COLLECTION:	Anna Osler Shepard Archival Collection
CDI ACCESSION NUMBER:	000105
ERRATA:	None noted.
COMMENTS:	Several handwritten annotations.
CITATION:	Shepard, Anna 1942 Suggested Foot Note for p. 92 Bonito Pottery Chapter, Submitted 1/3/42: Red Rock and Pueblo Bonito. In Anna Osler Shepard Archival Collection, File F21, Colorado University Museum, Boulder.

Suggested Foot Note for p. 92 Bonito Pottery Chapter

Submitted 1/3/42.

The sanidine basalt and the andesite found in Bonito pottery present two distinct problems relating to trade, for each kind of rock occurs in particular types of pottery and each is the characteristic temper of a separate region. Mr. Judd seriously questions the postulate that pottery from Bonito with either of these tempers is intrusive. Although trade seems to me to offer the most logical explanation of the facts we now possess, I thoroughly agree with Mr. Judd that conclusions should be deferred until further studies are made. Obviously temper analysis gives only circumstantial evidence, not proof of origin, because the presence in pottery of foreign temper does not reveal whether the material itself of the pottery was imported. Furthermore, after we have located possible sources of a rock we cannot be certain that there were not other and nearer sources unknown to us. It is not generally practicable so thoroughly to comb the area under consideration that we can say with finality that we have located all outcrops of the rock, even though the results of reconnaissance considered in the light of known facts of rock genesis may in some instances indicate occurrences with a high degree of probability. However this limitation of geological knowledge is not as great a handicap as it seems because the geographic distribution of pottery tempered with a given rock gives more direct evidence of the center of usage of the temper than does the natural occurrence of the rock. Thus we are dependent primarily on thorough archaeological survey and excavation, and the correlation of the various classes of technological and stylistic data. These enable us to build up a body of circumstantial evidence relating to trade and sources of influence.

Sanidine basalt, which is a rare and unusual rock, has been found as the principal temper only in the Bennett Peak district east of the Chuska Mountains, also the only reported outcrops of the rock near ruins are in this locality. Important sites between the Chuska area and Chaco are not

known, therefore our comparison must be between Chuska and Chaco pottery. Mr. Judd doubts that Bonito sherds containing sanidine basalt are trade ware from the Chuska district because it is not generally supposed that pottery was obtained in quantity from distances as great as 40 miles. Bennett Peak On the other hand, the theory that sanidine basalt was used by Bonito potters is not supported by occurrences. It is a significant fact that this temper is extremely rare if not entirely absent in the typical hatchure types of Chaco black-on-white from Bonito. Thin sections of these types clearly show that the rare inclusions of sanidine basalt were introduced through sherd temper, since fragments of the rock occur within the sherd particles. In a sample of 106 sherds of the hatchure types examined with the binocular microscope, sanidine basalt was found in only one, and without petrographic analysis it is not certain that this was not associated with sherd. Sanidine basalt occured in only 3 per cent of the total mineral paint black-on-white sherds in tests II and IV whereas it was present in 58 per cent of the organic paint sherds in these tests. The use of organic paint is not a Chaco trait and only 10 per cent of the total black-on-white ware in the two tests has organic paint. Therefore aside from the improbability that potters would go beyond the confines of the canyon and immediately adjacent territory for temper, the relation of temper to stylistic types is not consistent with the theory of local usage of sanidine basalt. Likewise the argument that sanidine basalt was used by an immigrant group in Chaco who retained their original technique is difficult to defend because the organid paint types with sanidine basalt occur over such a long period, maintained their distinctiveness, and increased in proportion. Probably the most important question to be answered is how Bonito and Chuska sanidine basalt tempered pottery compare in features such as finish, type, of clay, and particularly painted design. If systematic comparison should prove that the two are identical in these respects, the trade theory would

seem the most logical explanation of the Chaco occurrences but if Chaco influence can be found in the Bonito organic paint sanidine basalt tempered specimens, the theory of production in Bonito or at least in villages nearer Bonito than the Chuskas would be favored. These remarks apply primarily to black-on-white types but it is perhaps the large percentage of corru gated ware with sanidine basalt temper which makes the trade theory difficult to accept. The theory seems most unreasonable when we think of corrugated ware in terms of cook pots of indifferent workmanship which are unlikely articles of trade. The fact should therefore be kept in mind that corrugated vessels required skill and fine workmanship no less than painted vessels, as anyone who has attempted to reproduce them will testify. It is not unreasonable to suppose that there were potters who excelled in the art of making corrugated ware and possibly certain villages led in its production. In this connection Mr. Morris observed that the Bennett Peak sites show great variety and high development of corrugated pottery is significant, and suggests an attack on the question of trade by correlation of stylistic and technological data.

Andesite is far less common in sherds of the Bonito tests than sanidine basalt. There was 4 per cent of andesite in the total sherds of tests II and IV as compared with 22 per cent of sanidine basalt. Moreover the principal occurrence of andesite in Bonito pottery is in Mesa Verde black-on-white sherds which would, on stylistic grounds, be recognized as intrusive. Thirty per cent of a sample of 54 Mesa Verde type sherds was andesite tempered. Therefore both style and temper support the theory of trade although temper gives us somewhat more specific evidence of place of origin than style. Temper analysis of surface survey sherds collected in connection with Mr. Morris' study of La Plata Valley archaeology showed that andesite temper characterizes Mesa Verde sherds from sites in the La Plata Valley where andesite occurs as river drift. The sporadic andesite-tempered sherds

of earlier mineral paint black-on-white types in Bonito may also be intrusive from the La Plata because the combination of andesite temper and mineral paint occurs both in Pueblo II and early Pueblo III in the La Plata Valley. On the other hand Mr. Judd calls attention to an outcrop within 15 miles of Bonito of the McDermott formation in some parts of which andesitic debris occurs. The type locality of the McDermott formation is in the La Plata district, and this exposure was examined at the time the La Plata study was made. It was dismissed as a probable source of La Plata andesite temper since the cobbles of the river drift were more conspicuous and also more easily obtained. In regard to the lithologic character of the McDermott formation [illegible], "beds of purely andesitic debris do not occur west of La Plata River in New Mexico. . . " and further, "South of San Juan River the McDermott formation is a thin assemblage of brown sandstone, and purple and gray shale just beneath the Ojo Alamo sandstone. . . These beds, however, contain detritus from andesites." (Reeside, 1924, P. 25) Until the exposure near Chaco is examined we cannot be certain that it would have supplied andesite of the type found in the pottery. A comparison of the stylistic features of the Bonito mineral paint andesite tempered sherds with those of La Plata types is also suggested. It is unfortunate that I did not record stylistic features of sherds from the Bonito test at the time I made the temper identifications. Also larger sherd lots should be examined in order to obtain a reliable estimate of frequency of occurrence. Many of the lots studied contained only between 25 and 50 sherds, therefore considerable error may be involved in the percentages based upon them, although there is marked consistency in these percentages. Doubtless the most convincing evidence of orgin of the rock tempered types in Bonito will be obtained by a study of fully developed Pueblo III types because these have the most localized stylistic features and although neither style or material alone can prove the source of pottery, each feature gives supplementary evidence and when studied together material, technique, and style give a much firmer basis for theory than any one of them alone can furnish.