cessive proteid and because meat, as such, contains poisonous elements. It is well known that Liebig came to repudiate the idea that the extractives of meat were nutritious, and that investigation has shown them to be poisonous. Recently, Dr. F. B. Turck has found[4] that dogs, mice and rats fed on meat extractives exhibit symptoms of poisoning and often die. The poisonous effect is aggravated by intestinal bacteria which find in these extractives an excellent culture medium. Dr. Turck concludes:

(1) It is clearly evident from these experiments, which correspond to the investigations of others, that the injurious effects of meat are not due so much to the muscle proteid, myosin, as to the extractives.

(2) That the injurious effects of the extractives are increased through the action of intestinal bacteria.

Dr. Turck does not find any evidence that the extractives in small quantities are injurious.

Dr. Turck therefore concludes that the "high liver" who uses much flesh and also an excess of starch and sugar is a "bad risk" for life insurance companies. He recommends, if meat is to be used, that the extractives first be removed by special processes which he explains. He finds that the remaining part of the meat is highly nutritious and an invaluable aid in many cases of weak stomachs. He supplies much clinical evidence of the evils of ordinary meat-eating, as well as of the benefits obtainable from extract-free meat.

These investigations, with those of Combe of Lausanne, Metchnikoff and Tissier of Paris, as well as Herter and others in the United States, seem gradually to be demonstrating that the fancied strength from meat is, like the fancied strength from alcohol, an illusion. The "beef and ale of England" are largely sources of weakness, not strength. Whether in moderation they are harmful may still be a matter of conjecture. While the trend of recent experiments is distinctly against the excessive use of flesh foods, there are still needed many more experiments—medical, athletic and industrial—before the economics of diet can be established on a secure basis. The experiment with a vegetarian or semi-vegetarian diet at the University of Chicago, which Director Stagg is to make with the athletic teams, will be watched with interest.

Mlles. Ioteyko and Kipiani seem to place a larger reliance on the ergographic tests than most physiologists. A thoroughly reliable method of measuring endurance seems still to be a desideratum.

IRVING FISHER

[4] "Effect on Longevity of High Living," by Fenton B. Turck, M.D., *The Medical Examiner and Practitioner*, Vol. XVII., No. 8, August, 1907.

A NEW NATIONAL BUFFALO HERD

THE buffalo herd which was presented to the national government by the New York Zoological Society last year, to form the nucleus of a great southwestern herd, was shipped on October 11 to the new range of 7,680 acres that has been prepared for it in the best portion of the Wichita Game Reserve, southwestern Oklahoma. On October 10 fifteen fine animals, the pick of the splendid herd of forty-five head in the New York Zoological Park, were crated for shipment, each in a roomy and comfortable crate, and shipped to Cache, Oklahoma. In view of the nature and object of the shipment—a gift to the people, for the express purpose of helping to preserve the American bison from ultimate extinction—the American Express Company and the New York Central Lines transport the two cars free of charge from New York to St. Louis, and the Wells-Fargo Express Company also makes a free gift of the transportation over the 'Frisco Road from St. Louis to Cache. Both these favors are greatly appreciated by the Zoological Society, which had undertaken to make delivery at Cache.

In 1906, the New York Zoological Society received from the director of the Zoological Park a suggestion that the society offer to the national government, as a gift, a herd of fifteen buffaloes with which to start a new national herd. The proposal was warmly endorsed by the executive committee of the society. The offer was made to the Secretary of Agriculture, who immediately accepted it,

and invited the society to select a site for the new fenced range that would be necessary. Forthwith the society despatched a special agent, Mr. J. A. Loring, who went to the Wichita Reserve, and with Supervisor E. F. Morrissey, carefully examined the whole available territory. A location was agreed upon, and duly mapped out. Mr. Loring submitted to the society an elaborate and thorough report, which was transmitted to the Department of Agriculture, and to Congress. Secretary Wilson secured a special appropriation of $15,000 for the erection of a wire fence to enclose twelve square miles of range, and to erect corrals, sheds, and a hay barn. This work has been proceeding, and will soon be completed, under the direction of the Forestry Bureau of the Department of Agriculture, whose officers have from the first been keenly interested in the undertaking. All the improvements were planned by Mr. Hornaday, and the animals for the nucleus herd were carefully selected by him.

The buffalo herd of the New York Zoological Park has for a long time been one of the finest sights of that great home for wild animals. Originally planned to contain twenty head, it numbered previous to this shipment forty-five as handsome buffaloes of all ages as ever were brought together. Ten lusty calves have been born this year.

But, notwithstanding the fine condition of this herd, the officers of the Zoological Society know that the only sure way by which the American bison can be preserved in full vigor for the next two hundred years, or more, is by establishing herds under national or state ownership, on public lands, in ranges so large and so diversified that the animals will be wild and free. Under such conditions, Dr. Hornaday declares that no ill effects from inbreeding ever need be feared.

The herd forwarded to Oklahoma is composed as follows: six breeding cows; one big bull, "Comanche," five years old, and master of the herd; one bull three and one half years old, two bulls and one cow in third year, one bull and one cow in second year, and one pair of calves, male and female, six months old. In this collection, four different strains of blood are represented, and after this succession of breeding males has been exhausted, there will be nothing to fear from inbreeding.

The shipment went forward in charge of Frank Rush, keeper of the Wichita Buffalo Range, and H. Raymond Mitchell, chief clerk of the New York Zoological Park. The buffaloes were shipped in two patent stock cars, and traveled in passenger trains the whole distance. On arriving at Cache, teams were in readiness, and the animals were hauled, crated as they were, twelve miles to the new range. The utmost care will be observed to prevent infection by the Texas fever tick that is such a scourge to cattle in the southwest.

THE WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY

The survey is just closing its field season for 1907. In addition to the regular income of $10,000, the survey received from the last legislature a special appropriation of $10,000 annually for two years; to be used chiefly for roads. The state has a constitutional prohibition against the use of money for internal improvements, and an amendment for the repeal of this prohibition has passed two successive legislatures and will be submitted to popular vote in 1908. Meanwhile, the survey will use this small fund in advising local authorities how to build roads as well as may be under present conditions. Mr. W. O. Hotchkiss, the economic geologist, is devoting most of his time to this department. Mr. A. R. Hirst, formerly in the employ of the State Highway Commission of Illinois, has been appointed engineer. Under their direction a stretch of experimental road was built at the state fair in Milwaukee during September and a roads convention was held, attended by several thousand persons from all parts of the state.

Dr. Samuel Weidman and Mr. E. B. Hall of the department of areal geology have extended their survey of the northwestern counties of the state and have nearly completed the field work of this area. Dr. Weidman's report on the north central area, including about