

## CHAPTER 14

### The lithics of Chocolá: 2004 Season

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#### Presentation

This preliminary report includes the results of the descriptive study of obsidian materials recovered in the excavations conducted by the Chocolá Project during the 2004 season. It presents the analysis of obsidian artifacts corresponding to Operation 14, conducted in Structure 5.

The report includes the methodology of analysis, comments about the results obtained, as well as graphics and tables that allow for a better understanding of the text. It should be noted that for the classification phase of the samples and for the presentation of results in graphics I was efficiently assisted by the advanced student Juddy Areli Carrillo Vallejos, who was conducting a laboratory practice.

#### Methodological Procedure

For the descriptive study of obsidian, we proceeded to create a table with the Excel program, establishing the major variables to be analyzed: type, use, retouch and source. With such variables we may have a quick and accurate panoramic view of the essential characteristics of the material. The annex shows a copy of the finished table, as well as all the tables completed with the corresponding information. Other columns showed the data of Operation, Sub-operation and Lot.

The procedure for the classification of the material consisted in writing down in the corresponding columns the number of artifacts contained in each bag per each one of the types and sources, writing down as well how many of them were used or retouched. The established types were:

1. prismatic blade
2. irregular blade
3. flake
4. bipolar flake
5. core
6. refuse
7. bipolar core
8. point
9. other (they include irregular chunks, columnar chips, pieces with a cortex, etc.)

As to the sources, the origin was established through visual analysis or macroscopic technique, accomplished through the observation of the physical characteristics of the obsidian by means of assessing the three major components: color, texture, and

inclusions. The proximity of the deposits, exchange routes, information from previous studies and the technological types generated were added to these criteria.

The sources considered in the sample were: El Chayal and San Martín Jilotepeque. A third one was also included, with the denomination of "other", for those materials whose origin was still in doubt. We recommend that some samples be sent for neutron activation analysis or X-ray fluorescence, to confirm the trend observed and ratify the accuracy of our analysis.

As to the characteristics of erosion and modification presented by the artifacts, we established the variables of use and retouch. This makes it possible to have some idea on how much they were used and if some technique was required to extend their useful life.

At the end of the table there is a space for observations, where several particularities presented by the artifacts that were not included in the variables, were annotated. Finally, we proceeded to add each variable to know the cumulative frequency of artifacts. Then the percentage of each variable was obtained, and several connections among them were established.

I must add that being this a preliminary analysis several quantitative variables such as length, weight and thickness were not taken into consideration. This will be accomplished later on, taking as main samples the type of prismatic blades where this type of variables offer the greatest possibilities of statistical analysis.

## **Results**

The annexes include the graphics and charts with the results of the analysis accomplished. It is in this space where we shall write down comments about the results and their interpretation. The results are presented at the general level of the sample.

## **Types**

Of a total 794 artifacts, the prismatic blade type represented 30.8% of the sample, followed by the flake tool with 23.2%. The so-called bipolar flakes amounted to 18.7 %, while refuse amounted to 16.1%. The irregular blades, manufactured through percussion, reached 2%, and bipolar cores represented 1.2%, while only one prismatic, worn out core was found, representing 0.12% of the sample. The type "others" included different artifacts not particularly representative, such as irregular chunks, small fragments with cortex and some columnar chips. These amounted to 5%. We had no projectile points but we did find an arrowhead on a prismatic blade.

This analysis shows that the predominant technological type in Operation 14 is that of prismatic blades, closely followed by the flake type. This trend is occasionally observed at sites from the southern coast, in residential contexts where blades and flakes combine as daily used tools.

Since the Middle Pre-Classic period, the prismatic blade is the most usually found obsidian artifact in archaeological contexts. Because of its morphologic characteristics, the prismatic blade is easily adapted to cutting activities both at domestic and specialized levels. The absence of exhausted cores may indicate that blades might have arrived at the site already made, as was the trend in other sites west of Escuintla between the Middle Pre-Classic and the Early Classic periods (Carpio, 1997). However, a modest *in situ* production should not be ruled out, as the possibility exists that some exhausted prismatic cores may have been reduced later through the bipolar technique.

An interesting piece of information is the high percentage of bipolar flakes, together with the bipolar core type and the bipolar columnar chip. The presence of such artifacts may suggest that many artifacts, the prismatic blades in this case, after their useful life as such, may have undergone a maintenance process involving the renovation of the edges or the obtainment of small flakes with sharp edges, turning these pieces into bipolar cores.

The most dramatic example of the utilization of the bipolar technique for maintenance purposes is found in the obsidian from Balberta, Escuintla, where the bipolar technique is used for the creation of new artifacts using older types (Carpio, 1989). This may be the consequence of the lack of a constant supply of new tools, which involves carrying out a recycling process with the artifacts at hand.

In any case, we know that in this sector of Chicolá, the local inhabitants counted with a variety of technological types adequate to serve the needs of a tool fit to cut.

### **Use and Retouch**

In the variables that express the degree of alteration or wearing out of the pieces, we find that 29.9% of the artifacts evidenced, visible traces of wear. We must say that no observations were conducted using a magnifier or stereoscope, which may have shown the presence of striations by cut or other erosion marks very difficult to observe without the help of optical precision instruments. Nevertheless, the piece of information is suggesting that one third of the artifacts were used.

The type of marks corresponds to those made as a result of cuts or scrapings made on hard materials (see pictures and illustrations). They may as well be the result of the constant use of artifacts throughout an extended period of time, gradually causing visible erosion.

The other variable involved in the use of objects is retouch. However, this amounted only to 2.3%. The most frequently observed retouch was the bipolar on prismatic blades, on the edge and the tips. One was aimed at the creation of new edges, as said, and the second, to obtain small flakes.

In the report submitted by Rafael Castillo corresponding to the obsidian sample of Chicolá recovered in the 2003 season, it is observed that 16.4% (161) of the artifacts presented retouch, mostly performed on prismatic blades. Also, the report states that one of the most frequent retouches was the bipolar one, coinciding with the trend observed from the obsidian recovered in Operation 14, during the 2004 season.

Again, we could think that in the absence of a constant supply, several techniques were applied for the optimization of the tools at hand, until they were finally discarded. The case of Chicolá is not among the most dramatic ones from the southern coast, but such possibility should be taken into account to explore the economic behavior that the use of obsidian is suggesting.

## Sources

As already indicated, the visual technique was applied for the identification of sources. The results indicated that the materials originating in El Chayal were the majority, representing 56.4%, followed by the source of San Martín Jilotepeque with 41.4%. The materials considered as coming from unidentified sources represented 3.1%.

Although El Chayal is predominant, this is not so categorical, as it is closely followed by the most proximate ones originating in San Martín Jilotepeque. This may indicate that Chicolá, or at least the investigated portion of Chicolá, participated in exchange networks at an inter-regional level, making way for the flow of products derived from the obsidian industry to different places, in this case, the Mayan area. These networks were fully active towards the Middle Pre-Classic period (Carpio, 1999) and allowed for the supply of products from the prismatic blades industry from both el Chayal and San Martín Jilotepeque towards the southern coast.

In the Rafael Castillo report, we see that in the sample of the 2003 season, the predominant source was El Chayal, with 55%, followed by San Martín Jilotepeque, with 25.3%. The difference is wider here; however, we must take into account that the material is more superficial and may correspond to different occupational periods. Anyway, the trend remains the same, and El Chayal seems to be distributed in larger quantities than San Martín Jilotepeque's.

This situation may have responded to political and economical reasons that linked Chicolá to producer and distributor materials centers from both sources, with a greater emphasis on El Chayal (see Carpio, 1997).

Another aspect to consider is that obsidian is being redistributed in a similar proportion, as in the recovered lots the percentage is similar to that of the general sample. This phenomenon has been observed in other collections from the southern coast. Possibly, new excavations will reveal materials that could break this trend, though for the time being and at least at a domestic level, this is the overview.

## Comments

The preliminary study of the obsidian from Chicolá recovered in the 2004 season and corresponding to Operation 14, has revealed a number of interesting aspects about the implementation of these artifacts in one particular sector of the site. In short, the tendency indicates that there was a routine role for the obsidian utensils, among which the prismatic blades were the preferred tools. This is complemented by flakes of different types and for different uses. Also, we observed that two obsidian sources with their corresponding producer centers were supplying this sector of the

site, and they are, in order of significance, El Chayal and San Martín Jilotepeque, indicating a participation in the established exchange networks.

It is not possible to talk of a local production of obsidian tools, at least as far as prismatic blades are concerned, because they may have been already made at the time of their arrival or they may have been the result of discreet core reductions. The amount of existing carving refuse is not enough to suggest the presence of workshops.

On the other hand, we should keep in mind that the artifacts were located in the construction filling of Structure 5-1, and therefore the reconstruction of activity areas for the moment is somewhat difficult. Nevertheless, there are a number of deposits with associations that may directly refer to situations in the past regarding the use of obsidian tools. However, as we have mentioned, the trend points towards utensils that were a part of daily work at the domestic level. An exploration in the surroundings of the structure may or may not corroborate that trend.

The analysis of the other operations conducted in 2004 will enable us to establish very useful comparisons and to determine whether the evidence revealed by obsidian in Structure 5 and that of the explorations conducted in the 2003 season, are consistent with the role of obsidian in other sectors of the site.

Op	Sub Op	Lot	Arti- fact	Blade	Flake	Flake	Core	Re- fuse	Core	Point	Ot- her	Characteris- tics		Source			Total	Comment
			Blade	Irreg		Bi polar			Bi polar				Use	Re- touch	EC	SMJ		
14	6	2	1	1	1	1						2	1	3	1		4	
14	6	3	2	2	1			2				3		5	2		7	
14	17	1			3									3			3	
14	17	2	2		3	1		2				1		4	4		8	
14	17	4	1	1	1						1	2		4			4	Other- carving remains
14	17	3	3					4						2	5		7	
14	27	1	2		1	1						3	1	3		1	4	
14	27	2	1		2							2	1	3			3	
14	27	3	4			1		2	1			4		2	6		8	
14	27	5	2									2			2		2	A very light one
14	27	6			1			1						1		1	2	
14	27	1	1		1							1		1	1		2	
14	27	2	1						1			1		1		1	2	
14	27	3			2	1		2						4		1	5	
14	36	2	2					3			1	1		6			6	Other- carving remains
14	36	3	1	1							1	1		2	1		3	Other- columnar chip
14	36	4	3			4						1		5	2		7	Some with a cortex
14	36	5			1										1		1	
14	36	6	2		1							2		3			3	
14	37	1	1		1							1	1	2			2	
14	37	2	1			1						1		2			2	
14	37	3			2	1		2				1		5			5	
14	43	1	1			1						1		1	1		2	
14	43	2	2		1	1		2				2		2	4		6	
14	43	3	1		3			2				3			6		6	
14	45	1	1					1				1		2			2	
14	45	2	1	1		1		5				2		8			8	Some with a cortex
14	45	3	1		1	3		1				2	1	4	1	1	6	
14	45	4	2		1	4		7				2		11	2	1	14	
14	46	1	3		1							4		1	3		4	
14	46	2	2		5	1						3		5	3		8	
14	46	3	2		1	1						3		1	3		4	
14	46	4	7		3	2		1				5	2	11	3		13	
14	47	6			2										2		2	
14	47	7			1	1								2			2	
14	55	1	2									2		1	1		2	
14	55	2	1		2	1		2				1		5		1	6	Blade- Possible San Martín Jilotepeque
14	55	3	5		1			1			1			4	3	1	8	Flake- Cortex/other- carving remains
14	56	1							1					1			1	
14	56	2	2		1	2						1		2	3		5	
14	56	3	1					3	1			1		3	2		5	

14	56	4				1					1			1		1	
14	66	2	2								1		2			2	
14	66	3	3					1			3		4			4	
14	66	5			1	2					1		3			3	
14	66	6						1					1			1	with a cortex
14	76	1	1	1						1			2	1	3		Other-carving remains
14	84	2	5		2			1			3		1	7		8	
14	84	3			5	3		1					5	4		9	
14	86	2	1	1							1			2		2	
14	86	3	1			1		1			1		1	2		3	
14	86	4	2								2			2		2	
14	86	5	1						1		1		1	1		2	
14	91	1			1	2							2	1		3	
14	103	1			1	1					1			2		2	
14	103	2	2		1			1			2	1	2	2		4	
14	103	3	1			3				1	1		3	2		5	Other-carving remains
14	103	4			2	1							1	2		3	
14	103	5	2		3	1		1			1		3	4		7	
14	103	6	2			2		1		1	1		2	4		6	Other-carving remains with a cortex
14	104	1		1							1			1		1	
14	104	2				1		2					2	1		3	
14	104	3		1	1	2		1		1	1		1	3	2	6	Other-carving remains /some with a cortex/Other-(Questionable source)
14	104	4		1	1	1				3	1			4	1	5	Other (Uncertain source) Flake with a cortex
14	104	5	4		1	3		1		1	2		3	7		9	Other - carving remains
14	105	1	2			2		1			1			4	1	5	
14	105	2	5			6		1		1	2		7	6		13	Other - Arrowhead
14	107	1		1		1					1	1	1	1		2	
14	107	3				1				1			1		1	2	Other-carving remains
14	111	2	1		1	2					1		2	2		4	
14	111	3	1		1			1			1		3			3	

14	111	4			1	1				1	1			3		3	Other-carving remains
14	111	5				2							2			2	
14	111	6	1		1					1	1		2	1		3	
14	112	1		1					1				1	1		2	
14	112	2	4		3	2			4		2	2	8	8		16	
14	112	3				2			1			1	2	1		3	
14	112	5			1							1		1		1	
14	112	6	1								1	1	1			1	
14	112	7	1			1					1		1	1		2	
14	112	8	1		1						1		1	1		2	Flake-With a cortex
14	113	1	4	1	1	6			1			3	4	8		12	
14	113	2			1	2			1			1	2	2		4	Core with a cortex
14	113	4	2		1	2			4			2	4	5		9	
14	113	5	1		5	1			1			3	5	3		8	Some with a cortex
14	113	6	1									1		1		1	
14	114	1	1		3	1						1		5		5	Some with a cortex
14	114	2	7		1	3			2			1	6	1	2	12	Other-carving remains with a cortex/resembling an arrowhead
14	114	3	3			7			2			1	2	7	6	13	Other-carving remains with a cortex
14	114	4	5			5			2			2	4	3	11	14	Used edge of prismatic blade/ carving remains
14	114	5	4		4				6			3		7	6	13	Some with a cortex
14	116	1	1			1			1					3		3	
14	116	2	2			1						1		2	1	3	
14	116	3	3			3						3	1	3	3	6	
14	116	4	1			1						1		1	1	2	
14	116	5				1								1		1	Possible SMJ
14	118	1	1			1						1	1	1	1	2	
14	118	2	4		4	2					1	3	1	6	4	10	Some with a cortex / Some Very light
14	118	3				1			3					4		4	Very light
14	121	2	2	1							1	3		1	3	4	Other-carving remains
14	121	4		1	1	2			1			1		2	3	5	
14	121	6	2	1		2			5			2		8	2	10	
14	127	2	1		1	1			1			1		3	1	4	
14	127	3	4		1	1			1			2		4	3	7	
14	235	6	1	1								2		1	1	2	
14	235	7				1								1		1	
14	270	1	1									1		1		1	



14	270	2	1		5	1							7			7	
14	270	5	1									1	1	1			Horizontal swift, abundantly used and with one retouch
14	312	1	2									1		1	1		2
14	314	2	1									1			1		1
14	314	3		1								1		1			1
14	314	7		1											1		1
14	314	8			2									2			2
14	315	3			1							1		1			1
14	315	4	3			3						5		2	3	1	6
14	315	8	1		1	1						2		2	1		3
14	316	1	2		1			1				2		1	3		4
14	316	2	2		1	1		2				3		2	4		6
14	316	3	4			3						3		13	1		14
14	318	2	3	1	3	1						1		5	2		7
14	318	3	1		1			1						1	1	1	3
14	318	4	2		1	2		1				1		6			6
14	318	5	1		2			4				1		6	3		9
14	318	7			6							2	2	5	1		6
14	319	2		1	2							1		2	1		3
14	319	3	1									1			1		1
14	319	5	5		2							4		4	3		7
14	319	6			2			1				1		2	2		4
14	320	1	3		2	1		3				2		4	3	2	9
14	320	2	2			2		3				2		5	1		6
14	320	3			1	1		1						2		1	3
14	320	5				1						1			1		1
14	321	3		1								1		1			1
14	321	5	1		1							1		1	1		2
14	324	1	1												1		1
14	324	2			1										1		1
14	324	4	1									1			1		1
14	324	5			1									1			1
14	324	6				1						1			1		1
14	324	7	1									1			1		1

14	325	3	2		3						1		1	4		5	
14	325	4			1								1			1	
14	325	5		1				1			1		1	1		2	One with a cortex
14	325	6	3		1						2		2	3		5	Other-carving remains
14	325	8		1		1					2		2			2	
14	325	9			1	2					2		2	1		3	
14	326	1			1								1			1	
14	326	2	3		1						2		3	1		4	San Martín Jilotepeque-it has a rugged texture and a not too dense granulosity
14	326	3	4			2		1			3		3	4		7	
14	326	5			2						1	1	1		1	2	Flake in the shape of a point
14	326	7	1		2						1		1	2		3	One with a cortex
14	326	8	2	1		1					1		3	1		4	
14	326	9	3		1						2		3		1	4	
14	326	10			1			1					2			2	
14	329	1				2					1		2			2	
14	329	3	1								1		1		1	2	Other-Entirely opaque
14	329	4	1		1			1			1		2	1		3	
14	329	5	3		1						1		2	2		4	
14	329	6	1		1			1			1		3			3	
14	329	7	2	2							1		2	2		4	
14	445	2			1			1					1	1		2	
14	455	1			1									1		1	
14	456	2	1		3								3	2		5	Other-columnar chip
14	466	3	2		2						1		4			4	
14	486	1	1								1			1		1	
14	486	2			1								1			1	
14	486	3	1								1		1			1	
14	486	4		1							1	1	1			1	
14	487	2			2			1			1		4			4	
14	487	4	2	1							2		1	2		3	
14	496	2			1			3					3	1		4	
14	496	3			2								2			2	
14	496	4		1							1			1		1	
14	496	5			1								2			2	
14	497	3			3			1					3	1		4	Some very light ones
14	497	1				1							1			1	
14	497	4			5								3	2		5	
14	532	1						1					1			1	

14	552	2	1		1							1			2		2	
14	552	3				1									1		1	
14	556	1			1									1	1		2	Other-carving remains
14	556	2												1			1	Other-carving remains
14	556	3						1						1			1	
14	563	3							1					1			1	
14	563	4			1	1		1						2	1		3	
14	564	3			1									1			1	
14	567	1	1									1			1		1	
14	567	3	1	1	1							1		2	2		4	Other-carving remains
14	567	5	1		1	1		1						3	1		4	
14	569	1														1	1	Bipolar columnar chip with a cortex
14	569	3	1					1				1		1	2		3	
14	569	5	2		2		1	1				1		3	3		6	
14	570	1			1									2			2	Other-carving remains
14	570	2	2	2	1							3		4	1		5	
14	570	3	1									1			1		1	
14	570	4			2			1	1					1	3		4	
14	578	2	1		2							1		2	1		3	
14	579	1	1	1		1						2		2	2		4	
14	579	3		1								1			1		1	
14	580	2	1					1				1			2		2	
14	580	4	1									1			1		1	
14	580	5			1									1			1	
			<b>Artifact</b>	<b>Blade</b>	<b>Flake</b>	<b>Flake</b>	<b>Core</b>	<b>Refuse</b>	<b>Core</b>	<b>Point</b>	<b>Other</b>						<b>Total</b>	
			<b>Blades</b>	<b>Irregular</b>		<b>Bipolar</b>			<b>Bipolar</b>								<b>Sample</b>	
			245	36	185	149	1	128	10	0	40	238	19	445	329	25	790	