

DANIEL GARRISON BRINTON.

BY MARCUS BENJAMIN, P.H.D.

The American Association for the Advancement of Science returns to this vicinity after an absence of seven years. It will hold its forty-third annual meeting in Brooklyn, having held its meeting last year in Madison, Wis. It comes from the West to the East, and it goes from the North to the South, leaving behind an influence resulting in a higher appreciation of scientific work and of scientific workers. As it comes and goes, casting its favors impartially upon different sections of the country, so, too, the Association bestows its honors upon representatives of different branches of science. This year a distinguished ethnologist is the accepted presiding officer.

Daniel Garrison Brinton was born in Thornbury, Chester County, Pa. He comes of English lineage, and his ancestor, William Brinton, of Shropshire, became a member of the Society of Friends and followed William Penn to this country in 1684. Of his boyhood days, Dr. Charles C. Abbott has told of his early fondness for antiquarian research, and how "many a day was passed in collecting the broken arrow points, the stone axes, and the fragments of pottery which marked the presence of this older and mysterious race." The same writer gives credit to Sabine's translation of Humboldt's *Cosmos* as having had a "formative influence upon his youthful tastes." He was graduated at Yale in 1858, and among his classmates were Prof. J. Millard Gibbs, whose researches in mathematical physics have gained for him much reputation and high honors, and Hon. William T. Harris, the present Commissioner of Public Education. Then, choosing medicine as his profession, he received his degree at the Jefferson Medical College in 1860. After a year abroad, chiefly in Paris and Heidelberg, he returned to the United States when the civil war was in progress, and in August, 1862, entered the volunteer army as acting assistant surgeon. He received the promotion of surgeon in February, 1863, and as surgeon-in-chief of the second division of the eleventh corps of the Army of the Potomac took part in the battles of Chancellorsville and Gettysburg. A sunstroke at the last named battle prevented further service on the field, and he became superintendent of hospitals in Quincy and Springfield, Ill., until the close of the war, when he was discharged with the brevet of lieutenant colonel.

He then settled in Philadelphia and became editor of the *Medical and Surgical Reporter*, which place he held from 1867 till 1887, also at the same time editing the quarterly *Compendium of Medical Sciences*. In the medical controversies of his time he always took the position that medical science should be based on the results of chemical observation rather than on physiological experiments. With this brief reference to his work in medicine, we pass to the consideration of his ethnological researches.

While still a student at college he spent a winter in Florida, where he gathered material resulting in the publication of "The Floridian Peninsula: its Literary History, Indian Tribes and Antiquities" (Philadelphia, 1859), which, although only a small duodecimo volume of two hundred pages, remains to-day our best resume of the archæology of that wonderful peninsula. On his return to Philadelphia after the war he renewed his antiquarian studies, and published, in 1868, "The Myths of the New World: a Treatise on the Symbolism and Mythology of the Red Race of America," of which a second edition has been called for. This work led naturally to his formation of a library on the subjects of his investigations. In order to place within the reach of students authentic materials for the study of the languages and culture of the native race of America, he began the publication of a series of works composed in the native languages by the natives themselves, thus presenting these tongues in their real forms. This series, called "Library of Aboriginal American Literature," he published himself, and has thus far included the following eight volumes: 1, The *Chronicles of the Mayas* (1882); 2, The *Iroquois Book of Rites*; 3, The *Comedy Ballet of Gueguence* (1883); 4, A *Migration Legend of the Creeks*; 5, The *Lenape and their Legends* (1885); 6, The *Annals of the Cakchiquels* (1886); 7, *Ancient Nahuatl Poetry* (1887); and 8, *Sacred Chants of the Ancient Mexicans* (1890); all of which have been edited by himself, except the second and the fourth volumes. While from some sources these works have met with adverse criticism, still they have, for the most part, received the highest commendation from specialists, and Dr. Brinton was awarded in 1886 the prize medal of the *Societe Americaine de France*, being the only instance in which it was decreed to a native of the United States. His

work also received recognition at home, and in 1884 he was appointed professor of ethnology and archæology at the Academy of Natural Sciences in Philadelphia, also, two years later, he was given the chair of American Linguistics and Archæology in the University of Pennsylvania. At both of these institutions he has since regularly given a course of lectures during the winter months. These are largely attended, and as a lecturer Dr. Brinton very successfully exercises the faculty of conciseness, yet never at the expense of lucidity.

In American linguistics he has made many valuable contributions. He has published articles and studies on the Arawack, Aztec, Cakchiquel, Choctaw, Delaware, Maya, Muskogee, Natchez, Quiche and other languages. His special works on this subject include "A Grammar of the Choctaw Language," "A Grammar of the Cakchiquel Language," "The Philosophic Grammar of American Languages," "Studies in South American Languages," and "A Lenape-English Dictionary," which is based on a manuscript of the last century that was preserved in the old Moravian church in Bethlehem. It was published in 1889 by the Pennsylvania Historical Society.

The Archæological Association of the University of Pennsylvania was organized in 1889, and in natural consequence of his relation to that university Dr. Brinton at once became prominently identified with its management. The museum developed under its

**DR. DANIEL G. BRINTON.**

President of the American Association for the Advancement of Science.

auspices is of special value to scientists, because most of its specimens were obtained from intelligently conducted explorations, rather than from the purchase of collections. In consequence, every available fact with reference to the history of its specimens is known. For this wise provision credit is due to Dr. Brinton's foresight and sagacity.

It is not possible to follow in detail the work of so broad a scientist or so prolific an author as the subject of this sketch, and therefore we cannot even mention the many, very many contributions that he has made in the way of special studies, but space must be made for the titles of several of his larger works. "The Religious Sentiment: a Contribution to the Science of Religion" (1876); "American Hero-Myths: a Study in the Native Religions of the Western Continent" (1882); "Essays of an Americanist" (1890); and "The Pursuit of Happiness" (1892), have firmly established his place among American men of letters.

By a seemingly strange and yet not uncommon peculiarity of scholars and students, Dr. Brinton finds pleasure and relaxation in a matter remote from the subjects of his more earnest labors. We refer to his great fondness for poetry. He is active in the Browning Society of Philadelphia and has been one of its vice-presidents. Likewise he was a friend of Walt Whitman, and is president of the recently organized "Walt Whitman Fellowship," devoted to "the elucidation of the poet's philosophy of life and the under-

lying principles of his work." He has published frequent papers on the writings of both poets.

In addition to the degrees that he received in course, Jefferson Medical College conferred on him the degree of LL.D. in 1891, and the University of Pennsylvania that of D.Sc. in 1893. Besides his membership in the American Philosophical Society and the American Antiquarian Society, he has been president of the American Folk-Lore Society and of the Numismatic and Antiquarian Society of Philadelphia. He was a commissioner to the Columbian Historical Exposition in Madrid in 1892, and besides being a member of the International Jury of Awards at the World's Fair in Chicago in 1893, was president of the International Anthropological Congress held there at that time. Of foreign societies, he is a member of the Anthropological Societies of Berlin, Rome, and Vienna, and of the Royal Ethnographical Societies of Paris and Florence, the Royal Society of Antiquaries, Copenhagen, and the Royal Academy of History, Madrid.

Of his relation to the American Association, a word is necessary. He joined that organization in 1884, when it met in Philadelphia, and a year later was made a fellow. He presided over the section on anthropology in New York in 1887, and then delivered an address entitled "A Review of the Data for the Study of the Prehistoric Chronology of America."

From that time until the last meeting his attendance at the annual gathering of the Association has been regular and accompanied usually by one or more of his valuable papers. It was therefore but natural when the choice of a president came up at the meeting last year that his name should have been promptly recognized as a representative one.

To the sketch by his associate and friend, Dr. Charles C. Abbott, we are indebted for many of the facts here given. That writer has well said: "American science and American letters may be proud of such a worker, for his position, both as a scientist and a litterateur, is no uncertain one." Such an opinion from one so competent to express it is not mere praise of the scientist who has been chosen to preside over the Brooklyn meeting of the Association for the Advancement of Science.

The Sturgeon Industry.

There promises to be a big run of sturgeon this year, and that means a great deal to the dealer in caviare. The caviare sandwich has now become so popular in the United States that the supply is scarcely equal to the demand. As is known, the black, fishy paste that is now the fad between pieces of bread at late suppers is made of sturgeon eggs. In order to add to the fashion, nearly all the little kegs of caviare have borne Russian or German labels, but they all come from this side of the Atlantic, and most of them originated in Delaware Bay. Bayside is the main shipping point. That it pays the fishermen to work hard at the business will be seen when it is stated that sturgeon meat is worth from four cents to six cents a pound, and a keg of caviare, containing about 125 pounds, sells readily for \$30. Other States have sturgeon fishermen, but in point of numbers employed and capital invested New Jersey leads and represents over one-half of them. The capital invested in the sturgeon and caviare industry in the United States is slightly more than \$1,000,000, and the people employed, in round numbers, about 4,000. There are twelve firms in the lake regions of the West, where the fishing is carried on with pound nets and seine nets.

Outside of New Jersey the largest amount of capital is invested by these lake fishermen, being about \$325,000. There are only half a dozen firms in New York State engaged in the business. Sturgeon are caught entirely by nets, and the fish average from 150 to 300 pounds. The roe sturgeon brings the fisherman from \$7 to \$8, while a buck is only valued at from \$1 to \$1.50. The Jersey fleet has 146 boats. Nearly every part of the fish is used. The offal is gathered up and made into fertilizers. Sturgeon oil is extracted from other parts and used by harness makers, but the principal industry is the manufacture of caviare. A good sized sturgeon will give from three to four buckets of roe. The eggs are separated by running them through a coarse sieve several times and then salted down by a composition of salts, which is made in Germany. It takes from three to four sturgeon to make a keg of caviare. Twenty years ago the sturgeon was so plentiful that the fishermen spent their leisure time killing them, because of the destruction of smaller fish and the havoc they caused among the shad nets. Now the fisherman's wail is that the sturgeon is becoming so scarce that the industry is threatened.—*Boston Evening Transcript.*

Inventor of the Famous Jacquard Loom.

"After seven years—a long time to patiently develop an idea—Jacquard had produced a loom which would decrease the number of workmen at each machine by one person. . . . In gratitude for this discovery he went to the image of the Virgin, which stood on a high hill, and for nine days ascended daily the steps of the sacred place. Then he returned to his work, and seating himself before a Vaucanson loom, which contained the germ of his own, he consecrated himself anew to the perfecting of his invention. . . . It remained for Jacquard to make the Vaucanson loom of the utmost practical use to Lyons and to the world. After a time he was not only able to dispense with one workman at each loom, but he made machinery do the work of three men and two women at each frame. . . . When brought before Bonaparte and Carnot, the Minister of the Interior, the latter asked, 'Is it you, then, who pretend to do a thing which is impossible for man—to make a knot upon a tight thread?' Jacquard answered the brusque inquiry by setting up a machine, and letting the incredulous minister see for himself. The Emperor made Jacquard welcome to the Conservatoire des Arts et Metiers, where he could study books and machines to his heart's content, and gave him a pension. . . . Soon, however, the tide of praise turned. Whole families found themselves forced into the street, for lack of work, as the looms were doing what their hands had done. Bands of unemployed men were shouting, 'Behold the traitor!' . . . The authorities seemed unable to quell the storm, and by their orders the new loom was broken in pieces on the public square. 'The iron,' says Jacquard, 'was sold as old iron; the wood, for fuel.' . . . Soon Switzerland, Germany, Italy and America were using the Jacquard looms, largely increasing the manufacture and sale of silk, and therefore the number of laborers. The poor men of Lyons awoke to the sad fact that by breaking up Jacquard's machines they had put the work of silk weaving into other hands all over the world; and idleness was proving their ruin. . . . The inventor refused to take out a patent for himself, nor would he accept any offers made him by foreigners, because he thought all his services belonged to France. . . . The struggling, self-sacrificing man, who might have been immensely rich as well as famous, was an untold blessing to labor and to the world."—Extracts from the Life of Jacquard, by Sarah K. Bolton.

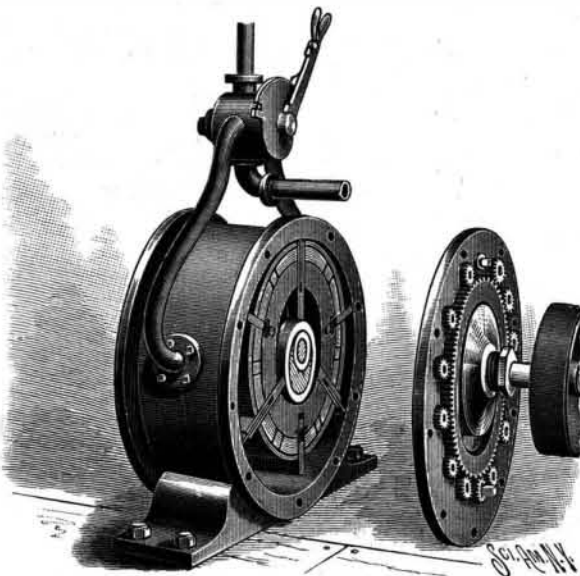
THE TOXOPHILITE SOCIETY.

The elegant and once fashionable art of shooting with the long bow has been properly called "archery," and everybody knows the meaning of that word. "Toxophilite," however, derived from the Greek, cannot signify anything but the love of the bow; perhaps many people would naturally think it might be the designation of some chemical compound. But if they were admitted to the beautiful grounds of a highly select

society, in the inner circle of Regent's Park, they would soon be enlightened, and would learn to admire a graceful kind of skill, not, indeed, so robust an exercise as lawn tennis, yet sufficiently amusing for leisure hours of a summer day.—Illustrated London News.

AN IMPROVED MOTOR OR PUMP.

A motor designed to be worked advantageously by either steam or water, and which may also be readily converted into a powerful pump, is shown in the accompanying illustration, and has been patented by



BROWN'S MOTOR OR PUMP.

Mr. C. E. Brown, of Stayton, Oregon. It has a single cylinder in which turns a shaft from which power is taken, or to which power is applied when used as a pump, the shaft turning in a stuffing box in one of the cylinder heads, and the inner end of the shaft being mounted in a socket stuffing box in the other head. The shaft is placed above the center of the cylinder, so that a chamber for steam or water is formed around the lower portion of the piston, the latter being provided with radial slots in which are sliding supports carrying wings forced outward by springs, and forming abutments against which the steam or water strikes. In recesses in the piston ends are rings, which, as the piston revolves, force the wings inward and outward, and there are also provided short spring-pressed wings, extending only partially across the steam or water chamber, to form an increased area for the steam and water to act against, and also to prevent back pressure. In the ends of the piston, and near its outer periphery, are packing rings made up of segmental sections, pressed outward by springs, a

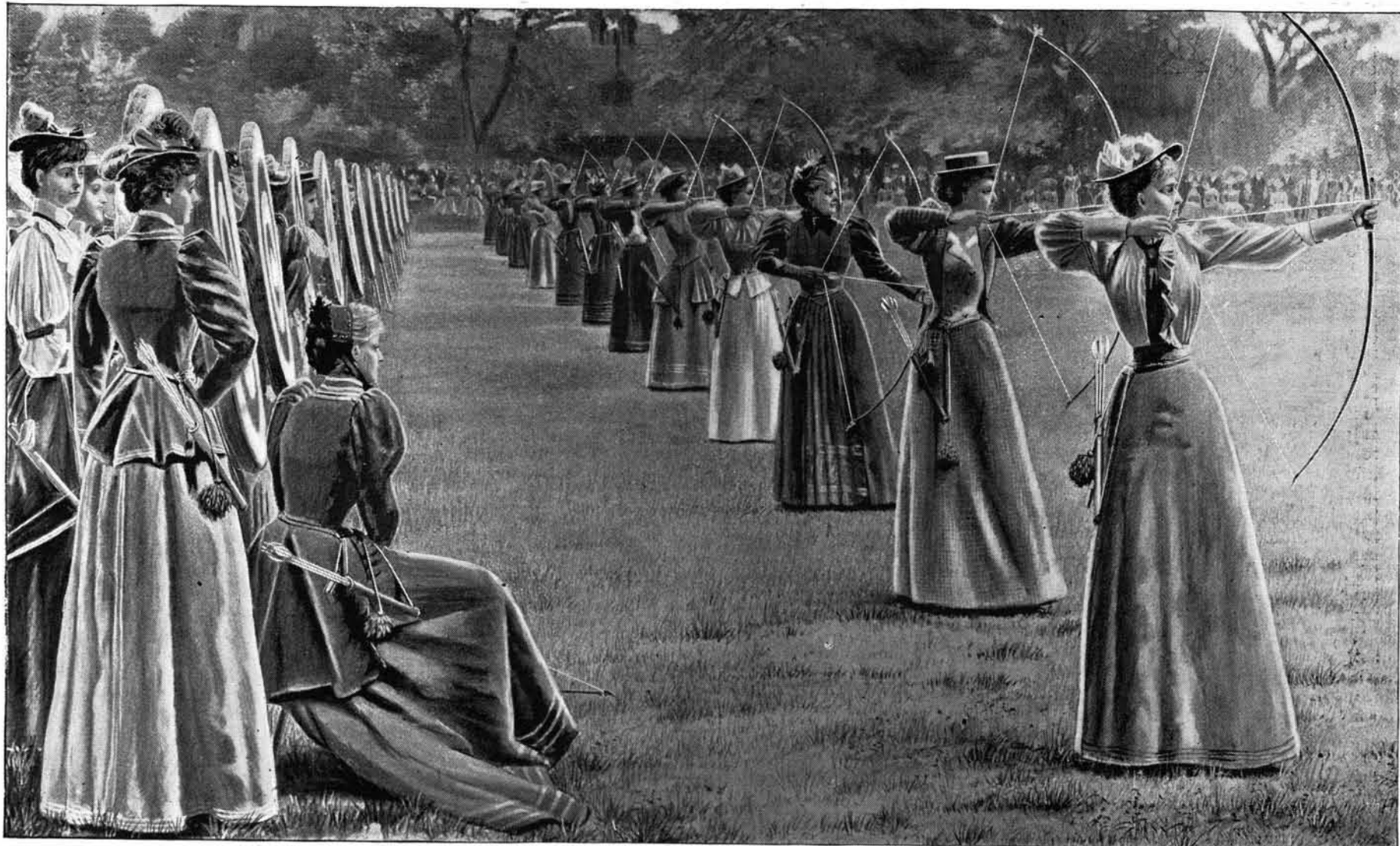
wedge-shaped spring-pressed block between each pair of sections spreading the sections endwise and keeping the rings tight.

The cylinder head nearest the pulley has means of adjustment to take up wear and leakage, having an inwardly projecting portion provided with a split calking ring expanded by a screw which projects through the head, thus making a tight joint. The ring is pushed inward by screws mounted circumferentially on the head, pinions on the outer ends of the screws meshing with a cogwheel engaged by a pinion on which is a stud to receive a crank, by turning which the several pinions are simultaneously revolved to force inwardly all portions of the inner head and calking ring. From a valve casing at the top a pipe leads to each side of the cylinder, either pipe being used as a supply or exhaust pipe, according to the direction in which the piston is to be rotated, and these pipes connect with grooves or ports in the inner sides of the cylinder. A self-governor is also provided for the device when used as a motor, consisting of check valves which open under pressure from within the cylinder, and when the engine is running at high speed the centrifugal force throws out the blades of the wings against the tension of springs, in one form of the improvement, to shut off the supply of steam from the space where the most effective pressure would be exerted.

Meat Eating and Temper.

Mrs. Ernest Hart, who accompanied her husband in his recent trip around the world, appears to come to the conclusion that meat eating is bad for the temper. In the Hospital she says that in no country is home rendered so unhappy and life made so miserable by the ill-temper of those who are obliged to live together as in England. If we compare domestic life and manners in England with those of other countries where meat does not form such an integral article of diet, a notable improvement will be remarked. In less meat-eating France, urbanity is the rule of the home; in fish and rice-eating Japan, harsh words are unknown, and an exquisite politeness to one another prevails even among the children who play together in the streets. In Japan I never heard rude, angry words spoken by any but Englishmen. I am strongly of opinion that the ill-temper of the English is caused in a great measure by a too abundant meat dietary, combined with a sedentary life. The half-oxidized products of albumen circulating in the blood produce both mental and moral disturbances. The healthful thing to do is to lead an active and unselfish life, on a moderate diet, sufficient to maintain strength and not increase weight.

SOUTH AMERICAN ants have been known to construct a tunnel three miles in length, a labor for them proportionate to that which would be required for men to tunnel under the Atlantic from New York to London.



MEETING OF THE TOXOPHILITE SOCIETY.