
SMITHSONIAN INSTITUTION—BUREAU OF ETHNOLOGY.
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STUDIES

IN

CENTRAL AMERICAN PICTURE-WRITING.

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I.

Since 1876 I have been familiar with the works of Mr. JOHN L. STEPHENS on the antiquities of Yucatan, and from time to time I have read works on kindred subjects with ever increasing interest and curiosity in regard to the meaning of the hieroglyphic inscriptions on the stones and tablets of Copan, Palenque, and other ruins of Central America. In August, 1880, I determined to see how far the principles which are successful when applied to ordinary cipher-writing would carry me in the inscriptions of Yucatan. The difference between an ordinary cipher-message and these inscriptions is not so marked as might at first sight appear. The underlying principles of deciphering are quite the same in the two cases.

The chief difficulty in the Yucatee inscriptions is our lack of any definite knowledge of the nature of the records of the aborigines. The patient researches of our archæologists have recovered but very little of their manners and habits, and one has constantly to avoid the tempting suggestions of an imagination which has been formed by modern influences, and to endeavor to keep free from every suggestion not inherent in the stones themselves. I say the stones, for I have only used the Maya manuscripts incidentally. They do not possess, to me, the same interest, and I think it may certainly be said that all of them are younger than the Palenque tablets, and far younger than the inscriptions at Copan.

I therefore determined to apply the ordinary principles of deciphering, without any bias, to the Yucatee inscriptions, and to go as far as I could *certainly*. Arrived at the point where demonstration ceased, it would be my duty to stop. For, while even the conjectures of a mind perfectly trained in archæologic research are valuable and may subsequently prove to be quite right, my lack of familiarity with historical works forced me to keep within narrow and safe limits.

My programme at beginning was, *first*, to see if the inscriptions at Copan and Palenque were written in the same tongue. When I say "to see," I mean to definitely prove the fact, and so in other cases; *second*, to see how the tablets were to be read. That is, in horizontal lines, are

they to be read from right to left, or the reverse? In vertical columns, are they to be read up or down? *Third*, to see whether they were phonetic characters, or merely ideographic, or a mixture of the two—rebus-like, in fact.

If the characters turned out to be purely phonetic, I had determined to stop at this point, since I had not the time to learn the Maya language, and again because I utterly and totally distrusted the methods which, up to this time, have been applied by BRASSEUR DE BOURBOURG and others who start, and must start, from the misleading and unlucky alphabet handed down by LANDA. I believe that legacy to have been a positive misfortune, and I believe any process of the kind attempted by BRASSEUR DE BOURBOURG (for example, in his essay on the *MS. Troano*) to be extremely dangerous and difficult in application, and to require a degree of scientific caution almost unique.

Dr. HARRISON ALLEN, in his paper, "The Life Form in Art," in the *Transactions of the American Philosophical Society*, is the only investigator who has applied this method to Central American remains with success, so it seems to me; and even here errors have occurred.

The process I allude to is something like the following: A set of characters, say the alphabet of LANDA, is taken as a starting point. The *variants* of these are formed. Then the basis of the investigation is ready. From this, the interpretation follows by identifications of each new character with one of the standard set or with one of its *variants*. Theoretically, there is no objection to this procedure. Practically, also, there is no objection if the work is done strictly in the order named. In fact, however, the list of *variants* is filled out not before the work is begun, but during its progress, and in such a way as to satisfy the necessities of the interpreter in carrying out some preconceived idea. With a sufficient latitude in the choice of *variants* any MS. can receive any interpretation. For example, the *MS. Troano*, which a casual examination leads me to think is a *ritual*, and an account of the adventures of several Maya gods, is interpreted by BRASSEUR DE BOURBOURG as a record of mighty geologic changes. It is next to impossible to avoid errors of this nature at least, and in fact they have not been avoided, so far as I know, except by Dr. ALLEN in the paper cited.

I, personally, have chosen the stones and not the manuscripts for study largely because *variants* do not exist in the same liberal degree in the stone inscriptions as they have been supposed to exist in the manuscripts.

At any one ruin the characters for the same idea are alike, and alike to a marvelous degree. At another ruin the type is just a little different, but the fidelity to this type is equally great. Synonyms exist; that is, the same idea may be given by two or more utterly different signs. But a given sign is made in a fixed and definite way. Finally the MSS. are, I think, later than the stones. Hence the root of the matter is the interpretation of the stones, or not so much their full interpretation as the discovery of a *method of interpretation*, which shall be sure.

Suppose, for example, that we know the meaning of a dozen characters only, and the way a half dozen of these are joined together in a sentence. The *method* by which these were obtained will serve to add others to the list, and progress depends in such a case only on our knowledge of the people who wrote, and of the subjects upon which they were writing. Such knowledge and erudition belongs to the archæologists by profession. A step that might take me a year to accomplish might be made in an instant by one to whom the Maya and Aztec mythology was familiar, if he were proceeding according to a sound method. At the present time we know nothing of the meaning of any of the Maya hieroglyphs.

It will, therefore, be my object to go as far in the subject as I can proceed with certainty, every step being demonstrated so that not only the archæologist but any intelligent person can follow. As soon as the border-land is reached in which proof disappears and opinion is the only guide, the search must be abandoned except by those whose cultivated and scientific opinions are based on knowledge far more profound and various than I can pretend or hope to have.

If I do not here push my own conclusions to their farthest limit, it must not be assumed that I do not see, at least in some cases, the direction in which they lead. Rather, let this reticence be ascribed to a desire to lay the foundations of a new structure firmly, to prescribe the method of building which my experience has shown to be adequate and necessary, and to leave to those abler than myself the erection of the superstructure. If my methods and conclusions are correct (and I have no doubts on this point, since each one has been reached in various ways and tested by a multiplicity of criteria) there is a great future to these researches. It is not to be forgotten that here we have no Rosetta stone to act at once as key and criterion, and that instead of the accurate descriptions of the Egyptian hieroglyphics which were handed down by the Greek contemporaries of the sculptors of these inscriptions, we have only the crude and brutal chronicles of an ignorant Spanish soldiery, or the bigoted accounts of an unenlightened priesthood. To CORTEZ and his companions a memorandum that it took one hundred men all day to throw the idols into the sea was all-sufficient. To the Spanish priests the burning of all manuscripts was praiseworthy, since those differing from Holy Writ were noxious and those agreeing with it superfluous. It is only to the patient labor of the Maya sculptor who daily carved the symbols of his belief and creed upon enduring stone, and to the luxuriant growths of semi-tropical forests which concealed even these from the passing Spanish adventurer, that we owe the preservation of the memorials of past beliefs and vanished histories.

Not the least of the pleasures of such researches as these comes from the recollection that they vindicate the patience and skill of forgotten men, and make their efforts not quite useless. It was no rude savage that carved the Palenque cross; and if we can discover what his efforts

meant, his labor and his learning have not been all in vain. It will be one more proof that human effort, even misdirected, is not lost, but that it comes, later or earlier, "to forward the general deed of man."

II.

MATERIALS FOR THE PRESENT INVESTIGATION.

My examination of the works of Mr. J. L. STEPHENS has convinced me that in every respect his is the most trustworthy work on the *hieroglyphs* of Central America. The intrinsic evidence to this effect is very strong, but when I first became familiar with the works of WALDECK I found so many points of difference that my faith was for a time shaken, and I came to the conclusion that while the existing representations might suffice for the study of the general forms of statues, tablets, and buildings, yet they were not sufficiently accurate in detail to serve as a basis for the deciphering I had in mind. I am happy to bear witness, however, that STEPHENS'S work is undoubtedly amply adequate to the purpose, and this fact I have laboriously verified by a comparison of it with various representations, as those of DESAIX and others, and also with a few photographs. The drawings of WALDECK are very beautiful and artistic, but either the artist himself or his lithographers have taken singular liberties in the published designs. STEPHENS'S work is not only accurate, but it contains sufficient material for my purpose (over 1,500 separate hieroglyphs), and, therefore, I have based my study exclusively upon his earliest work, "*Incidents of Travel in Central America, Chiapas, and Yucatan*," 2 vols., Svo. New York, 1842 (twelfth edition). I have incidentally consulted the works on the subject contained in the Library of Congress, particularly those of BRASSEUR DE BOURBOURG, KINGSBOROUGH, WALDECK, and others, but, as I have said, the two volumes above named contain all the the material I have been able to utilize, and much more which is still under examination.

One fact which makes the examination of the Central American antiquities easier than it otherwise would be, has not, I think, been sufficiently dwelt upon by former writers. This is the remarkable faithfulness of the artists and sculptors of these statues and inscriptions to a standard. Thus, at Copan, wherever the same kind of hieroglyph is to be represented, it will be found that the human face or other object employed is almost identically the same in expression and character, wherever it is found. The same characters at different parts of a tablet do not differ more than the same letters of the alphabet in two fonts of type.

At Palenque the *type* (font) changes, but the adherence to this is equally or almost equally rigid. It is to be presumed that in this latter

ease, where work was done both in stone and stucco, the nature of the material affected the portraiture more or less.

The stone statues at Copan, for example, could not all have been done by the same artist, nor at the same time. I have elsewhere shown that two of these statues are absolutely identical. How was this accomplished? Was one stone taken to the foot of the other and cut by it as a pattern? This is unlikely, especially as in the case mentioned the *scale* of the two statues is quite different. I think it far more likely that each was cut from a drawing, or series of drawings, which must have been preserved by priestly authority. The work at any one place must have required many years, and could not have been done by a single man; nor is it probable that it was all done in one generation. Separate hieroglyphs must have been preserved in the same way. It is this rigid adherence to a type, and the banishment of artistic fancy, which will allow of progress in the deciphering of the inscriptions or the comparison of the statues. Line after line, ornament after ornament, is repeated with utter fidelity. The reason of this is not far to seek. This, however, is not the place to explain it, but rather to take advantage of the fact itself. We may fairly say that were it not so, and with our present data, all advances would be tenfold more difficult.

III.

SYSTEM OF NOMENCLATURE.

It is impossible without a special and expensive font of type to refer pictorially to each character, and therefore some system of nomenclature must be adopted. The one I employ I could now slightly improve, but it has been used and results have been obtained by it. It is sufficient for the purpose, and I will, therefore, retain it rather than to run the risk of errors by changing it to a more perfect system. I have numbered the plates in STEPHENS'S *Central America* according to the following scheme:

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In each plate I have numbered the hieroglyphs, giving each one its own number. Thus the hieroglyphs of the Copan altar (vol. i, p. 141) which I have called plate V^a, are numbered from 1 to 36 according to this scheme—

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

And the right hand side of the Palenque Cross tablet, as given by RAU in his memoir published by the Smithsonian Institution (1880), has the numbers—

2020	2021	2022	2023	2024	2025
2030	2031	2032	2033	2034	2035
2040	2041	2042	2043	2044	2045
2050	2051	2052	2053	2054	2055
*	*	*	*	*	*
*	*	*	*	*	*
3080	3081	3082	3083	3084	3085

These are consecutive with the numbers which I have attached to the left-hand side, as given by STEPHENS. Whenever I have stated any results here, I have also given the means by which any one can number a copy of STEPHENS'S work in the way which I have adopted, and thus the means of testing my conclusions is in the hands of every one who desires to do so.

In cases where only a *part* of a hieroglyphic is referred to, I have placed its number in a parenthesis, as 1826 *see* (122), by which I mean that the character 1826 is to be compared with a part of the character 122. The advantages of this system are many: for example; a memorandum can easily be taken that two hieroglyphs are alike, thus 2072 = 2020 and 2073 = 2021. Hence the *pair* 2020 — 2021, read horizontally, occurs again at the point 2072 — 2073, etc. *Horizontal pairs* will be known by their numbers being consecutive, as 2020 — 2021; *vertical pairs* will usually be known by their numbers differing by 10. Thus, 2075 — 2085 are one above the other.

This method of naming the *chiffres*, then, is a quick and safe one, and we shall see that it lends itself to the uses required of it.

I add here the scheme according to which the principal plates at Palenque have been numbered.

PLATE XXIV (left-hand side).

$\overbrace{37}$ <i>See 1800</i>	$\overbrace{37}$ <i>See 1800</i>	$\overbrace{38}$ <i>See 1806</i>	39	94	96	98	100	102	104	106
40	40	41	42	95	97	99 = 127	101	103	105	107
43 = 1810	43* = 46*	44	45							108 <i>See 91</i>
46 = 1810	46* = 43*	47	48							
49		50	51							
52	52* = 1820 †	53	54			In the middle of the plate at the top.				
55	56 = 1840 †	57 <i>See 1802</i>	58			$\overbrace{109}$	$\overbrace{115}$			
59	60	61	62 = 58 †			110 <i>See 2020</i>	116			
63	64	65 †	66 <i>See 2025</i>			111	117			
67 <i>See 1911</i>	68	69	70			112	118			
71 <i>See 2020</i>	72 = 281	73	74			113	119			
75	76 = 67	77	78			114	120			
79	80	81	82							
83	84	85	86 = 56 †							
86*	86*	87	88							
89	90	91	92							
93										

* Accidental error in numbering here.

† Possibly Muluc—a Maya day; the meaning is "reunion."

PLATE XXIV (right-hand side).

121 <i>See</i> 74, 86*	122 = 86†	123 = 87	124 = 88 <i>See</i> 61, 1822
125	126 † <i>See</i> 1940	127 = 99 <i>See</i> 1940	128 <i>See</i> (44), 64
129	130	131 = 147	132 <i>See</i> 50, 58, 62
133	134	135	136 = 47 †
137	138 <i>See</i> 39, 91	139 <i>See</i> 1811	140
141	142 § <i>See</i> 54	143	144 <i>See</i> 50, 58, 62, 132
145	146	147 = 131 <i>See</i> 71	148
149	150 <i>See</i> 56, 1882	151	152
153	151 <i>See</i> 53	155 <i>See</i> 50, 58, 132	156
157*	158 <i>See</i> 68	159 <i>See</i> 38	160 <i>See</i> 46*, 49*, 52*
161 = 50 <i>See</i> 58, 62, 132	162 <i>See</i> 50, 73, 1882	†163 = 1936 <i>See</i> 57	161 <i>See</i> 58, 62
165	166 <i>See</i> 81 †	167	168
169 <i>See</i> 63 †	170	171	172
173	174 <i>See</i> 67, 76, 90, 1910	175 <i>See</i> 57	176 <i>See</i> 126
177	178 <i>See</i> 43*	179	180 <i>See</i> 50, 58, 62
181	182 <i>See</i> 57, 163, 1936	183	181
			185

* Possibly Ymix—a Maya day.

† Possibly Chuen—a Maya day; meaning "a board," "a tree."

‡ Possibly Ahau—a Maya day; meaning "king."

§ Possibly Ezanab—a Maya day.

PLATE LII.

200	201	202	203	204	205	206	207	208	209	} Line 1.
210	211	212		214	215	216	217	218	219 <i>See 2020</i>	
220 <i>See 2030</i>	221 <i>See 2060</i>	222 <i>See 2060</i>	223	224=2060	225	226	227	228	229 <i>See 1811-2</i>	} Line 2.
230 <i>See 1822</i>	231	232		234	235	236	237	238	239	
240	241	242=2020	243=1951	244	245	246	247	248	249	} Line 3.
250	251	252 <i>See 214</i>		254	255	256	257	258	259=1943	
260	261	262	263	264 <i>See 2020</i>	265 <i>See 2021</i>	266 <i>See 2022</i>	267	268	269	} Line 4.
270	271			274=244	275	276	277	278 <i>See 204</i>	279	
280 <i>See 1820</i>	281=72	282	283	284	285	286 <i>See 385</i>	287	288		} Line 5.
290				294	295	296	297	298	299	
300 <i>See 203</i>	301	302	303=360	304	305	306	307			} Line 6.
310	311			314	315	316	317	318	319	
320	321	322	323 <i>See 203</i>	321=1824 <i>See 204</i>	325 <i>See 285</i>	326 <i>See 305</i>	327	328	329	} Line 7.
330	331	332 <i>See 209</i>		334	335	336	337	338	339	
340	341	342 <i>See 209</i>	343	344 <i>See 322</i>	345	346	347	348	349	} Line 8.
350	351	352		354 <i>See 267, 298</i>	355	356=1822 <i>See 230</i>	357	358	359	
360=303	361	362	363	364	365	366 <i>See 351</i>	367 <i>See 303, 360</i>	368	369	} Line 9.
370	371				375	376	377	378	379	
380	381	382	383	384	385 <i>See 286, 1822</i>	386	387	388	389	} Line 10.
390	391	392		394	395	396	397	398	399	
400	401	402 <i>See 326</i>	403=360 367	404	405	406	407 <i>See 360</i>	408	409	} Line 11.
410 <i>See 326</i>	411	412		414	415	416 <i>See 324</i>	417	418	419	
420	421	422	423	424	425	426 <i>See 324</i>	427			} Line 12.
430		432		434	435	436	437	438	439	

PLATE LVI (left-hand side—Palenque Cross).

1800	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000
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* At and after this place, in vertical columns, 1810-1-2, 1820-1-2, 1830-1-2, 1840-1-2, and 1860-1-2 may be taken as 2 or 3 symbols. I have assumed them to be 3.

PLATE LVI (right-hand side—Palenque Cross).

1980	1981	1982	2020 <i>See</i> 131, 147, 150	2021 <i>See</i> 144	2022	2023	2024 <i>See</i> 163	2025=123	
		1983	2030 <i>See</i> 132	2031 <i>See</i> 134, 146, 149	2032 <i>See</i> 1811, 1812	2033	2034 <i>See</i> 124	2035	
		1984 <i>See</i> 131, 147	2040	2041	2042	2043=123	2044 <i>See</i> 131, 147	2045 <i>See</i> 132, 150	
			2000	2050	2051	2052	2053	2054	2055
			2001 <i>See</i> 182	2060	2061	2062	2063	2064	2065
			2002=122	2070	2071	2072	2073	2074	2075
			2003=2021 <i>See</i> 130	2080	2081	2082	2083	2084	2085
			2004	2090	2091	2092	2093	2094	2095
			2005	3000	3001	3002	3003	3004	3005
1976	1978		2006 <i>See</i> 1902, 1903	3010	3011	3012	3013	3014	3015
			2007 <i>See</i> 182?	3020	3021	3022	3023	3024	3025
1977	1979		2008	3030	3031	3032	3033	3034	3035
			2009	3040	3041	3042	3043	3044	3045
			2010 <i>See</i> 184	3050	3051	3052	3053	3054	3055
			2011 <i>See</i> 131, 2020	3060	3061	3062	3063	3064	3065
			2012	3070	3071	3072	3073	3074	3075
			2013	3080	3081	3082	3083	3084	3085
			2014						

* These four each side of the main stem of the cross. 1976 = *Ezanab*—a Maya day



F. Catherwood del.

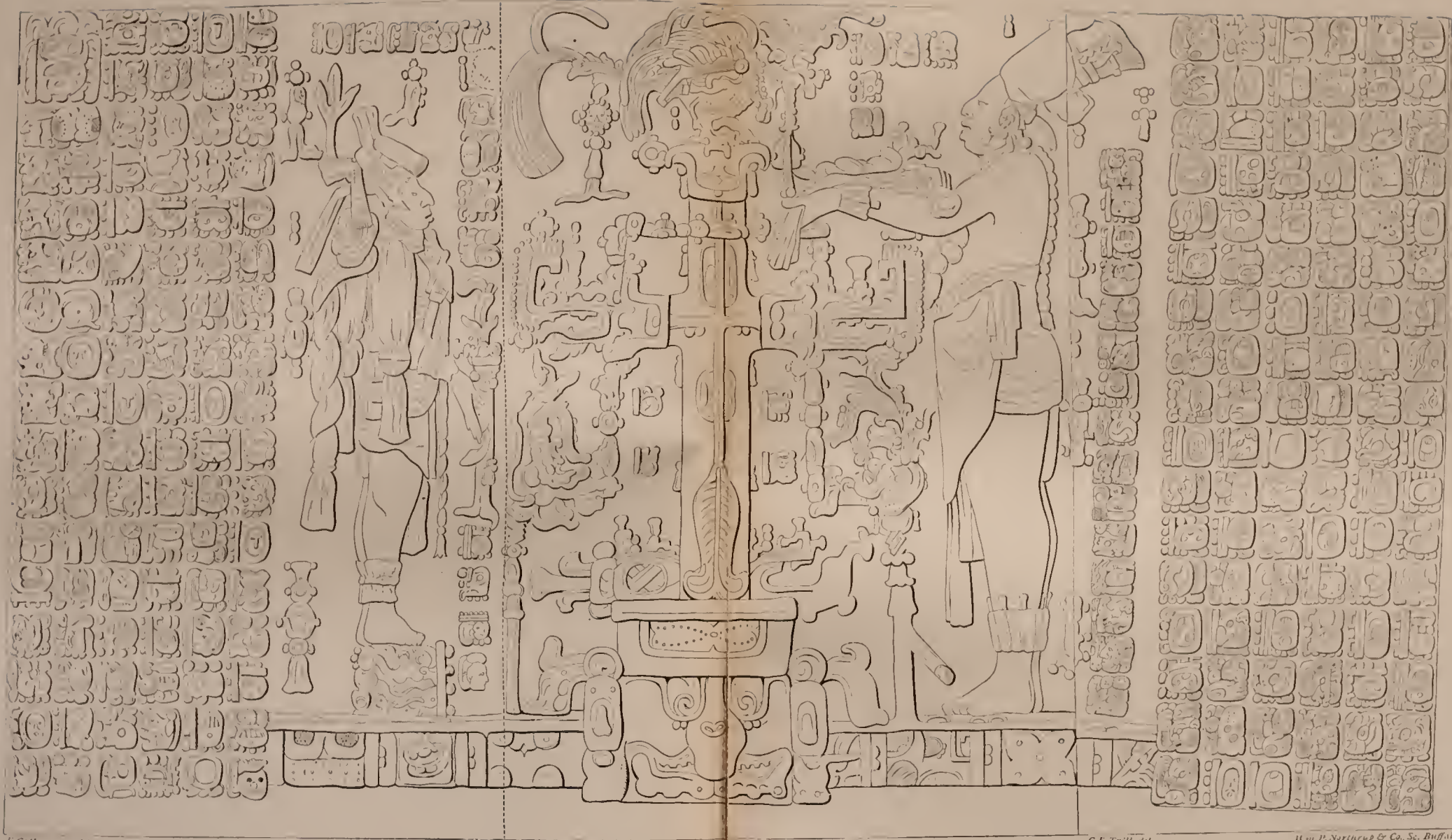
FIG. 48.—The Pal



C.F. Trill del.

Wm. P. Northrup & Co., Sc. Buffalo.

Group of the Cross.



F. Catherwood del.

C.F. Trill del.

Wm. P. Northrup & Co., Sc. Buffalo.

FIG. 48.—The Palenquean Group of the Cross.

IV.

IN WHAT ORDER ARE THE HIEROGLYPHICS READ?

Before any advance can be made in the deciphering of the hieroglyphic inscriptions, it is necessary to know in what directions, along what lines or columns, the verbal sense proceeds.

All the inscriptions that I know of are in rectangular figures. At Copan they are usually in squares. At Palenque the longest inscriptions are in rectangles. At Palenque again, there are some cases where there is a single horizontal line of hieroglyphs over a pictorial tablet. Here clearly the only question is, do the characters proceed from left to right, or from right to left? In other cases as in the tablet of the cross, there are vertical columns. The question here is, shall we read up or down?

Now, the hieroglyphs must be phonetic or pictorial, or a mixture of the two. If they are phonetic, it will take more than one symbol to make a word, and we shall have groups of like characters when the same word is written in two places. If the signs are pictorial, the same thing will follow; that is, we shall have groups recurring when the same idea recurs. Further, we know that the subjects treated of in these tablets must be comparatively simple, and that *names*, as of gods, kings, etc., must necessarily recur.

The *names*, then, will be the first words deciphered. At present no single name is known. These considerations, together with our system of nomenclature, will enable us to take some steps.

Take, for example, the right-hand side of the Palenque cross tablet as given by RAU. See our figure 48, which is Plate LVI of STEPHENS (vol. ii, p. 345), with the addition of the part now in the National Museum at Washington.

Our system of numbering is here

2020	2021	2022	2023	2024	2025
2030	2031	2032	2033	2034	2035
*	*	*	*	*	*
*	*	*	*	*	*
*	*	*	*	*	*
3080	3081	3082	3083	3084	3085

Now pick out the duplicate hieroglyphs in this; that is, run through the tablet, and wherever 2020 occurs erase the number which fills the place and write in 2020. Do the same for 2021, 2022, etc., down to 3084. The result will be as follows:

RIGHT-HAND SIDE OF PALENQUE CROSS TABLET (RAU).

2020	2021	2022	2023	2024	2025
2030	2031	2032	2033	2034	2035
2040	2041	2042	2025	2020	2021
2050	2051	2034	2053	2054	2055
2053	2061	2062	2063	2061	2065
2070	2071	2020	2021	2022?	2024?
2053	2020	2082	2083	2025	2053
2021	2091	2092	2025	2091	2095
3000	2023	2031	2053	2033	3005
3010	2083	3012	2024	3014	2091
2053	3021	2023	2020	3024	2021
2024	2025	2021	3033	2025	2034*
2053*	3021	3012	3043	2035	3045
3050 <i>See 2082</i>	2083	2025	2034	3054	3055
2021	2020	2035	3063	2021	2025
2021	2031	2020	2021	2035	3045
3080	3081	2091	2093	2020	2021

14 cases of horizontal pairs; 4 cases of vertical pairs; 192 characters in all, of which 51 appear more than once, so that there are but 51 independent hieroglyphs.

Here the first two lines are unchanged. In the third line we find that 2043 is the same as 2025, 2044 = 2020, 2045 = 2021, and so on, and we write the smallest number in each case.

After this is done, connect like pairs by braces whenever they are consecutive, either vertical or horizontal. Take the pair 2020 and 2021 for example; 2020 occurs eight times in the tablet, viz, as 2020, 2044, 2072, 2081, 3023, 3061, 3072, 3084. In five out of the eight cases, it is followed by 2021, viz, as 2021, 2045, 2073, 3073, 3085.

It is clear this is not the result of accident. The pair 2020 and 2021 means something, and when the two characters occur together they must be read together. There is no point of punctuation between them. We

also learn that they are not inseparable. 2020 will make sense with 2082, 3024, and 3062. Here it looks as if the writing must be read in *lines* horizontally. We do not know yet in which direction.

We must examine other cases. This is to be noticed: If the reading is in horizontal lines from left to right, then the progress is from top to bottom in columns, as the case of 3035 and 3040 shows. This occurs at the end of a line, and the corresponding *chiffre* required to make the pair is at the other end of the next line. I have marked this case with asterisks. If we must read in the lines from right to left we must necessarily read in columns from bottom to top. Thus the *lines* are connected.

A similar process with all the other tablets in STEPHENS leads to the conclusion that the reading is in lines horizontally and in columns vertically. The cases 1835-45, 1885-95, 1914-24, and 1936-46 should, however, be examined. We have now to decide at which end of the lines to begin. The reasons given by Mr. BANCROFT (*Native Races*, vol. ii, p. 782) appeared to me sufficient to decide the question before I was acquainted with his statement of them.

Therefore, the sum total of our present data, examined by a rational method, leads to the conclusion, so far as we can know from these data, that the verbal sense proceeded in *lines* from left to right, in *columns* from top to bottom; just as the present page is written, in fact.

For the present, the introduction of the method here indicated is the important step. It has, as yet, been applied only to the plates of STEPHENS' work. The definite conclusion should be made to rest on *all possible* data, some of which is not at my disposition at present. Tablets exist in great numbers at other points besides Palenque, and for the final conclusion these must also be consulted. If each one is examined in the way I have indicated, it will yield a certain answer. The direction of reading for that plate can be thus determined. At Palenque the progress is in the order I have indicated.

V.

THE CARD-CATALOGUE OF HIEROGLYPHS.

It has already been explained how a system of nomenclature was gradually formed. As I have said, this is not perfect, but it is sufficiently simple and full for the purpose. By it, every plate in STEPHENS' work receives a number and every hieroglyph in each plate is likewise numbered.

This was first done in my private copy of the work. I then procured another copy and duplicated these numbers both for plates and single *chiffres*. The plates of this copy were then cut up into single hiero-

glyphs and each single hieroglyph was mounted on a library card, as follows:

No. 2020.	Hieroglyph.	Plate LVI.
Same as Numbers.	Similar to Numbers.
	
.....
.....

The cards were 6.5 by 4.5 inches. The *chiffre* was pasted on, in the center of the top space. Its number and the plate from which it came were placed as in the cut. The numbers of hieroglyphs which resembled the one in question could be written on the right half of the card, and the numbers corresponding to different recurrences of this hieroglyph occupied the left half.

All this part of the work was most faithfully and intelligently performed for me by Miss MARY LOCKWOOD, to whom I desire to express the full amount of my obligations. A mistake in any part would have been fatal. But no mistakes occurred.

These cards could now be arranged in any way I saw fit. The simple *chiffres*, for example, could be placed so as to bring like ones together. A compound hieroglyph could be placed among simple ones agreeing with any one of its components, and so on.

The expense of forming this card catalogue of about 1,500 single hieroglyphs was borne by the Ethnological Bureau of the Smithsonian Institution, and the catalogue is the property of that bureau, forming only one of its many rich collections of American picture-writings.

VI.

COMPARISON OF PLATES I AND IV (COPAN).

In examining the various statues at Copan, as given by STEPHENS, one naturally looks for points of striking resemblance or striking difference. Where all is unknown, even the smallest sign is examined, in the hope that it may prove a clue. The Plate I, Fig. 49, has a twisted knot (the "square knot" of sailors) of cords over its head, and above this is a *chiffre* composed of ellipses, and above this again a sign like a sea-shell. A natural suggestion was that these might be the signs for the name of the personage depicted in Plate I. If this is so and we should find the same sign elsewhere in connection with a figure, we should expect to find this second figure like the first in every particular. This would be

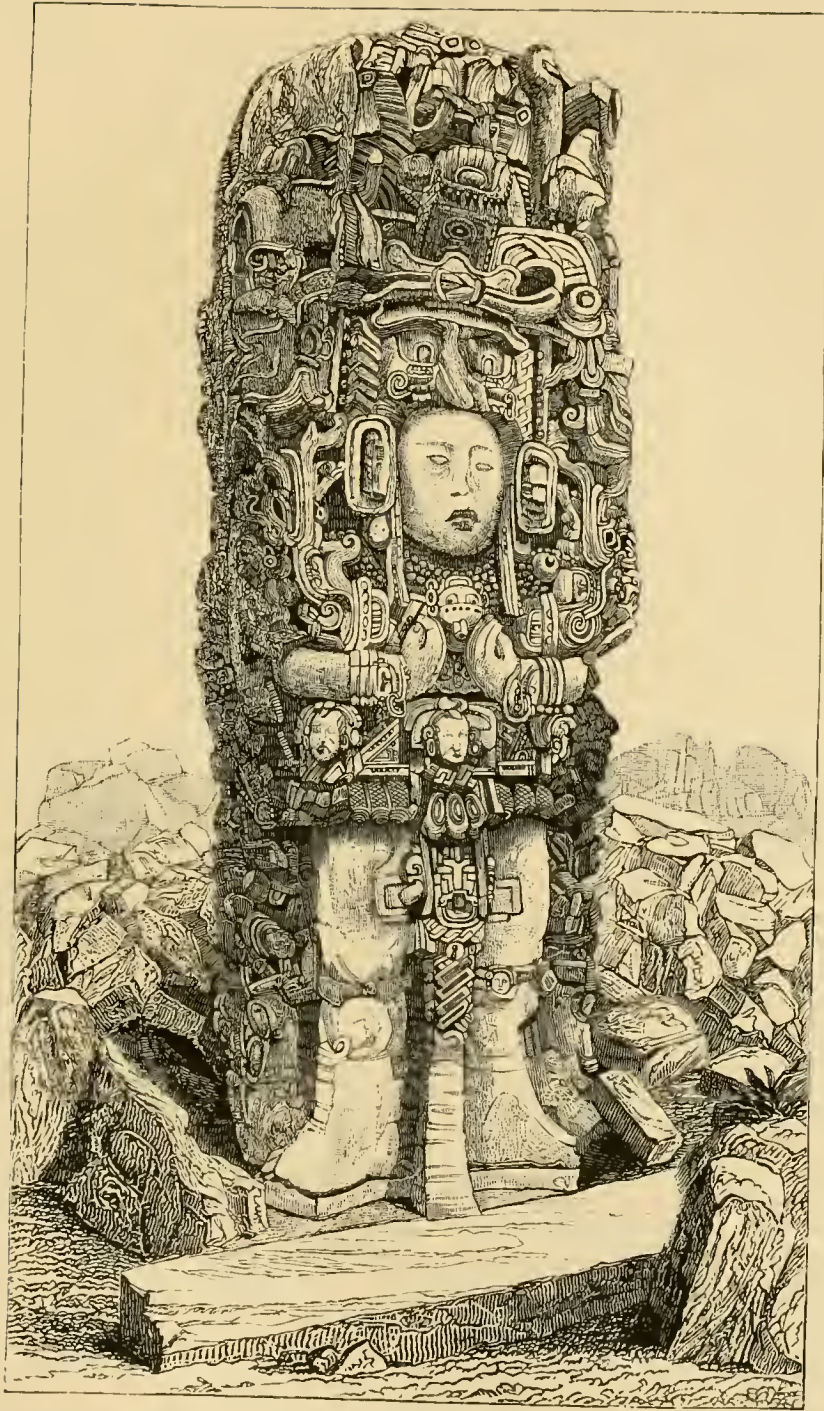


FIG. 49.—Statue at Copan.



FIG. 50.—Statue at Copan.

a rigid test of the theory. After looking through the Palenque series, and finding no similar figure and sign, I examined the Copan series, and in Plate IV, our Fig. 50, I found the same signs exactly; *i. e.*, the knot and the two *chiffres*.

At first sight there is only the most general resemblance between the personages represented in the two plates; as STEPHENS says in his original account of them, they are "in many respects similar." If he had known them to be the same, he would not have wasted his time in drawing them. The scale of the two drawings and of the two statues is different; but the two personages are the same identically. Figure for figure, ornament for ornament, they correspond. It is unnecessary to give the minute comparison here in words. It can be made by any one from the two plates herewith. Take any part of Plate I, find the corresponding part of Plate IV, and whether it is human feature or sculptured ornament the two will be found to be the same.

Take the middle face depending from the belt in each plate. The earrings are the same; the ornament below the chin, the knot above the head, the complicated beadwork on each side of this face, all are the same. The bracelets of the right arms of the main figures have each the forked serpent tongue, and the left-arm bracelets are ornamented alike. The crosses with beads almost inclosed in the right hands are alike; the elliptic ornaments above each wrist, the knots and *chiffres* over the serpent masks which surmount the faces, all are the same. In the steel plates given by STEPHENS there are even more coincidences to be seen than in the excellent wood-cuts here given, which have been copied from them.

Here, then, is an important fact. The theory that the *chiffre* over the forehead is characteristic, though it is not definitively proved, receives strong confirmation. The parts which have been lost by the effects of time on one statue can be supplied from the other. Better than all, we gain a test of the minuteness with which the sculptors worked, and an idea of how close the adherence to a type was required to be. Granting once that the two personages are the same (a fact about which I conceive there can be no possible doubt, since the chances in favor are literally thousands to one), we learn what license was allowed, and what synonyms in stone might be employed. Thus, the ornament suspended from the neck in Plate IV is clearly a tiger's skull. That from the neck of Plate I has been shown to be the derived form of a skull by Dr. HARRISON ALLEN,* and we now know that this common form relates not to the human skull, as Dr. ALLEN has supposed, but to that of the tiger. We shall find this figure often repeated, and the identification is of importance. This is a case in regard to synonyms. The kind of symbolism so ably treated by Dr. ALLEN is well exemplified in the conventional sign for the *crotales* jaw at the mouth of the mask over the head of each figure. This is again found on the body of the snake in

*The Life Form in Art, Trans. Amer. Phil. Soc., vol. xv, 1873, p. 325.

Plate LX, and in other places. Other important questions can be settled by comparison of the two plates. For example, at Palenque we often find a sign composed of a half ellipse, inside of which bars



are drawn. I shall elsewhere show that there is reason to believe the ellipse is to represent the concave of the sky, its diameter to be the level earth, and in some cases at least the bars to be the descending and fertilizing rain. The bars are sometimes two, three, and sometimes four in number. Are these variants of a single sign, or are they synonyms? Before the discovery of the identity of the personages in these two plates, this question could not be answered. Now we can say that they are not synonyms, or at least that they must be considered separately. To show this, examine the bands just above the wristlets of the two figures. Over the left hands of the figures the bars are two in number; over the right hands there are four. This exact similarity is not accidental; there is a meaning in it, and we must search for its explanation elsewhere, but we now have a valuable test of what needs to be regarded, and of what, on the other hand, may be passed over as accidental or unimportant.

One other case needs mentioning here, as it will be of future use. From the waist of each figure depend nine oval solids, six being hatched over like pine cones and the three central ones having two ovals, one within the other, engraved on them. In Plate IV the inner ovals are all on the right-hand side of the outer ovals. Would they mean the same if they were on the left-hand side? Plate I enables us to say that they would, since one of these inner ovals has been put by the artist on that side by accident or by an allowed caprice. It is by furnishing us with tests and criteria like these that the proof of the identity of these two plates is immediately important. In other ways, too, the proof is valuable and interesting, but we need not discuss them at this time.

These statues, then, are to us a dictionary of synonyms in stone—a test of the degree of adherence to a prototype which was exacted, and a criterion of the kind of minor differences which must be noticed in any rigid study.

I have not insisted more on the resemblances, since the accompanying figures present a demonstration. Let those who wish to verify these resemblances compare minutely the ornaments above the knees of the two figures, those about the waists, above the heads, and the square knots, etc., etc.

VII.

ARE THE HIEROGLYPHS OF COPAN AND PALENQUE IDENTICAL?

One of the first questions to be settled is whether the same system of writing was employed at Palenque and at Copan. Before any study of the meanings of the separate *chiffres* can be made, we must have our material properly assorted, and must not include in the figures we are examining for the detection of a clue, any which may belong to a system possibly very different.

The opinion of STEPHENS and of later writers is confirmed by my comparison of the Palenque and the Copan series; that is, it becomes evident that the latter series is far the older.

In Niaragna and Copan the statues of gods were placed at the foot of the pyramid; farther north, as at Palenque, they were placed in temples at the summit. Such differences show a marked change in customs, and must have required much time for their accomplishment. In this time did the picture-writing change, or, indeed, was it ever identical?

To settle the question whether they were written on the same system, I give here the results of a rapid survey of the card-catalogue of hieroglyphs. A more minute examination is not necessary, as the present one is quite sufficient to show that the system employed at the two places was the same in its general character and almost identical even in details. The practical result of this conclusion is that similar characters of the Copan and Palenque series may be used interchangeably.

A detailed study of the undoubted synonyms of the two places will afford much light on the manner in which these characters were gradually evolved. This is not the place for such a study, but it is interesting to remark how, even in unmistakable synonyms, the Palenque character is always the most conventional, the least pictorial; that is, the latest. Examples of this are No. 7, Plate V^a, and No. 1969, Plate LVI. The *mask* in profile which forms the left-hand edge of No. 7 seems to have been conventionalized into the two hooks and the ball, which have the same place in No. 1969.



FIG. 51.—Synonymous hieroglyphs from Copan and Palenque.

The larger of these two was cut on stone, the smaller in stucco.

The mask has been changed into the ball and hooks; the angular nose ornament into a single ball, easier to make and quite as significant to the Maya priest. But to us the older (Copan) figure is infinitely more significant. The curious rows of little balls which are often placed at

the left-hand edge of the various *chiffres* are also conventions for older forms. It is to be noted that these balls always occur on the left hand of the hieroglyphs, except in one case, the *chiffre* 1975 in the Palenque cross tablet, on which the left-hand acolyte stands.

The conclusion that the two series are both written on the same system, and that like *chiffres* occurring at the two places are synonyms, will, I think, be sufficiently evident to any one who will himself examine the following cases. It is the *nature* of the agreements which proves the thesis, and not the number of cases here cited. The reader will remember that the Copan series comprises Plates I to XXIII, inclusive; the Palenque series, Plate XXIV and higher numbers.

The sign of the group of Mexican gods who relate to hell, *i. e.*, a circle with a central dot, and with four small segments cut out at four equally distant points of its circumference, is found in No. 4291, Plate XXII, and in many of the Palenque plates, as Plate LVI, Nos. 2090, 2073, 2045, 2021, etc. In both places this sign is worn by human figures just below the ear.

The same sign occurs as an important part of No. 4271, Plate XXII, and No. 4118, Plate XIII (Copan), and No. 2064, Plate LVI (Palenque), etc.

No. 7, Plate V^a, and No. 1969, Plate LVI, I regard as absolutely identical. These are both human figures. No. 12, Plate V^a, and No. 637, Plate LIII, are probably the same. These probably represent or relate to the long-nosed divinity, YACATEUCTLI, the Mexican god of commerce, etc., or rather to his Maya representative.

The sign of TLALOC, or rather the family of TLALOCs, the gods of rain, floods, and waters, is an eye (or sometimes a mouth), around which there is a double line drawn. I take No. 26, Plate V^a, of the Copan series, and Nos. 154 and 165, Plate XXIV, to be corresponding references to members of this family. No. 4, Plate V^a, and No. 155 also correspond.

No. 4242, Plate XXII, is probably related to No. 53, Plate XXIV and its congeners.

Nos. 14 and 34, Plate V^a, are clearly related to No. 900, Plate LIV, Nos. 127 and 176, Plate XXIV, No. 3010, Plate LVI, and many others.

Plate III^a of Copan is evidently identically the same as the No. 75 of the Palenque Plate No. XXIV.

The right half of No. 27, Plate V^a, is the same as the right half of Nos. 3020, 3040, and many others of Plate LVI.

No. 17, Plate V^a, is related to No. 2051, Plate LVI, and many others like it.

The major part of No. 4105, Plate XIII, is the same as No. 124, Plate XXIV, etc.

It is not necessary to add a greater number of examples here. The card-catalogue which I have mentioned enables me to at once pick out all the cases of which the above are specimens, taken just as they fell under my eye in rapidly turning over the cards. They therefore represent the





FIG. 52.—Yucatec Stone.

average agreement, neither more nor less. Taken together they show that the same signs were used at Copan and at Palenque. As the same symbols used at both places occur in like positions in regard to the human face, etc., I conclude that not only were the same signs used at both places, but that these signs had the same meaning; *i. e.*, were truly synonyms. In future I shall regard this as demonstrated.

VIII.

HUITZILOPOCHTLI (MEXICAN GOD OF WAR), TEOYAOMI-
QUI (MEXICAN GODDESS OF DEATH), MICLANTECUTLI
(MEXICAN GOD OF HELL), AND TLALOC (MEXICAN RAIN-
GOD), CONSIDERED IN RELATION TO CENTRAL AMERI-
CAN DIVINITIES.

In the *Congrès des Américanistes, session de Luxembourg*, vol. ii, p. 283, is a report of a memoir of Dr. LEEMANS, entitled "Description de quelques antiquités américaines conservées dans le Musée royal néerlandais d'antiquités à Leide." On page 299 we find—

M. G.-H.-BAND, de Arnheim, a eu la bonté de me confier quelques antiquités provenant des anciens habitants du Yucatan et de l'Amérique Centrale, avec autorisation d'en faire prendre des fac-similes pour le Musée, ce qui me permet de les faire connaître aux membres du Congrès. Elles ont été trouvées enfouies à une grande profondeur dans le sol, lors de la construction d'un canal, vers la rivière Graciosa, près de San Filippo, sur la frontière du Honduras britannique et de la république de Guatémala par M. S.-A.-van BRAAM, ingénieur néerlandais au service de la Guatémala-Company.

From the maps given in STEILER'S Hand-Atlas and in BANCROFT'S Native Races of the Pacific States I find that these relics were found 308 miles from Uxmal, 207 miles from Palenque, 92 miles from Copan, and 655 miles from the city of Mexico, the distances being in a straight line from place to place.

The one of these objects with which we are now concerned is figured in Plate (63) of the work quoted, and is reproduced here as Fig. 52.

Dr. LEEMANS refers to a similarity between this figure and others in Stephens' Travels in Central America, but gives no general comparison.

I wish to direct attention to some of the points of this ent. The *chiffre* or symbol of the principal figure is, perhaps, represented in his belt, and is a St. Andrew's cross, with a circle at each end of it. Inside the large circle is a smaller one. It may be said, in passing, that the cross probably relates to the *air* and the circle to the *sun*.

The main figure has two hands folded against his breast. Two other arms are extended, one in front, the other behind, which carry two birds. Each arm has a bracelet. This second pair of hands is not described by Dr. LEEMANS. The two birds are exact duplicates, except that the eye of one is shut, of the other open. Just above the bill of each bird is something which might be taken as a second bill (which probably is not,

however), and on this and on the back of each bird are five spines or claws. The corresponding claws are curved and shaped alike in the two sets. The birds are fastened to the neck of the person represented by two ornaments, which are alike, and which seem to be the usual hieroglyph of the *crotalus* jaw. These jaws are placed similarly with respect to each bird. In KINGSBOROUGH'S Mexican Antiquities, vol. I, Plate X, we find the parrot as the sign of TONATHIU, the sun, and in Plate XXV with NAOLIN, the sun. On a level with the nose of the principal figure are two symbols, one in front and one behind, each inclosing a St. Andrew's cross, and surmounted by what seems to be a flaming fire. It is probably the *chiffre* of the wind, as the cross is of the rain. Below the rear one of these is a head with protruding tongue (the sign of QUETZALCOATL); below the other a hieroglyph (perhaps a bearded face). Each of these is upborne by a hand. It is to be noticed, also, that these last arms have bracelets different from the pair on the breast.

In passing, it may be noted that the head in rear is under a cross, and has on its cheek the symbol U. These are the symbols of the left-hand figure in the Palenque cross tablet.

The head hanging from the rear of the belt has an *open* eye (like that of the principal figure), and above it is a *crotalus* mask, with open eye, and teeth, and forked fangs. The principal figure wears over his head a mask, with open mouth, and with tusks, and above this mask is the eagle's head. This eagle is a sign of TLALOC, at least in Yucatan. In Mexico the eagle was part of the insignia of TETZCATLIPOCA, "the devil," who overthrew the good QUETZALCOATL and reintroduced human sacrifice.

The characteristics of the principal figure, 63, are then briefly as follows:

- I. His *chiffre* is an air-cross with the sun-circle.
- II. He has four hands.
- III. He bears two birds as a symbol.
- IV. The claws or spikes on the backs of these are significant.
- V. The mask with tusks over the head.
- VI. The head worn at the belt.
- VII. The captive trodden under foot.
- VIII. The chain from the belt attached to a kind of ornament or symbol.
- IX. The twisted flames (?) or winds (?) on each side of the figure.
- X. His association with QUETZALCOATL or CUCULKAN, as shown by the mouth with protruding tongue, and with TLALOC or TETZCATLIPOCA, as shown by the eagle's head.

We may note here for reference the signification of one of the hieroglyphs in the right-hand half of Fig. 52, *i. e.*, in that half which contains only writing. The topmost *chiffre* is undoubtedly the name, or part of the name, of the principal figure represented in the other half. It is in pure picture-writing; that is, it expresses the sum of his attributes.

It has the crotalus mask, with nose ornament, which he wears over his face; then the cross, with the "five feathers" of Mexico, and the sun symbol. These are in the middle of the *chiffre*. Below these the oval may be, and probably is, heaven, with the rain descending and producing from the surface of the earth (the long axis of the ellipse), the seed, of which three grains are depicted.

We know by the occurrence of the hieroglyphs on the reverse side of the stone that this is not of Aztec sculpture. These symbols are of the same sort as those at Copan, Palenque, etc., and I shall show later that some of them occur in the Palenque tablets. Hence, we know this engraving to be Yucatec and not Aztec in its origin. If it had been sculptured on one side only, and these hieroglyphs omitted, I am satisfied that the facts which I shall point out in the next paragraphs would have led to the conclusion that this stone was Mexican in its origin. Fortunately the native artist had the time to sculpture the Yucatec hieroglyphs, which are the proof of its true origin. It was not dropped by a traveling Aztec; it was made by a Yucatec.

In passing, it may be said that the upper left-hand, hieroglyph of Plate XIII most probably repeats this name.

I collect from the third volume of BANCROFT'S *Native Races*, chapter viii, such descriptions of HUITZILOPOCHTLI as he was represented among the Mexicans as will be of use to us in our comparisons. No display of learning in giving the references to the original works is necessary here, since Mr. BANCROFT has placed all these in order and culled them for a use like the present. It will suffice once for all to refer the critical reader to this volume, and to express the highest sense of obligation to Mr. BANCROFT'S compilation, which renders a survey of the characteristic features of the American divinities easy.

In Mexico, then, this god had, among other symbols, "five balls of feathers arranged in the form of a cross." This was in reference to the mysterious conception of his mother through the *powers of the air*. The upper hieroglyph in Fig. 52, and one of the lower ones, contain this sign: "In his right hand he had an azure staff cutte in fashion of a waving snake." (See Plate LXI of STEPHENS.) "Joining to the temple of this idol there was a piece of less work, where there was another idol they called TLALOC. These two idolls were alwayes together, for that they held them as companions and of equal power."

To his temple "there were foure gates," in allusion to the form of the cross. The temple was surrounded by rows of skulls (as at Copan) and the temple itself was upon a high pyramid. SOLIS says the war god sat "on a throne supported by a blue globe. From this, supposed to represent the heavens, projected four staves with serpents' heads. (See Plate XXIV, STEPHENS.) "The image bore on its head a bird of wrought plumes," "its right hand rested upon a crooked serpent." "Upon the left arm was a buckler bearing five white plums arranged in form of a cross." SALLAGUN describes his device as a dragon's head, "frightful in the extreme, and easting fire out of his mouth."

HERRARA describes HUITZILOPOCHTLI and TEZCATLIPOCA together, and says they were "beset with pieces of gold wrought like birds, beasts, and fishes." "For collars, they had ten hearts of men," "and in their necks Death painted."

TORQUEMADA derives the *name* of the war god in two ways. According to some it is composed of two words, one signifying "a humming bird" and the other "a sorcerer that spits fire." Others say that the last word means "the left hand," so that the whole name would mean "the shining feathered left hand." "This god it was that led out the Mexicans from their own land and brought them into Anáhuac." Besides his regular statue, set up in Mexico, "there was another renewed every year, made of different kinds of grains and seeds, moistened with the blood of children." This was in allusion to the nature side of the god, as fully explained by MÜLLER (*Americanische Urreligionen*).

No description will give a better idea of the general features of this god than the following cuts from BANCROFT'S *Native Races*, which are copied from LEON Y GAMA, *Las Dos Piedras*, etc. Figs. 53 and 54 are



FIG. 53.—HUITZILOPOCHTLI (front).



FIG. 54.—HUITZILOPOCHTLI (side).

the war god himself; Fig. 55 is the back of the former statue on a larger scale; Fig. 56 is the god of hell, and was engraved on the bottom of the block.

These three were a trinity well nigh inseparable. It has been doubted whether they were not different attributes of the same personage. In the natural course of things the primitive idea would become differentiated into its parts, and in process of time the most important of the parts would each receive a separate pictorial representation.

By referring back a few pages the reader will find summarized the principal characteristics of the Central American figure represented in Fig. 52. He will also have noticed the remarkable agreement between the attributes of this figure and



FIG. 56.—MICLANTECUTLI.

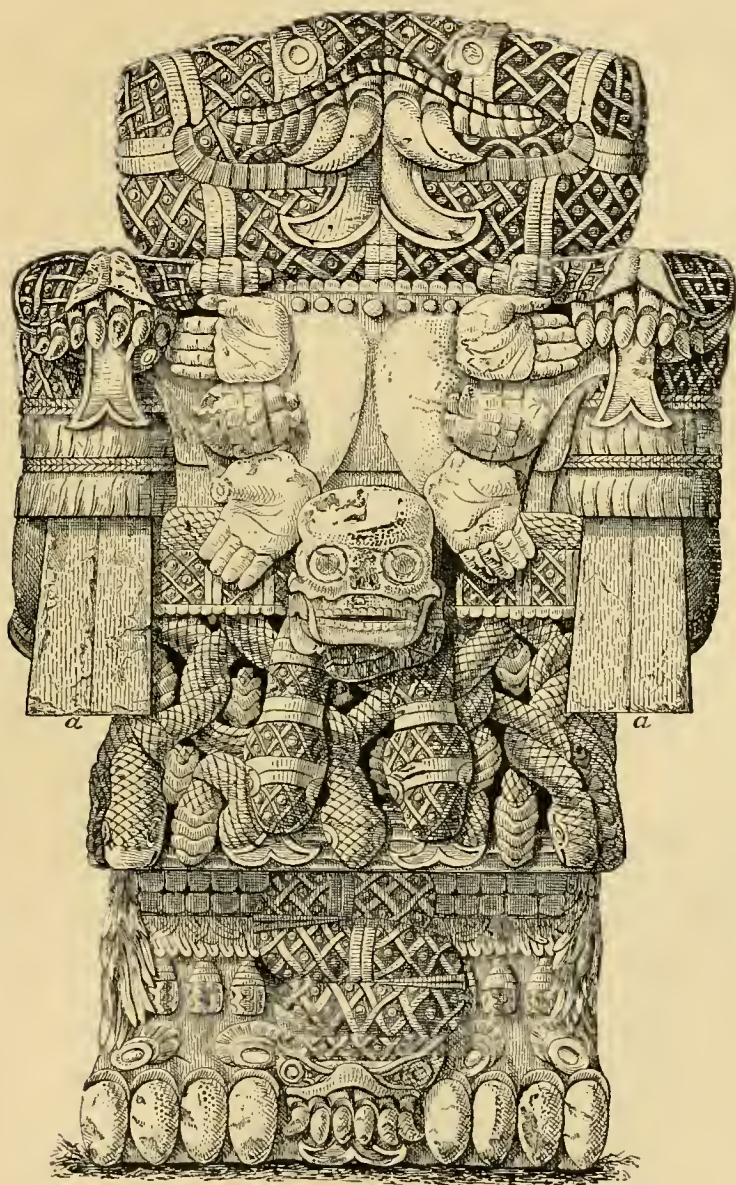


FIG. 55.—Huitzilopochtli (back).

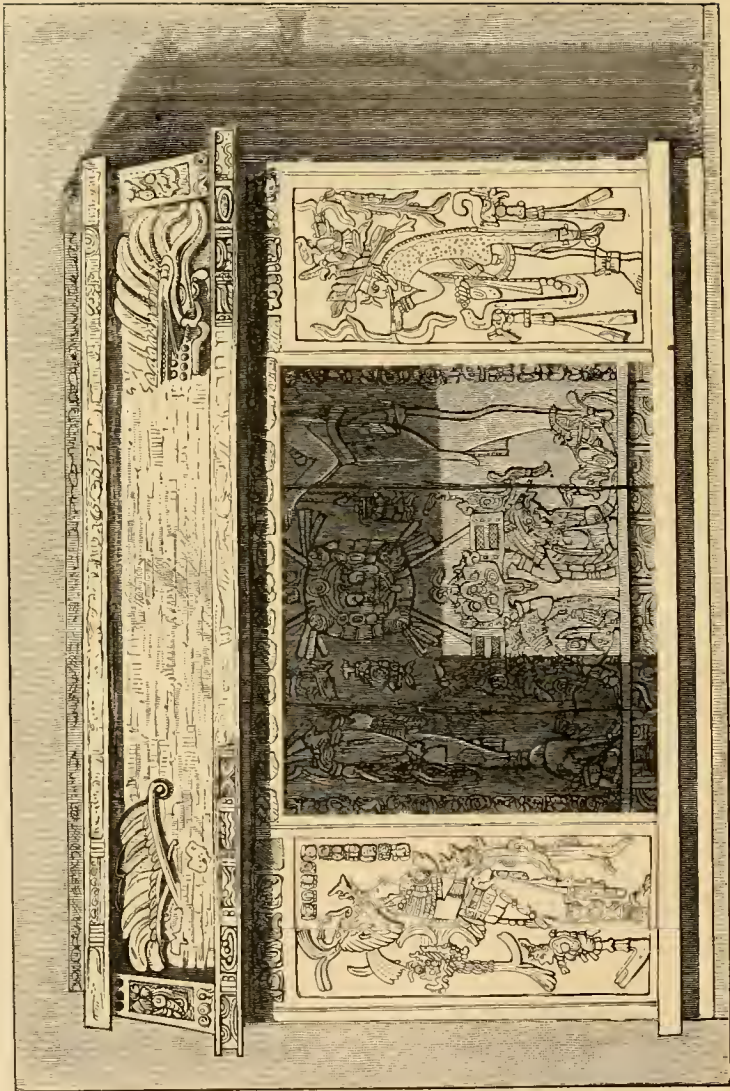


Fig. 57.—Adoratorio.

those contained in the cuts or in the descriptions of the Mexican gods. Thus—

- I. The symbol of both was the cross.
- II. Fig. 52 and Fig. 55 each have four hands.*
- III. Both have birds as symbols.

It is difficult to regard the bird of Fig. 52 as a humming bird, as it more resembles the parrot, which, as is well known, was a symbol of some of the Central American gods. Its occurrence here in connection with the four arms fixes it, however, as the bird symbol of HUITZILOPOCHTLI. In the *Ms. Troano*, plate xxxi (lower right-hand figure), we find this same personage with his two parrots, along with TLALOC, the god of rain.

IV. The claws of the Mexican statue may be symbolized by the spikes on the back of the birds in Fig. 52, but these latter appear to me to relate rather to the fangs and teeth of the various erotalus heads of the statues.

V. The mask, with tusks, of Fig. 52, is the same as that at the top of Fig. 55, where we see that they represent the teeth of a serpent, and not the tusks of an animal. This is shown by the forked tongue beneath. The three groups of four dots each on HUITZILOPOCHTLI'S statue are references to his relationship with TLALOC.

With these main and striking duplications, and with other minor and corroborative resemblances, which the reader can see for himself, there is no doubt but that the two figures, Mexican and Yucatee, relate to the same personage. The Yucatee figure combines several of the attributes of the various members of the Mexican trinity named above, but we should not be surprised at this, for, as has been said, some writers consider that this trinity was one only of attributes and not of persons.

What has been given above is sufficient to show that the personage represented in Fig. 52 is the Yucatee equivalent of HUITZILOPOCHTLI, and has relations to his trinity named at the head of this section, and also to the family of TLALOC. I am not aware that the relationship of the Yucatee and Aztec gods has been so directly shown, on evidence almost purely pictorial, and therefore free from a certain kind of bias.

If the conclusions above stated are true, there will be many corroborations of them, and the most prominent of these I proceed to give, as it involves the explanation of one of the most important tablets of Palenque, parts of which are shown in Plates XXIV, LX, LXI, and LXII, vol. ii, of STEPHENS.

Plate LXII, Fig. 57, represents the "Adoratorio or Alta Casa, No. 3" of Palenque. This is nothing else than the temple of the god HUITZILOPOCHTLI and of his equal, TLALOC. The god of war is shown on a larger scale in Plate LXI, Fig. 58, while TLALOC is given in Plate LX, Fig. 59, and the tablet inside the temple in Plate XXIV, Fig. 60. The

* From KINGSBOROUGH, vol. i, plate 48, it appears that TLACLI TONATIO may have had four hands. His name meant (?) Let there be light.

resemblances of Plate XXIV and of the Palenque cross tablet and their meanings will be considered further on.

Returning to Plate LXII, the symbols of the roof and cornice refer to these two divinities. The faces at the ends of the cornice, with the double lines for eye and mouth, are unmistakable TLALOC signs. The association of the two gods in one temple, as at Mexico, is a strong corroboration.

Let us now take Plate LXI, Fig. 58, which represents HUITZILOPOCHTLI, or rather, the Yucatec equivalent of this Aztec god. I shall refer to him by the Aztec appellation, but I shall in future write it in italics; and in general the Yucatec equivalents of Aztec personages in italics, and the Aztec names in small capitals.

Compare Fig. 52 and the Plate LXI (Fig. 58). As the two plates are before the reader, I need only point out the main resemblances, and, what is more important, the differences.

The sandals, the belt, its front pendant, the bracelets, the neck ornament, the helmet, should be examined. The four hands of Fig. 52 are not in LXI, nor the parrots; but if we refer to KINGSBOROUGH, Vol. II, Plates 6 and 7 of the LAUD manuscript, we shall find figures of HUITZILOPOCHTLI with a parrot, and of TLALOC with the stork with a fish in its mouth, as in the head-dress here. The prostrate figure of Fig. 52 is here led by a chain. At Labphak (BANCROFT, Vol. iv., p. 251), he is held aloft in the air, and he is on what *maybe* a sacrificial yoke. The *Tlaloc* eagle is in the head of the staff carried in the hand. This eagle is found in the second line from the bottom of Fig. 52, we may remark in passing. Notice also the crescent moon in the ornament back of the shoulders of the personage of Fig. 58. The twisted cords which form the bottom of this ornament are in the hieroglyph No. 37, Plate XXIV (Fig. 60).

Turning now to Plate LX (Fig. 59).

This I take to be the sorcerer *Tlaloc*. He is blowing the wind from his mouth; he has the eagle in his head-dress, the jaw with grinders, the peculiar eye, the four TLALOC dots over his ear and on it, the snake between his legs, curved in the form of a yoke (this is known to be a serpent by the conventional erotalus signs of jaw and rattles on it in nine places), the four TLALOC dots again in his head-dress, etc. He has a leopard skin on his back (the tiger was the earth in Mexico) and his naked feet have peculiar anklets which should be noticed.

Although I am deferring the examination of the hieroglyphs to a later section, the *chiffre* 3201 should be noticed. It is the TLALOC eye again, and 3203 is the *chiffre* of the Mexican gods of hell.

In passing I may just refer the reader to p. 164, Vol. ii, of STEPHENS' book on Yucatan, where a figure occurring at Labphax is given. This I take to be the same as *Huitzilopochtli* of Plate LXI. Also in the MS. *Troano*, published by BRASSEUR DE BOURBOURG, a figure in Plate XXV and in other plates sits on a hieroglyph like 3201, and is



FIG. 58.—Maya War God.



FIG. 59.—Maya Rain God.

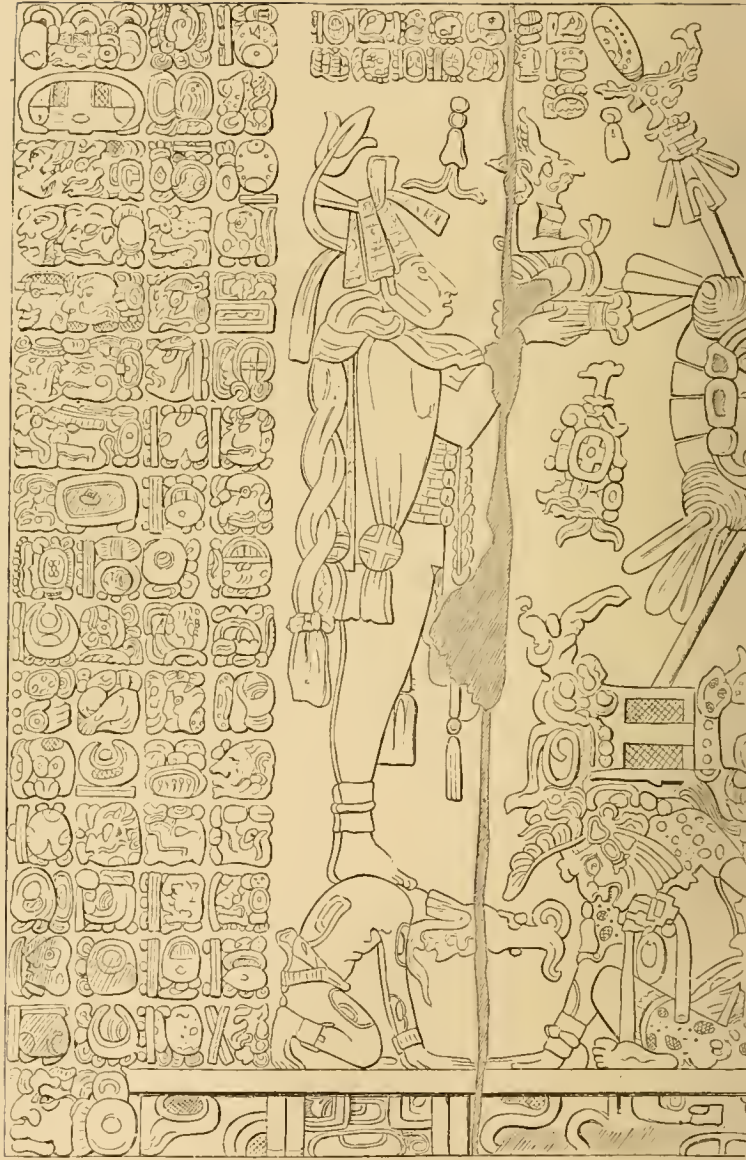


FIG. 60.—



PHOTO - C. K. CG. N. Y.

alenque.



FIG. 60.—Tablet at Palenque.

Tlaloc. This is known by the head-dress, the teeth, the air-trumpet, the serpent symbol, etc. In Plates XXVIII, XXXI, and XXXIII of the same work HUITZILOPOCHTLI and TLALOC are represented together, in various adventures.

In Plate LX (Fig. 59) notice also the *chiffre* on the tassels before and behind the main personage.

Now turn to the Plate XXIV (Fig. 60), which is the main object in the "Adoratorio" (Fig. 57), where the human figures serve as flankers.

First examine the earyatides who support the central structure. These are *Tlalocs*. Each has an eagle over his face, is clothed in leopard skin, has the characteristic eye and teeth, and the wristlets of Plate LX (Fig. 59).

A vertical line through the center of Plate XXIV (Fig. 60) would separate the figures and ornaments into two groups. These groups are very similar, but never identical, and this holds good down to the minutest particulars and is not the result of accident. One side (the right-hand) belongs to *Tlaloc*, the other to *Huitzilopochtli*.

The right-hand priest (let us call him, simply for a name and not to commit ourselves to a theory) has the sandals of Plate LXI; the left-hand priest the anklets of Plate LX.

The beast on which the first stands and the man who supports the other are both marked with the tassel symbol of Plate LX. There is a certain rude resemblance between the supplementary head of this beast and the pendant in front of the belt of Fig. 52. Four of these beasts supply rain to the earth with *Tlaloc* in Plate XXVI of the MS. *Troano*. The infant offered by the right-hand priest has the *two* curls on his forehead which was a necessary mark of the victims for TLALOC'S sacrifices. The center of the whole plate is a horrid mask with an open mouth. Behind this are two staves with *different* ornaments crossed in the form of the air-cross. On either hand of this the ornaments are different though similar.

A curious resemblance may be traced between the positions, etc., of these two staves and those of the figure on p. 563, vol. iv, of BANCROFT'S *Native Races*, which is a Mexican stone. Again, this latter figure has at its upper right-hand corner a crouching animal (?) very similar to the gateway ornament given in the same volume, p. 321. This last is at Palenque. I quote these two examples in passing simply to reinforce the idea of similarity between the sacred sculptures of Yucatan and Mexico.

I take it that the examination of which I have sketched the details will have left no doubt but that the personage of Fig. 52 is truly *Huitzilopochtli*, the Yucatee representative of HUITZILOPOCHTLI; that Plate LXI (Fig. 58) is the same personage; that Plate LX (Fig. 59) represents TLALOC; and that Plate XXIV (Fig. 60) is a tablet relating to the service of these two gods.

I have previously shown that the Palenque hieroglyphs are read in

order from left to right. We should naturally expect, then, that the sign for *Tlaloc* or for *Huitzilopochtli* would occupy the upper left-hand corner of Plate XXIV. In fact it does, and I was led to this discovery in the way I have indicated.

No. 37 is the Palenque manner of writing the top sign of Fig. 52. I shall call the signs of Fig. 52 *a, b, c*, etc., in order downwards.

The crouching face in *a* occupies the lower central part of No. 37. Notice also that this face occurs below the small cross in the detached ornament to the left of the central mask of Fig. 60. The crescent moon of Plate LXI (Fig. 58) is on its cheek; back of this is the sun-sign; the cross of *a* is just above its eye; the three signs for the celestial concave are at the top of 37, crossed with rain bands; the three seeds (?) are below these. The feathers are in the lower right-hand two-thirds. This is the sign or part of the sign for *Huitzilopochtli*. If a Maya Indian had seen either of these signs a few centuries ago, he would have had the successive ideas—a war-god, with a feather-symbol, related to sun and moon, to fertilizing rain and influences, to clouds and seed; that is *Huitzilopochtli*, the companion of *Tlaloc*. Or if he had seen the upper left-hand symbol of the Palenque cross tablet (1800), he would have had related ideas, and so on.

What I have previously said about the faithfulness with which the Yucatec artist adhered to his prototypes in signs is perfectly true, although apparently partly contradicted by the identification I have just made. When a given attribute of a god (or other personage) was to be depicted, the *chiffres* expressing this were marvellously alike. Witness the *chiffres* Nos. 2090, 2073, 2021, 2045, 3085, 3073, 3070, 3032 of the Palenque cross tablet. But directly afterwards some other attribute is to be brought out, and the *chiffre* changes; thus the hieroglyph 1009 of Plate LIV, or 265, Plate LII, has the same protruding tongue as 2021, etc., and is the same personage, but the style is quite changed. In Fig. 52, *Huitzilopochtli* is the war-god, in Plate XXIV he is the rain-god's companion; and while every attribute is accounted for, prominence is given to the special ones worshipped or celebrated. Scores of instances of this have arisen in the course of my examination.

Again, we must remember that this was no source of ambiguity to the Yucatecs, however much it may be to us. Each one of them, and specially each officiating priest, was entirely familiar with every attribute of every god of the Yucatec pantheon. The sign of the attribute brought the idea of the power of the god in that special direction; the full idea of his divinity was the integral of all these special ideas. The limits were heaven and earth.

This, then, is the first step. I consider that it is securely based, and that we may safely say that in proper names, at least, a kind of picture writing was used which was *not* phonetic.

From this point we may go on. I must again remark that great familiarity with the literature of the Aztecs and Yucatecs is needed—a famil-

ilarity to which I personally cannot pretend—and that it is clear that the method to reach its full success must be applied by a true scholar in this special field.

IX.

TLALOC, OR HIS MAYA REPRESENTATIVE.

Although there is no personage of all the Maya pantheon more easy to recognize in the form of a *statue* than *Tlaloc*, there is great difficulty in being certain of *all* the hieroglyphs which relate to him. There is every reason to believe that in Yucatan, as in Mexico, there was a family of rain-gods, *Tlalocs*, and the distinguishing signs of the several members are almost impossible of separation, so long as we know so little of the special functions of each member of this family.

In Yucatan, as in Mexico, *Tlaloc's* main sign was a double line about the eye or mouth, or about both; and further, some of the *Tlalocs*, at least, were bearded.*

CUKULCAN was also bearded, but we have separated out in the next section the *chiffres*, or certainly most of them, that relate to him. Those that are left remain to be distributed among the family of rain-gods; and this, as I have said, can only be done imperfectly, on account of our slight knowledge of the character of these gods.

If we examine the plates given by STEPHENS, we shall find many pictorial allusions to *Tlaloc*. These are often used as mere ornaments or embellishments, as in borders, etc., and probably served only to notify, in a general way, the fact of the relationship of the personage represented, to this family, and probably not to convey any specific meaning.

Thus, in Plate XXXV of STEPHENS' work the upper left-hand ornament of the border is a head of *Tlaloc* with double lines about eye and mouth, and this ornament is repeated in a different form at the lower right-hand corner of the border just back of the right hand of the sitting figure, and also in the base of the border below the feet of the principal figure.

Plate XLVIII (of STEPHENS') is probably CHALCHIHUITLICUE (that is, the Yucatee equivalent of that goddess), who was the sister of *Tlaloc*. His sign occurs in the upper left-hand corner of the border, and in Plate XLIX the same sign occurs in a corresponding position.

Plate XXIV (our Fig. 60) is full of *Tlaloc* signs. The bottom of the tablet has a hieroglyph, 93 (*Huitzilopochtli*), at one end and 185 (*Tlaloc*) at the other. The leopard skin, eagle, and the crouching tiger (?) under the feet of the priest of *Tlaloc* (the right-hand figure) are all given. The infant (?) offered by this priest has two locks of curled hair at its forehead, as was prescribed for children offered to this god.

* See KINGSBOROUGH, vol. ii, Plate I, of the LAUD MS.

In Plate LVI (our Fig. 48) the mask at the foot of the cross is a human mask, and not a serpent mask, as has been ingeniously proved by Dr. HARRISON ALLEN in his paper so often quoted. It is the mask of *Tlaloc*, as shown by the teeth and corroborated (not proved) by the way in which the eye is expressed. The eurved hook within the eyeball here, as in 185, stands for the air—the wind—of which *Tlaloc* was also god. The Mexicans had a similar sign for breath, message.

The *chiffre* 1975, on which *Huitzilopochtli's* priest is standing, I believe to be the synonym of 185 in Plate XXIV. Just in front of *Tlaloc's* priest is a sacrificial yoke (?), at the top of which is a face, with the eye of the *Tlalocs*, and various decorations. This face is to be found also at the lower left-hand corner of Plate XLI (of STEPHENS'), and also (?) in the same position in Plate XLII (of STEPHENS'). These will serve as subjects for further study.

Notice in Plate LVI (our Fig. 48) how the ornaments in corresponding positions on either side of the central line are similar, yet never the same. A careful study of these pairs will show how the two gods celebrated, differed. A large part, at least, of the attributes of each god is recorded in this way by antithesis. I have not made enough progress in this direction to make the very few conclusions of which I am certain worth recording. The general fact of such an antithesis is obvious when once it is pointed out, and it is in just such paths as this that advances must be looked for.

I have just mentioned, in this rapid survey of the plates of vol. ii of STEPHENS' work, the principal pictorial signs relating to *Tlaloc*. There are a number almost equally well marked in vol. i, in Plates VII, IX, X, XIII, and XV, but they need not be described. Those who are especially interested can find them for themselves.

The following brief account and plate of a *Tlaloc* inscription at Kabah will be useful for future use, and is the more interesting as it is comparatively unknown.

INSCRIPTION AT KABAH (*Yucatan*).

This hitherto unpublished inscription on a rock at Kabah is given in *Archives paléographiques*, vol. i, part ii, Plate 20. It deserves attention on account of its resemblances, but still more on account of its differences, with certain other Yucatee glyphs.

We may first compare it with the Plate LX of STEPHENS (our Fig. 59).

The head-dress in Plate 20 is quite simple, and presents no resemblance to the elaborate gear of Plate LX, in which the ornament of a leaf (?), or more probably feather, cross-hatched at the end and divided symmetrically by a stem (?) or quill about which four dots are placed, seems characteristic.

Possibly, and only possibly, the square in the rear of the head of Plate 20, which has two cross-hatchings, may refer to the elaborate cross-hatchings in Plate LX. The four dots are found twice, once in

front and once in rear of the figure. The heads of the two figures have only one resemblance, but this is a very important one. The tusks belong to HUITZILOPOCHTLI and to his trinity, and specially to TLALOC, his companion.

Both Plate 20 and LX have the serpent wand or yoke clearly expressed. In LX the serpent is decorated with crotalus heads; in 20 by images of the sun (?), as in the FERJAVARY MS. (KINGSBOROUGH). The front apron or ornament of Plate 20 is of snake skin, ornamented with sun-symbols. Comparing Plate 20 with Fig. 52 (*ante*), we find quite other resemblances. The head-dress of 20 is the same as the projecting arm of the head-dress of Fig. 52; and the tusks are found in the helmet or mask of Fig. 52.

These and other resemblances show the Kabah inscription to be a TLALOC. It is interesting specially on account of its hieroglyphs, which I hope to examine subsequently. The style of this writing appears to be late, and may serve as a connecting link between the stones and the manuscripts, and it is noteworthy that even the style of the drawing itself seems to be in the manner of the Mexican MS. of LAUD, rather than in that of the Palenque stone tablets.

From the card catalogue I select the following *chiffres* as appertaining to the family of the *Tlalocs*. As I have said, these must for the present remain in a group, unseparated. Future studies will be necessary to discriminate between the special signs which relate to special members of the family. The *chiffres* are Nos. 3200; 1864; 1403; 811; 1107?; 1943?; 4114??; *b*?; 1893 (bearded faces, or faces with teeth very prominent); 166?; 4??; 807?; 62?; 155?; 26; 154?; 165?; 164?; 805; 4109; 1915?; 675??; 635?? (distinguished by the characteristic eye of the TLALOCs).

Here, again, the writing is ideographic, and not phonetic.

X.

CUKULCAN OR QUETZALCOATL.

The character 2021 occurs many times in Plate LVI (Fig. 48), and occasionally elsewhere. The personage represented is distinguished by having a protruding tongue, and was therefore at once suspected to be QUETZALCOATL. (See BANCROFT'S *Native Races*, vol. iii, p. 280.) The protruding tongue is probably a reference to his introduction of the sacrificial acts performed by wounding that member.

The rest of the sign I suppose to be the rebus of his name, "Snake-plumage"; the part cross-hatched being "snake," the feather-like ornament at the upper left-hand corner being "plumage." It is necessary, however, to prove this before accepting the theory. To do this I had recourse to Plates I and IV (Figs. 49, 50), my dictionary of synonyms.

This *cross-hatching* occurs in Plate I. In the six tassels below the waist, where the cross-hatching *might* indicate the serpent skin, notice the ends of the tassels; these are in a scroll-like form, and as if rolled or coiled up. In Plate IV they are the same, naturally. So far there is but little light.

In Plate IV, just above each wrist, is a sign composed of ellipse and bars; a little above each of these signs, among coils which may be serpent coils, and on the horizontal line through the top of the necklaces pendant, are two surfaces cross-hatched all over. What do these mean? Referring to Plate I, we find, in exactly the same relative situation, the forked tongue and the rattles of the erotalus. These are, then, synonyms, and the *guess* is confirmed. The cross-hatching means serpent-skin. Is this *always* so? We must examine other plates to decide.

The same ornament is found in Plates IX, XIV, XVI, XVIII, XIX, XX, XXI, XXXV (of STEPHENS'), but its situation does not allow us to gain any additional light.

In Plate XII (STEPHENS') none of the ornaments below the belt will help us. At the level of the mouth are four patches of it. Take the upper right-hand one of these. Immediately to its right is a serpent's head; below the curve and above the frog's (?) head are the rattles. Here is another confirmation. In Plate XVIII I refer the cross-hatching to the jaw of the crocodile. In Plate XXII I have numbered the *chiffres* as follows:

4201	4202	4203	4204.
4211	4212	4213	4214.
*	*	*	*
*	*	*	*
*	*	*	*
4311	4312	4313	4314.

4204 has the cross-hatching at its top, and to its left in 4203 is the serpent's head. The same is true in 4233-4. In 4264 we have the same symbol that we are trying to interpret; it is in its perfect form here and in No. 1865 of the Palenque series. In the earyatides of Plate XXIV (Fig. 60) the cross-hatching is included in the spots of the leopard's skin; in the ornaments at the base, in and near the masks which they are supporting, it is again serpent skin. Take the lower mask; its jaws, forked-tongue, and teeth prove it to be a serpent-mask, as well as the ornament just above it. In Plate LX (Fig. 59) it is to be noticed that the leopard spots are not cross-hatched, but that this ornament is given at the lower end of the leopard robe, which ends moreover in a erotalus tongue marked with the sign of the jaw (near the top of this ornament) and of the rattles (near the bottom). This again confirms the theory of the rebus meaning of the cross-hatching. In Plate XXIV (Fig. 60) the cross-hatching on the leopard spots probably is meant to *add* the serpent attribute to the leopard symbol, and not simply to denote the latter.

Thus an examination of the *whole* of the material available, shows that the preceding half of the hieroglyph 2021 and its congeners is nothing

but the *rebus* for QUETZALCOATL, or rather for CUKULCAN, the Maya name for this god. BRASSEUR DE BOURBOURG, as quoted in BANCROFT'S *Native Races*, vol. ii, p. 699, foot note, says CUKULCAN, comes from *kuk* or *kukul*, a bird, which appears to be the same as the *quetzal*, and from *can*, serpent; so that CUKULCAN in Maya is the same as QUETZALCOATL in Aztec. It is to be noticed how checks on the accuracy of any deciphering of hieroglyphs occur at every point, if we will only use them.

The Maya equivalents of HUITZILOPOCHTLI and TLALOC are undoubtedly buried in the *chiffres* already deciphered, but we have no means of getting their names in Maya from the rebus of the *chiffres*.

In the cases of these two gods we got the *chiffre*, and the rebus is still to seek. In the case of *Quetzalcoatl* or CUKULCAN, the rebus was the means of getting the name; and if the names of this divinity had not been equivalent in the two tongues, our results would have led us to the (almost absurd) conclusion that a god of certain attributes was called by his Aztec name in the Maya nations.

Thus every correct conclusion confirms every former one and is a basis for subsequent progress. The results of this analysis are that the Maya god CUKULCAN is named in each one of the following *chiffres*, viz: Nos. 1009, 265, 2090, 2073, 2021, 3085, 2045, 3073, 3070, 3032, 1865, 265, 268?, 4291? 73?? I give the numbers in the order in which they are arranged in the card-catalogue. There is, of course, a reason for this order.

BANCROFT, vol. iii, p. 268, says of QUETZALCOATL that "his symbols were the bird, the serpent, the cross, and the flint, representing the clouds, the lightning, the four winds, and the thunderbolt."

We shall find all of his titles except one, the bird, in what follows. We must notice here that in the *chiffre* 2021 and its congeners the bird appears directly over the head of CUKULCAN. It is plainly shown in the heliotype which accompanies Professor RAU'S work on the Palenque cross, though not so well in our Fig. 48.

In what has gone before, we have seen that the characters 2021, 2045, 2073, 3073, 3085, 265, etc., present the portrait and the rebus of CUKULCAN. It will not be forgotten that in the examination of the question as to the order in which the stone inscriptions were read we found a number of *pairs* in Plate LVI, Fig. 48; the characters 2021, etc., being one member of each. The other members of the pairs in the Plate LVI were 2020, 2044, 2072, 3072, 3084, etc. 264-265 is another example of the same pair elsewhere.

I hoped to find that the name CUKULCAN, or 2021, was associated in these pairs with some adjective or verb, and therefore examined the other members of the pair.

In a case like this the card-catalogue is of great assistance; for example, I wish to examine here the *chiffres* Nos. 2020, 2044, 2072, 3072, 3084, etc. In the catalogue their cards occur in the same compartment, arranged so that two cards that are exactly alike are contiguous.

We can often know that two *chiffres* are alike when one is in a far better state of preservation than the other. Hence we may select for study that one in which the lines and figures are best preserved; or from several characters known to be alike, and of which no one is entirely perfect, we may construct with accuracy the type upon which they were founded. In this case the hieroglyph 2020 is well preserved (see the right-hand side of Plate LVI, Fig. 48, the upper left-hand glyph). It consists of a *human hand*, with the symbol of the *sun* in it; above this is a sign similar to that of the Maya day *Ymix*; above this again, in miniature, is the rebus "snake plumage" or *Cukulean*; and to the left of the hieroglyph are some curved lines not yet understood. No. 2003 of the same plate is also well preserved. It has the hand as in 2020, the rebus also, and the sign for *Ymix* is slightly different, being modified with a sign like the top of a cross, the symbol of the *four winds*. The symbol *Ymix* may be seen, by a reference to Plate XXVII (lower half) of the MS. *Troano*, to relate to the *raia*. The figure of that plate is pouring rain upon the earth from the orifices represented by *Ymix*. The cross of the *four winds* is still more plain in Nos. 2072, 3084, and 3072.

The part of this symbol 2020 and its synonyms which consists of curved lines occupying the left hand one-third of the whole *chiffre* occurs only in this set of characters, and thus I cannot say *certainly* what this particular part of the hieroglyph means; but if the reader will glance back over the last one hundred lines he will find that these *chiffres* contain the rebus CUKULCAN, the sign of a *human hand*, of the *sun*, of the *raia*, and of the *four winds*.

In BANCROFT'S *Native Races*, vol. iii, chapter vii, we find that the titles of QUETZALCOATL (CUKULCAN) were the *air*, the *rattlesnake*, the *rumbler* (in allusion to thunder), the *strong hand*, the lord of the *four winds*. The bird symbol exists in 2021, etc. Now in 2020 and its congeners we have found every one of these titles, save only that relating to the *thunder*. And we have found a meaning for every part of the hieroglyph 2020 save only one, viz, the left-hand one-third, consisting of concentric half ellipses or circles. It may be said to be quite *probable* that the unexplained part of the sign (2020) corresponds to the unused title, "the rumbler." But it is not rigorously proved, although very probable. The thunder would be well represented by repeating the sign for sky or heaven. This much seems to me certain. The sign is but another summing up of the attributes and titles of CUKULCAN. 2021 gave his portrait, his bird symbol, made allusion to his institution of the sacrifice of wounding the tongue, and spelled out his name in rebus characters. 2020 repeats his name as a rebus and adds the titles of lord of the four winds, of the sun, of rain, of the strong hand, etc. It is his biography, as it were.

In this connection, a passing reference to the characters 1810, etc., 1820, etc., 1830, etc., 1840, etc., 1850, etc., of the left-hand side of Plate LVI should be made. Among these, all the titles named above are to be found. These are suitable subjects for future study.

We now see *why* the pair 2020, 2021 occurs so many times in Plate LVI, and again as 264, 265, etc. The right-hand half of this tablet has much to say of CUKULCAN, and whenever his name is mentioned a brief list of his titles accompanies it. Although it is disappointing to find *both* members of this well-marked pair to be proper names, yet it is gratifying to see that the theory of pairs, on which the proof of the order in which the tablets are to be read must rest, has received such unexpected confirmation.

To conclude the search for the hieroglyphs of CUKULCAN'S name, it will be necessary to collect all those faces with "round beards" (see BANCROFT'S *Native Races*, vol. iii, p. 250). TLALOC was also bearded, but all the historians refer to QUETZALCOATL as above cited. I refer hieroglyphs Nos. 658, 651?, 650?, and 249? to this category.

Perhaps also the sign No. 153 is the sign of QUETZALCOATL, as something very similar to it is given as his sign in the *Codex Telleriano Remensis*, KINGSBOROUGH, vol. i, Plates I, II, and V (Plate I the best), where he wears it at his waist.

In Plate LXIII of STEPHENS (vol. ii) is a small figure of CUKULCAN which he calls "Bas Relief on Tablet." WALDECK gives a much larger drawing (incorrect, however, in many details), in which the figure, the "Beau Relief," is seen to wear bracelets high up on the arm. This was a distinguishing sign of QUETZALCOATL (see BANCROFT'S *Native Races*, vol. iii, pp. 249 and 250), and this figure probably is a representation of the Maya divinity. He is on a stool with tigers for supports. The tiger belongs to the attributes which he had in common with TLALOC, and we see again the intimate connection of these divinities—a connection often pointed out by BRASSEUR DE BOURBOURG.

This is the third proper name which has been deciphered. All of them have been pure picture-writing, except in so far as their rebus character may make them in a sense phonetic.

XI.

COMPARISON OF THE SIGNS OF THE MAYA MONTHS (LANDA) WITH THE TABLETS.

We have a set of signs for Maya months and days handed down to us by LANDA along with his phonetic alphabet. *A priori* these are more likely to represent the primitive forms as carved in stone than are the alphabetic hieroglyphs, which may well have been invented by the Spaniards to assist the natives to memorize religious formulæ.*

* Since this was written I have seen a paper by Dr. VALENTINI, "The LANDA alphabet a Spanish fabrication" (read before the American Antiquarian Society, April 28, 1880), and the conclusions of that paper seem to me to be undoubtedly correct. They are the same as those just given, but while my own were reached by a study of the stones and in the course of a general examination, Dr. VALENTINI has addressed himself unsuccessfully to the solution of a special problem.

BRASSEUR DE BOURBOURG has analyzed the signs for the day and month in his publication on the MS. *Troano*, and the strongest arguments which can be given for their phonetic origin are given by him.

I have made a set of MS. copies of these signs and included them in my card-catalogue, and have carefully compared them with the tablets XXIV and LVI. My results are as follows :

PLATE XXIV (our Fig. 60).

- No. 42 is the Maya month *Pop*, beginning July 16.
 No. 54 is *Zip??*, beginning August 25.
 No. 47 is *Tzoz??*, beginning September 14.
 No. 57 is *Tzec?*, beginning October 4.
 No. 44-45 is *Mol?*, beginning December 3.
 No. 39 is *Yax, Zac, or Ceh*, beginning January 12, February 1, February 21, respectively.

PLATE LVI (our Fig. 48).

- | | |
|----------------------------|--------------------------------------|
| No. 1804 is <i>Uo????</i> | No. 1807 is <i>Mol?</i> |
| No. 1901 is <i>Zip????</i> | No. 1855 is <i>Yax, Zac, or Ceh.</i> |
| No. 1816 is <i>Tzoz??</i> | No. 1844 is <i>Mac?</i> |
| No. 1814 is <i>Tzec?</i> | |

The only sign about which there is little or no doubt is No. 42, which seems pretty certainly to be the sign of the Maya month *Pop*, which began July 16.

No. 39, just above it, seems also to be *one* of the months *Yax, Zac, or Ceh*, which began on January 12, February 1, and February 21, respectively. Which one of these it corresponds to must be settled by other means than a direct comparison. The signs given by LANDA for these three months all contain the same radical as No. 39, but it is impossible to decide with entire certainty to which it corresponds. It, however, most nearly resembles the sign for *Zac* (February 1); and it is noteworthy that it was precisely in this month that the greatest feast of TLALOC took place,* and its presence in this tablet, which relates to *Tlaloc*, is especially interesting.

In connection with the counting of time, a reference to the bottom part of the *chiffre* 3000 of the Palenque cross tablet should be made. This is a *knot* tied up in a string or scarf; and we know this to have been the method of expressing the expiration and completion of a cycle of years. It occurs just above the symbol 3010, the *chiffre* for a metal.

An examination of the original stone in the National Museum, Washington, which is now in progress, has already convinced me that the methods which I have described in the preceding pages promise other interesting confirmations of the results I have reached. For the time,

* See BRASSEUR DE BOURBOURG, *Histoire du Mexique*, vol. i, p. 328.

I must leave the matter in its present state. I think I am justified in my confidence that suitable methods of procedure have been laid down, and that certain important results have already been reached.

I do not believe that the conclusions stated will be changed, but I am confident that a rich reward will be found by any competent person who will continue the study of these stones. The proper names now known will serve as points of departure, and it is probable that some research will give us the signs for verbs or adjectives connected with them.

It is an immense step to have rid ourselves of the phonetic or alphabetic idea, and to have found the manner in which the Maya mind represented attributes and ideas. Their method was that of all nations at the origin of written language; that is, pure picture-writing. At Copan this is found in its earliest state; at Palenque it was already highly conventionalized. The step from the Palenque character to that used in the Kabah inscription is apparently not greater than the step from the latter to the various manuscripts. An important research would be the application of the methods so ably applied by Dr. ALLEN to tracing the evolution of the latter characters from their earlier forms. In this way it will be possible to extend our present knowledge materially.