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SCIENCE

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THE BOTURINI-AUBIN-GOUPIL COLLECTION OF MEXICANA.¹

BY D. G. BRINTON, M.D., LL.D., PHILADELPHIA, PA.

In the year 1736, an Italian of long lineage but light purse landed at Vera Cruz. His name was Lorenzo Boturini Benaduci, and the business which took him to Mexico was the collection of the arrears of a pension due some of the descendants of Montezuma who then resided in Portugal. This naturally led him to a study of the native history of Mexico, a pastime which soon grew to an enthusiasm, when he learned that the Blessed Virgin herself had appeared and talked with a poor Indian on the hill of Guadalupe. Fired by a noble frenzy, he decided to devote his whole life to these two objects,—the collection of every document which would throw light on the ancient history of the indigenous population, and the vindication of the apparition of Our Lady of Guadalupe.

To these aims he gave up nine consecutive years, and all the money that he could borrow or beg; for his own supply of that useful article was uncomfortably limited. But a foreigner, a begging foreigner, and that foreigner an archæologist, was a combination too repugnant to the Spanish constitution to be stomachable long; so, in 1745, the vice-regal government seized Boturini, threw him into prison, and sequestered his collections of books and manuscripts, so precious in his eyes, as he pathetically wrote, "That I would not exchange them for gold, nor silver, nor diamonds, nor pearls." How the true spirit of the collector breathes in those lines! But, alas! he was destined never to see them again. Removed from prison, he was sent to Spain for trial, where he died in 1749. His priceless collection was presented by the viceroy to the University of Mexico, whence it was scattered to different private and public owners.

Boturini was born in 1702. Precisely a century later, J. M. A. Aubin was christened, in a little town in the south of France. He was destined to partake of the same divine antiquarian fervor, and to re-collect for all posterity the scattered jewels of his predecessor's cabinet. With a liberal fortune and the best of introductions, he resided in Mexico from 1830 to 1840, and with singular tact and energy succeeded in securing a large part, and the best part, of the documents gathered with such toil by the Italian antiquary. He brought them to Paris, where he lived surrounded by them for fifty years, making very little use of them himself, and never permitting a single student so much as to look at them. Why this misanthropic narrowness? The reply should be guarded. A cloud hung over Aubin's lonely life. He, too, was imprisoned; as he claimed, by malignant enemies; but on a charge which forever blasts a life. I even heard indignant protests at his mere presence, when poor, oid, and senile, he was led into the hall of the Congress of Americanists, in 1890, at Paris.

Enough of this sad subject. At any rate, M. Aubin merits the lasting gratitude of investigators that he preserved with scrupulous care his wonderful collection. When I saw him in 1890, it was no longer his. Financially ruined by investments in "Panama," he had accepted an offer for the whole of it from M. Eugene Goupil, a native of Mexico, French on the paternal side, tintured with the blood of the native race through his mother. He bought it, not as an antiquary, but as an enlightened lover of his country and an intelligent patron of antiquarian studies. He placed the manuscripts in native tongues, Spanish or Latin, the wondrous colored pictographic scrolls on maguey paper, or on

skins of animals, the ancient Codices, maps, and titles, in the hands of M. Eugene Boban, a distinguished antiquary, well known in the cities of Mexico, New York, and Paris, from his long residence in them all. To his kindness I owe the privilege, enjoyed by few, of a leisurely inspection of this wholly unrivalled collection of Mexicana.

M. Boban's task was to make an analytical catalogue of the three hundred and seventy-two pieces of which the collection consists. He has completed that task in a manner in the highest degree creditable to his own scholarship and to the discriminating liberality of M. Goupil. His work is comprised in two very large quarto volumes of text, together of more than a thousand pages; and a third thick volume or atlas, containing photographic reproductions of some of the most remarkable documents. Yet this huge publication is but the mere beginning of the labor which must be expended on this mass of material before its value is extracted. As for myself, after seeing what it contains, I made up my mind that all that has yet been written about Mexico previous to the conquest has no more importance than have the histories and descriptions of ancient Egypt which were composed before the method of hieroglyphic interpretation was discovered.

The title of M. Boban's work is:—

"Documents pour servir à l'Histoire du Mexique. Catalogue Raisonné de la Collection de M. E. Eugene Goupil (Ancienne Collection J. M. A. Aubin)." Paris, Ernest Leroux, Editeur, 1892. Price, 180 francs.

The first volume begins the catalogue with the celebrated *Historia Chichimeca*, an ancient Codex on agave paper, painted in blue, green, and brown, and giving in hieroglyphic characters the history of pre-Columbian Mexico, from A.D. 963 to 1428. It was translated by the early native chronicler, Ixtlilxochitl, and for that reason all the ten leaves of which it consists are reproduced in phototype with the explanations. Following this, a full description is given of what are called the "Maps" of Tlotzin, Quinatzin, and Tepechpan, long pictorial scrolls, partly published by M. Aubin, relating the migrations and traditional history of the Nahuas. Next comes the curious *Codex Cruciformis*, an original, painted, figurative manuscript relating to Tezcuco and Tenochtitlan. It is painted in four quarters, of thirteen compartments each, somewhat like a Maltese cross, whence the name given it.

The famous *Tonalamatl*, or "Book of Days," is then taken up. This is an original, hieroglyphic book of eighteen leaves, magnificently colored in red, black, green, and brown. Its purpose is that of a religious and divinatory calendar, serving at once as a ritual and as the basis for astrological prognostics. None of the documents in the collection presents to the eye a more striking appearance than this venerable pictograph, concealing under its strange and vivid coloring the dark wisdom of the Aztec diviners.

Relating to the same subject, perhaps, is a remarkable painting on a tanned deer-skin, representing a disk with fifty-two points, that being the number of years in a Mexican cycle. A phototype is given of this, and M. Boban thinks it is intended to prescribe days for the worship of the sun, *Tonatihu*; but it is more likely to be simply the computation of a calendar.

Another historical pictograph is the *Codex Mexicanus*, an original, of forty-seven leaves, narrating the history of the Mexicans from their departure from the mysterious land of Aztlan down to the year 1590. This is native work, though late in the sixteenth century. The *Codex de Vergara* is another figurative document, defining boundaries and titles, whose date is 1528. Like many of these title deeds, it contains valuable hints as to the nature of the Mexican pictographic system.

The collection is peculiarly rich in books written in the Nahuatl language. There are the *Historia Tolteco-Chichimeca*, the *His*

¹ Read before the Numismatic and Antiquarian Society of Philadelphia, March 2, 1893.

toria de Tlascal, the *Codex Chimalpopoca*, the *Anales de Cuauh-titlan*, manuscripts of Ixtlilxochitl, Leon y Gama, Father Pichardo, and others. Very curious are the catechisms of the early missionaries written in the Mexican hieroglyphic characters, the maps, charts, plans, "Titulos de Tierra," legal documents, and royal ordinances, throwing light on the early history and settlement of the territory of Mexico.

M. Boban concludes his long and arduous task by adding a comprehensive and well-arranged index to his volumes; and I should not omit to mention that he increases the practical value of his work by inserting a series of biographical notices and many quotations and references to contemporary Mexican archæological literature.

I have reserved the best piece of news to the last. I learn from good authority that it is the intention of the enlightened M. Goupil finally to concede to scholars the access to this marvelous storehouse of American antiquity by placing it in the possession of the Manuscript Department of the Bibliothèque Nationale. Certainly no one in this generation will more deservedly receive the thanks of all genuine Americanists than the donor of such a treasure to public use.

TIME-PERIODS OF THE MAYAS.

BY PROFESSOR CYRUS THOMAS, WASHINGTON, D.C.

IN "Current Notes on Anthropology," *Science*, Feb. 10, reference is made by Dr. Brinton to the article on "Time-Periods of the Mayas," by Dr. Förstemann, in *Globus* (Bd. 63. No. 2). In closing this notice, he remarks that "Dr. Förstemann's discussion of the subject amounts to a demonstration,"—an assertion I think he will find it difficult to maintain. I presume, however, it was based on Dr. Förstemann's well-known ability as an investigator in this line, his long and faithful study of the time-symbols of the Maya Codices, and his great caution in presenting conclusions, rather than on a thorough examination of the data.

I am indebted to Dr. Förstemann for several valuable suggestions in my work in this line; it was through one of these, given in a private communication, that I was led to the evidence on which I base some of the objections offered here to his conclusions.

He believes that the different steps by which the Mayas reached their final calendar with the year of 365 days, consisting of 18 months of 20 days each, were as follows: First, the period of 20 days, next the period of 18 months, giving the year of 360 days; next, the year of 364 days, formed by adding four days at the end of the eighteenth month, at which time the division into periods of 13 days was introduced; and, finally, the year of 365 days, by adding another day at the end of the eighteenth month. The evidence on which this is based he believes he finds in the Codices, chiefly in the Dresden Codex. He believes he finds evidence of the use of all these years, as also of the Tonalamatl or Sacred year of 260 days in the latter Codex.

We take first his basal or cyclical period:—

$$\left. \begin{matrix} 1 \\ 19 \\ 0 \\ 0 \end{matrix} \right\} \text{or } 14040 \text{ days, found in the right column of Dres., p. 73.}$$

There is no doubt that this denotes, as he contends, 14040 days, or 39 years, if we count 360 days to the year. "From this," he adds, "proceed two series, of which one has the difference 65, . . . while the other increases by 54." He alludes to the series running through the upper division of pp. 71-73, where the difference is 54; and that running through the middle and lower divisions of the same plates, where the difference is 65 (see our "Aids to the Study of the Maya Codices," pp. 334-337). It is to be noticed, however, that there is no connection between his typical number and these series, and why he has thus referred to them is not apparent. On the contrary, it appears from the 9 Ix below it to belong to the right-hand series of the upper division. I also made the mistake in my "Aids" (p. 337, note) of connecting this 9 Ix with one of the series mentioned.

The point he makes is, that this number is divisible by 360. and that the two series referred to can be explained on this theory,

hence it is presumable a year of this length was used in constructing them. Now it must be conceded that if these series can be explained and traced out in accordance with the usual calendar of 365 days to the year, and the four year-series, Dr. Förstemann's argument loses its force, and falls short of a "demonstration."

Let us see if this can be done. For this purpose we present here a part of the series in the middle division of the plates alluded to.

1						
4	19	16	13	9	6	3
15	10	5	0	15	10	5
4 Manik	4 Ik	4 Caban	4 Eb	4 Manik	4 Ik	4 Caban.

This series, which begins with the number and day at the right, ascends, and is to be read from right to left, the difference being 65 days, or 3 months and 5 days, if the numbers are intended to denote days, months, and years. The 19 in the 6th, or next to the left-hand column, is evidently the same as 1 unit of the third order and one of the second, or 1 year, 1 month (counting 360 days to the year). If the year contained only 360 days, it must have commenced year after year with the same day unless there was an arbitrary change. On this theory the numbers in the lower line of numerals (with one exception) might denote the day of the month. For example, Caban would be the 5th day of the month if the year began with Ben, or with Ix counting from the last day of the month; Ik the 10th, Manik the 15th, and so on through the entire series, and also in numerous other series. This would seem to be a sufficient "demonstration" of the theory, and was considered so by me in my "Aids," but the numeral system in the Maya calendar is exceedingly deceptive. Before this is conceded, it is necessary to overcome the following objections: The figures in the middle row do not give the months correctly nor those in the upper the years. The 3, 5, in the first column, really denote the 5th day of the 4th month. While the 1 in the left-hand column, if taken in this way, would refer to the second year. Moreover, if the numbers in the "month" and "day lines" were intended to denote the numbers of the months and days of the months there could be no blanks, such as we see in

$$\begin{matrix} 13 \\ \text{the 4th column above (0).} \end{matrix}$$
 That the symbol represented by the cipher signifies "nothing," is admitted by Dr. Förstemann, and is proven by the number in the month line. As upon the theory of 360 days to the year, all the years should begin with the same day, while this method of counting time remained in vogue, the different series based upon this method should be referred to years commencing with the same day. This, however, is not the case, as the series now under consideration pertains to a year commencing with Ben; while the long series on pp. 52-58 can be reckoned only in years beginning with Lamat. Nor is it possible to bring these series into harmony in this respect upon the theory of a year of 360 days unless we assume there were arbitrary changes, which amounts to begging the question. It is also inconsistent with this theory that the series on pp. 63-64, which Dr. Förstemann believes to be founded on the year of 364 days, gives precisely the same results in the respect mentioned as the other series referred to. In truth, it is impossible that the "day" and "month lines" of numerals should indicate the days of the month and numbers of the months throughout a series extending over several years, except upon the theory of 360 days to the year. We are forced, therefore, to the conclusion, even on Dr. Förstemann's theory, that these series are only successions of intervals in which the columns of numerals simply denote the sum of these intervals at the various steps.

We will now proceed in our attempt to explain the series on pp. 71-73, of which a portion is given above, by the usual calendar system of 365 days to the year and the four year-series. No difference between the two systems will appear until we reach the end of the first year of the series. As this is reached in passing from the 5th to the 6th column,

$$\left\{ \begin{matrix} 16 \\ 5 \\ 4 \text{ Caban} \end{matrix} \right.$$
 and

$$\left\{ \begin{matrix} 19 \\ 10 \\ 4 \text{ Ik} \end{matrix} \right.$$
 we start with 4 Caban of the 5th column. As before stated, this series proceeds from right to left and is to be counted from the