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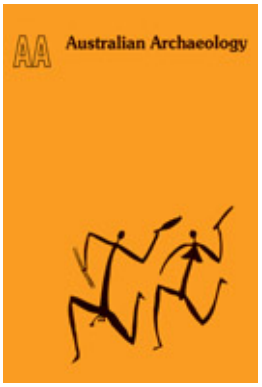

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Full Citation Details:
Frankel, D. 1980. Munsell colour notation in ceramic description: an experiment. 'Australian Archaeology', no.10, 33-37.

MUNSELL COLOUR NOTATION IN CERAMIC DESCRIPTION: AN EXPERIMENT

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INTRODUCTION

Archaeologists are making increased use of standardised colour descriptions for material they excavate and study, generally employing the Munsell colour system (Munsell 1966). Readings of soil colours are common practice on most excavations, where they may have significance (at least within small areas) for differentiating soil types. Elsewhere standard colour descriptions are found most frequently applied to pottery, where it is felt necessary to provide accurate descriptions of fabric, surfaces, or decoration.

These standard Munsell colour descriptions of pottery seem, generally, to be used for descriptive purposes only, although it may be possible to take advantage of their greater precision, and presumed accuracy, to attempt analytical studies of interpretive value. While engaged on one such attempt (Frankel n.d.) I confronted again a well-known series of problems in connection with Munsell (or any other) colour descriptions, including questions of the effects of light conditions, variations in individuals' colour perceptions, personal biases, and variations of mottling of the material itself. A general awareness of these possible distortions have normally restricted the use of Munsell colours to description rather than analysis.

In order to assess more clearly the effect of these factors a simple experiment was set up. While standard tests (e.g. the Farnsworth-Munsell 100 Hue Test) can be used to identify colour anomalies and to grade people with normal colour vision on their colour aptitude, this experiment was designed to illustrate in a practical way problems of colour description directly relevant to archaeologists working with ceramics.

THE EXPERIMENT

Ten sherds of a variety of colours were used: eight from prehistoric sites on the Papuan coast, and two Late Helladic IIIB sherds (numbers 4 and 8). Their surfaces ranged in texture from coarse and pitted (particularly 5, 6 and 10) to the smooth lustrous surface characteristic of Mycenaean wares.

Eight observers each undertook a series of readings on the sherds, using Munsell soil colour charts (Munsell 1975). Each observer made four separate sets of readings, with a minimum of 24 hours between each. Sometimes several months separated one set of readings and the next, while intervals of at least a fortnight were common. This was intended to reduce the possibility of observers

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remembering previous readings so as to bias later ones.

With all but one observer, two sets of readings were made inside, with artificial (fluorescent) lighting, and two outdoors, where general light conditions (sunshine or cloud) were noted. All but one observer had used Munsell colour charts before, and two had had considerable previous experience. The results of the experiment are presented in Table 1.

DISCUSSION

One of the problems in dealing with Munsell colour notation is to assess the significance of a difference in Hue, Value, or Chroma. Although theoretically standardised, a difference of a unit in Value or Chroma does not always appear to have the same effect in all cases. It is not possible, therefore, to regard all differences of one or two units in these factors as unimportant within the one Hue range, while a difference in Chroma or Value between Hues may refer to somewhat similar colours. We cannot, therefore, make any easy assertions regarding the uniformity of colour-description, except where identical readings are obtained, without making a series of personal judgements on equivalences, or significant differences. Nevertheless some patterns within Table 1 may be easily seen.

1. The most obvious is the variation in colours recorded for each sherd, both between observers and by each observer.

2. There are differences in the consistency of readings from one observer to the next. The most consistent is Observer G, who made readings on four successive days. A follow-up test, three weeks later (reading G5) provided slightly more variation, although still not great. This observer claimed not to remember the details of readings, and was in fact surprised to find such homogeneity. The two observers (B and H) who had most prior experience were perhaps a little more consistent than most others, although they differ from one another. Other observers were less uniform in their readings. There is often as much variation in the readings by one person as in the readings by different observers. However, where observers returned a consistent set of observations, some systematic variations can be picked up - for example Observer D recorded Sherd 9 as 5YR 6/8 where most others note it as 5YR 6/6, while Observer G is the only one to record 7.5YR 6/5 for Sherd 1 and 2.5YR 5/7 for Sherd 7.

3. There is greater diversity in Hues than in Values and Chroma. While this may partly be explained by similar colours in different Hue ranges it may be that it is easier to select more consistently these other qualities of colour.

4. Some sherds (e.g. 9) are more uniformly recorded by most observers. The greater variation in colours of other sherds may at times be due to the particular colour of the piece - not fitting into a standard slot - but is more probably a reflection of slight mottling and variation of surface colours.

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OBSERVER/OBSERVATION	No.	Date	SHERD NUMBER 1	2	3	4	5	6	7	8	9	10	Light Conditions
A	1	14-4	10YR6/4	10YR5/5	2.5Y5/2	10YR7/3	5Y7/2	2.5YR4/8	2.5YR6/8	10YR7/4	5YR6/6	5YR4/3	indoor
some	2	14-9	10YR6/4	10YR7/4	10YR6/2	10YR7/3	10YR8/1	5YR5/4	2.5YR5/6	7.5YR7/4	5YR6/6	5YR4/3	indoor
previous	3	20-9	7.5YR5/4	7.5YR6/4	10YR5/2	10YR7/4	10YR7/1	5YR4/6	2.5YR7/4	7.5YR7/4	5YR6/6	5YR4/4	outdoor-sun
experience	4	2-10	7.5YR6/4	10YR6/4	10YR6/2	10YR8/4	2.5Y8/2	5YR4/6	2.5YR6/8	10YR7/4	5YR6/6	5YR4/4	outdoor-sun
B	1	4-6	10YR5/4	10YR7/4	10YR6/2	10YR8/3	5Y7/1	2.5YR5/6	2.5YR6/8	10YR6/4	5YR6/6	5YR4/3	indoor
much	2	12-6	10YR6/4	10YR7/4	10YR6/2	10YR8/3	10YR8/1	2.5YR5/6	2.5YR6/6	10YR7/4	5YR6/6	5YR4/4	indoor
previous	3	17-9	7.5YR7/6	10YR6/4	2.5Y6/2	10YR8/4	10YR8/1	2.5YR5/6	2.5YR6/8	7.5YR8/4	5YR7/6	5YR4/3	outdoor-cloud
experience	4	21-9	7.5YR6/4	7.5YR5/4	7.5YR6/2	10YR8/3	5Y8/1	2.5YR5/6	2.5YR6/8	7.5YR7/4	5YR6/6	2.5YR4/4	outdoor-sun
C	1	10-8	10YR7/4	10YR7/4	2.5Y6/2	10YR8/3	2.5Y7/2	5YR5/6	5YR6/6	10YR8/3	5YR6/6	5YR4/4	indoor
some	2	20-9	10YR7/4	10YR7/4	2.5Y6/2	10YR8/2	10YR8/1	5YR5/6	5YR6/6	10YR7/3	5YR6/6	5YR4/3	indoor
previous	3	21-9	10YR6/4	10YR6/4	5Y6/2	10YR7/3	5Y7/2	5YR5/6	5YR6/6	10YR7/4	5YR6/6	5YR4/4	outdoor-sun
experience	4	24-9	10YR7/3	10YR7/3	5Y7/1	10YR7/3	5Y7/1	2.5YR5/6	2.5YR5/6	7.5YR7/4	5YR7/6	5YR4/4	outdoor-cloud
D	1	20-7	10YR6/4	10YR8/4	2.5YR6/2	10YR8/3	10YR7/2	5YR5/8	2.5YR5/8	10YR8/6	5YR6/8	5YR4/6	indoor
no	2	24-7	7.5YR7/6	10YR7/4	10YR6/1	10YR7/3	10YR8/1	2.5YR4/8	2.5YR5/8	2.5Y8/4	5YR6/8	2.5YR4/8	indoor
previous	3	17-9	2.5Y7/4	10YR7/4	7.5YR7/0	10YR8/3	2.5Y7/2	7.5YR5/8	2.5YR5/8	10YR8/4	5YR6/8	5YR4/4	indoor
experience	4	4-10	2.5Y7/4	10YR8/4	5Y7/1	10YR8/3	10YR8/1	2.5YR5/8	2.5YR5/8	10YR7/4	5YR6/8	5YR4/6	indoor
E	1	14-9	10YR7/4	10YR6/4	5Y6/1	10YR8/2	10YR7/1	10Yr5/8	2.5YR6/8	10YR8/3	5YR6/6	2.5YR4/8	indoor
some	2	17-9	10YR7/6	10YR7/4	5Y6/1	10YR8/2	10YR8/1	2.5YR5/8	2.5YR6/8	10YR8/4	5YR6/8	10YR4/6	indoor
previous	3	21-9	7.5YR7/4	10YR7/6	5Y6/1	10YR7/3	10YR7/1	2.5YR5/8	2.5YR6/8	10YR7/4	2.5YR5/8	10YR4/6	outdoor-sun
experience	4	24-9	10YR7/6	10YR7/5	5Y6/1	10YR8/3	5Y7/1	2.5YR4/8	2.5YR5/8	7.5YR8/4	5YR6/8	2.5YR4/6	outdoor-sun
F	1	20-9	10YR6/3	10YR6/4	5Y6/1	10YR8/3	5Y7/1	5YR4/6	10R5/8	10YR8/3	5YR6/6	5YR4/3	indoor
some	2	2-10	10YR7/4	10YR6/3	5Y5/1	2.5Y8/4	2.5Y8/2	2.5YR5/6	2.5YR6/6	7YR8/2	5YR6/6	5YR4/4	indoor
previous	3	8-10	7.5YR5/4	10YR6/4	10YR6/2	10YR7/3	5Y8/1	2.5YR4/6	2.5YR5/6	7.5YR7/4	5YR6/6	2.5YR2.5/4	outdoor-sun
experience	4	11-10	10YR6/4	10YR6/3	5Y6/1	10YR8/3	5Y8/2	2.5YR4/8	2.5YR5/8	10YR8/4	2.5YR6/8	2.5YR4/4	outdoor-cloud
G	1	17-9	7.5YR7/5	10YR7/3	10YR6/2	10YR7/2	2.5Y7/2	5YR4/6	2.5YR5/7	10YR7/4	5YR6/6	5YR4/4	indoor
some	2	18-9	7.5YR7/5	10YR7/4	10YR6/2	10YR7/3	2.5Y7/2	5YR4/6	2.5YR5/7	10YR7/4	5YR6/6	5YR4/4	indoor
previous	3	19-9	7.5YR6/5	10YR6/4	10YR6/2	10YR7/4	2.5Y7/2	5YR4/6	2.5YR5/7	10YR7/4	5YR6/6	5YR4/4	outdoor-sun
experience	4	20-9	7.5YR7/5	10YR6/4	10YR6/2	10YR7/4	2.5Y7/2	5YR4/6	2.5YR5/7	10YR7/4	5YR6/6	5YR4/4	outdoor-sun
	5	11-10	7.5YR7/5	10YR6/4	10YR6/3	10YR7/4	2.5Y7/4	5YR4/6	2.5YR6/8	10YR7/4	5YR6/6	5YR4/4	indoor
H	1	30-5	10YR7/4	10YR8/4	10YR8/1	-	10YR7/2	2.5YR5/8	2.5YR5/8	10YR8/4	5YR7/8	5YR6/4	indoor
much	2	17-9	10YR7/4	10YR7/4	2.5Y6/2	10YR8/4	2.5Y7/2	2.5YR5/8	2.5YR6/8	10YR8/4	5YR7/6	5YR6/4	indoor
previous	3	18-9	7.5YR7/6	10YR7/4	10YR5/2	10YR8/3	10YR7/2	2.5YR5/8	2.5YR6/8	7.5YR7/4	5YR6/6	2.5YR3/4	outdoor-cloud
experience	4	8-10	10YR7/4	10YR6/4	10YR6/2	10YR8/3	10YR7/2	2.5YR5/6	2.5YR5/6	10YR8/4	5YR6/6	4YR4/6	outdoor-cloud

TABLE 1: MUNSELL COLOUR READINGS BY EIGHT OBSERVERS

5. One interesting and somewhat unexpected result (although a little obscured by the general variations) is that there does not seem to be any significant or systematic difference in readings made in natural or artifical light.

These are specific points - what is more important, however, is the bearing which these differences between observations have on the acceptability or utility of Munsell colour notation, although the general range of colours recorded is reasonably small for each sherd. However it is equally clear that little faith can be placed in the use of specific colour terms. Even allowing the inexperience of some observers it might be suggested that the use of Munsell colour notation could give a false sense of accuracy and standardisation. Whether or not such variations are important will depend on the purpose of colour recording and description and the uses to which it is put in archaeological research and publication.

If the intention is descriptive only - to provide a ready reference to a standard colour vocabulary - then it might be sufficient to create some simpler set of colour terms relevant to the body of data being reported. These could be clearly defined at the outset by reference to a range of Munsell colours, but the Munsell notation itself need not be used for each individual piece, as that level of accuracy is unnecessary and perhaps misleading.

If, however, the recording of colour is analytical in intent - for deliberate comparison of individual sherds or assemblages - then more careful recording must be attempted. Clear statements concerning the light-conditions and the experience of the observers should be made, together, perhaps, with replication experiments by the observers to demonstrate the accuracy and consistency of their work.

There is a need for more accurate (and particularly non-cultural) descriptions of colours both on a simple descriptive level and for suggesting interpretive insights into the nature, uniformity, and variation of pottery traditions. The purpose of this note is to draw attention to the problems of using Munsell colour charts, and to suggest that we should not be misled into a false sense of accuracy because they have been utilised.

ACKNOWLEDGEMENTS

I would like to thank the following people who took part in the experiment: Wendy Beck, David Clark, Alistair Donelly, Denise Gaughwin, Andrew Kelly, David Ritchie, Ann Robb, Iain Stuart.

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BIBLIOGRAPHY

Frankel, D. n.d. Uniformity and Variation in a Ceramic Tradition. Levant. (In press)

Munsell Color Company 1966 Munsell Book of Color. Baltimore

Munsell Color Company 1975 Munsell Soil Color Charts. Baltimore

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