had developed

TABLE 1

PURE STOCKS AND DESCENDANTS FROM TRANSFERRED OVA MICE INOCULATED WITH TWO TRANSPLANTABLE TUMORS

Tumors	JAX stocks inoculated			
	C57 black stock	dba stock	Descendants from black ova grown in dba	Descendants from dba ova grown in blk
L946AII from C57 black	300 = 300 + : 0 –	52 = 13 + :39 –	36 = 36 + : 0 –	107 = 55 + :52 –
S91 from dba	52 = 6 + :46 –	200 = 200 + : 0 –	71 = 26 + :45 –	46 = 46 + : 0 –

[1] G. Woolley, Elizabeth Fekete and C. C. Little, *Proc. Soc. Exp. Biol. and Med.*, 45: 796–798, 1940.

[2] A. M. Cloudman, *Proc. Soc. Exp. Biol. and Med.*, 37: 492–496, 1937.