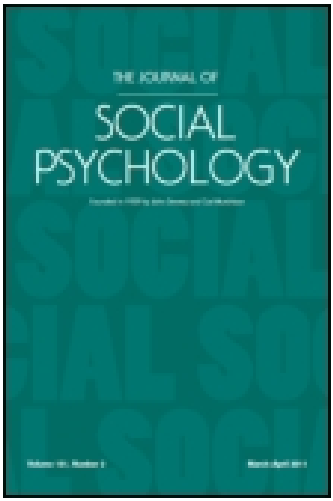

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THE DETERMINATION OF AESTHETIC JUDGMENT BY RACE AND SEX*

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SUMMARY

A comparison is made between the aesthetic judgment of 131 designs and devices, made by some 200 English students of both sexes and that made by some 200 Japanese students of both sexes. Factor analyses were carried out on the ratings and similar factors discovered in the two racial groups. It is concluded that formal determinants of aesthetic judgments of designs of the kind used here are similar or even identical for these two samples in spite of the great cultural and racial differences between them.

A. INTRODUCTION

Of the many determinants of aesthetic judgment, race (including in this term all the cultural factors which may distinguish one racial group from another) and sex have often been discussed, but there is relatively little empirical research to enable one to estimate their importance. Eysenck (2) has postulated the existence of a general factor "T" ("good taste") which enters all aesthetic judgments to a varying degree, and which shows marked individual differences: this factor is conceived as having a firm genetic basis and to extend beyond the confines of a particular racial or national group. At the simple level of color preferences Eysenck (3) has shown that there are considerable similarities between various nations and races, and at the level of preferences for polygonal figures (13) and for simple designs (8, 10) it has also been found that marked similarities exist in the judgment made by European, Egyptain, and Japanese subjects. The present paper represents an extension of this work.

B. THE EXPERIMENT

The subjects of the study comprised 72 English male and 107 female university students and 130 Japanese male and 76 female university students,

* Received in the Editorial Office, Provincetown, Massachusetts, on July 1, 1974, and given special consideration in accordance with our policy for cross-cultural research.

tested in their respective countries. Their mean age was 20 years approximately. The stimuli used were designs and devices, 131 in all, selected from Hornung's book (9) out of a total of 1836 such figures. The designs chosen were photographed, made into slides, and presented to small groups for judgment. Subjects were instructed to rate each slide on a five-point scale: Don't like = 1; Like a little bit = 2; Like = 3; Like a lot = 4; Like very much indeed = 5. Slides were projected at an easy rate, allowing roughly 10 to 15 seconds for each slide, but not continuing until all subjects had made their ratings. The English and Japanese subjects were of roughly equal age and intellectual standing and had little experience of each other's culture. None was a trained artist.

C. Results

The means and *SD*s of the judgments are as follows: for English and Japanese males, $2.56 \pm .52$ and $2.65 \pm .31$; for females, $2.59 \pm .59$ and $2.42 \pm .34$. Analysis of variance showed that Japanese and English subjects did not differ significantly in their mean liking for the 131 slides, but males and females showed a slight difference ($p < .05$), with the males showing a very slightly greater liking than the females. However, this difference is due entirely to the Japanese group; for the English group there is a very slight difference in the opposite direction. In view of the inhomogeneity of variances, and the low level of significance, this finding cannot be taken too seriously. The race $\times$ sex interaction is highly significant ($p < .01$), although the actual size of the differences in question is not large. It will be noted that the *SD*s of the English group are much larger than those of the Japanese group; this difference is fully significant statistically ($p < .001$) and indicates that the Japanese do not use extreme judgments to anything like the same extent as do the English. Similar findings have been reported by Iwawaki and Cowen (11) and Iwawaki, Okuno, and Cowen (12).

The correlations between the ratings for our four groups are all highly significant and show very similar principles of judgment are active in males and females, Japanese and English. (The actual correlations are as follows: English males *vs.* females, $r = .83$; English males *vs.* Japanese males, $r = .61$; English males *vs.* Japanese females, $r = .54$; English females *vs.* Japanese males, $r = .64$; English females *vs.* Japanese females, $r = .65$; Japanese males *vs.* females, $r = .74$). We can form groups which are homogeneous for sex, but not for race, and average their correlations via the inverse hyperbolic tangent transform; this works out at $r = 62$. Doing the same for groups

homogeneous for race, but not for sex, gives us $r = .78$. Last, groups heterogeneous for both sex and race give us $r = .58$. Translating these correlations into percentage of overlapping elements (r^2) we obtain values of 38%, 61%, and 34%. In other words, whether groups are homogeneous or heterogeneous for sex is not very important (38% *vs.* 34% of overlapping elements); however, to change from homogeneity to heterogeneity with respect to race is important (61% *vs.* 34% of overlapping elements). To put it in a slightly simplified manner, differences in race are seven times as important as differences in sex in determining aesthetic judgments of the kind employed in this study. Nevertheless, the point remains that even when two groups are heterogeneous with respect to both sex and race, they show highly significant correlations of the order of approximately .6; this would seem to support Eysenck's original hypothesis.

The 15 best-liked and the 15 least-liked designs were extracted from the Japanese ratings and are reproduced as Figures 1 and 2. They may be compared with Figures 10 and 11 in Eysenck (6), which represent the best- and least-liked designs for the English sample. There is a considerable overlap; none of the designs liked by the Japanese was disliked by the English, and none of the designs disliked by the Japanese was liked by the English. The findings may be used to test the two major quantitative hypotheses proposed for an "aesthetic formula." Birkhoff (1) suggests the formula $M = O/C$; i.e., the aesthetic pleasure derived from a visual percept (M) is a direct function of its order elements (symmetry, right angles, equal sides, etc.) and an inverse function of its complexity (number of sides, number of re-entrant angles, etc.). Eysenck (4) suggested that the formula $M = O \times C$ would represent experimental results better, as well as being in better agreement with aesthetic theory. No exact test can be made of these two formulations as far as our two figures are concerned, but it will be clear from simple inspection that the better-liked designs are much more complex, thus giving a direct, and not an inverse relationship between M and C as required by Eysenck's formula. This is in good agreement with results obtained with other types of stimuli on previous occasions.

D. Factor Analysis

Eysenck (6) has also published the results of a factor analysis of the ratings made by the English sample; nine major factors were extracted and interpreted on the basis of the designs having high loadings on each factor. The same procedure was gone through with the correlations obtained between

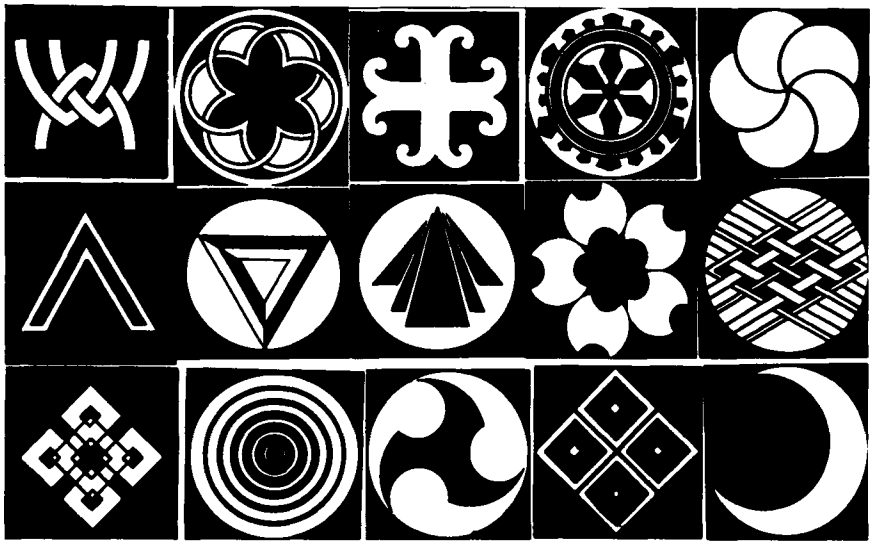

FIGURE 1
BEST-LIKED DESIGNS, JAPANESE SAMPLE

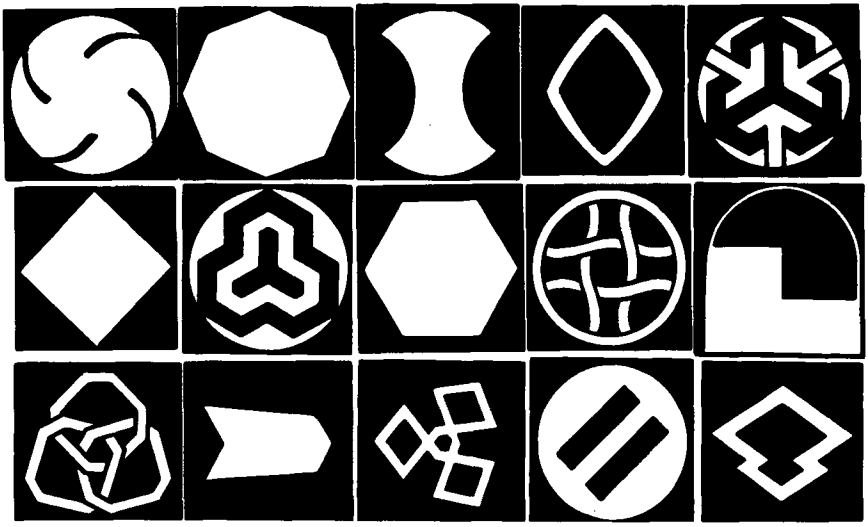

FIGURE 2
LEAST-LIKED DESIGNS, JAPANESE SAMPLE

designs for the Japanese sample, and the major interpretable factors will now be presented and compared with those obtained from the English sample. The five designs having highest loadings on each factor will be shown in successive figures; these may be compared with similar figures for the English sample given by Eysenck (6).

Figure 3 shows a set of patterns which was previously called "rectangular variant"; the English and the Japanese factors are clearly very similar, four out of five designs with the highest loadings being identical. The term used to designate the factor is self-explanatory and, like the others used later on, is only meant to be descriptive; the nature of the factor has to be guessed at by inspection of all the high-loading designs, but it would clearly have been impossible to reprint them all. Consequently, only the five highest loading designs are given in each case. Even when a design is present in the English and absent in the Japanese set of five, this does not necessarily mean that there is any discrepancy; the absent design might still have a high loading on the factor, but might just have escaped being in the highest five. This, in fact, is the usual finding in the sets discussed below and in the present one.

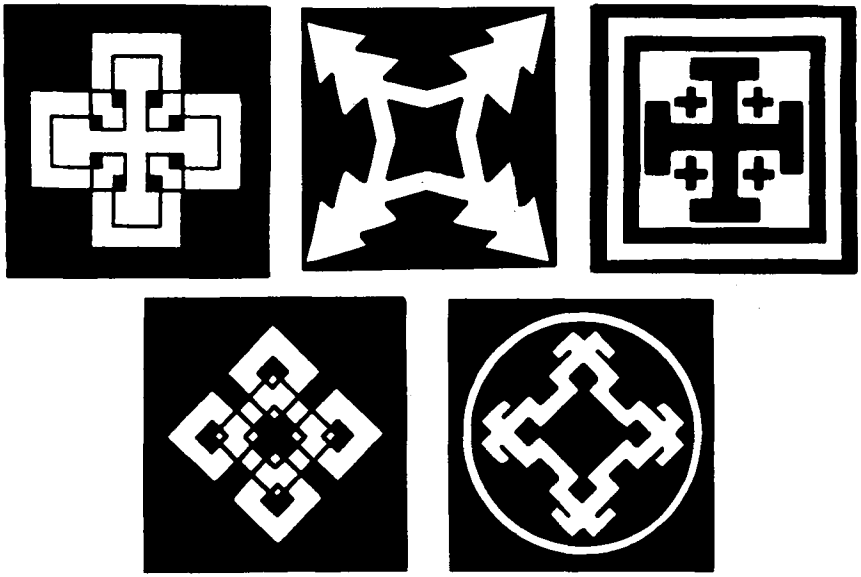

FIGURE 3
RECTANGULAR VARIANT

Figure 4 shows designs which bear similarities to three of the English sample factors; these were called "circular variant," "ring variant," and "curved variant" [English sample, Figures 2, 3, and 5; see Eysenck (6)]. It was difficult in the original study to identify these three factors separately, and they seemed to overlap considerably; the names chosen to characterize them indicate this similarity. It would not be possible to say that the Japanese factor was any closer to one than to the others of the English sample factors. No obvious explanation suggests itself for this divergence between the two factor analytic solutions.

Figure 5 represents the "star variant" of the English sample; although only two designs actually appear in both sets of five, items with high loadings overlap extensively in the two groups. The interpretation is one of the clearest of all the factors.

Figure 6 represents the "interlacement variant" of the earlier analysis; only one design is actually identical for the two groups, but again there is large-scale overlap between high-loading items in the two groups. The identification of the factor is again very clear-cut.

Figure 7 shows the "shading variant" of the earlier analysis. Four out of

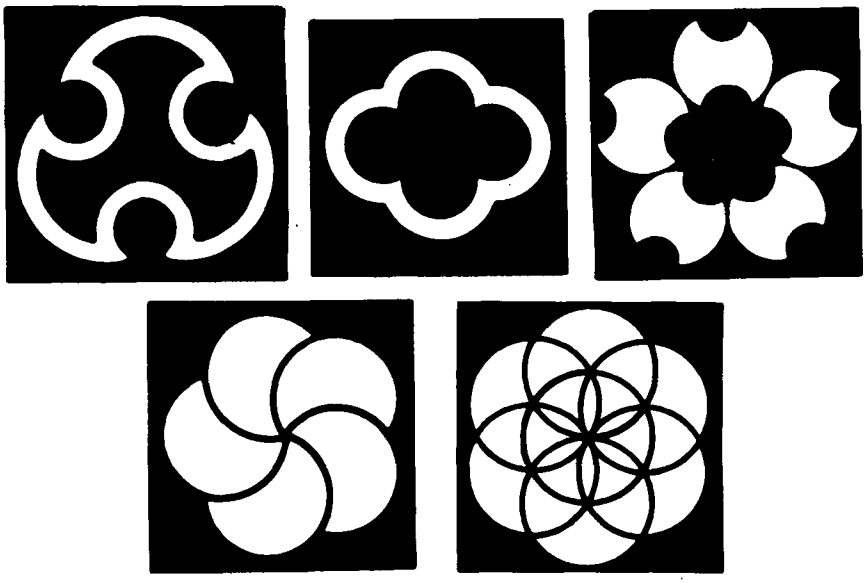

FIGURE 4
CIRCULAR VARIANT

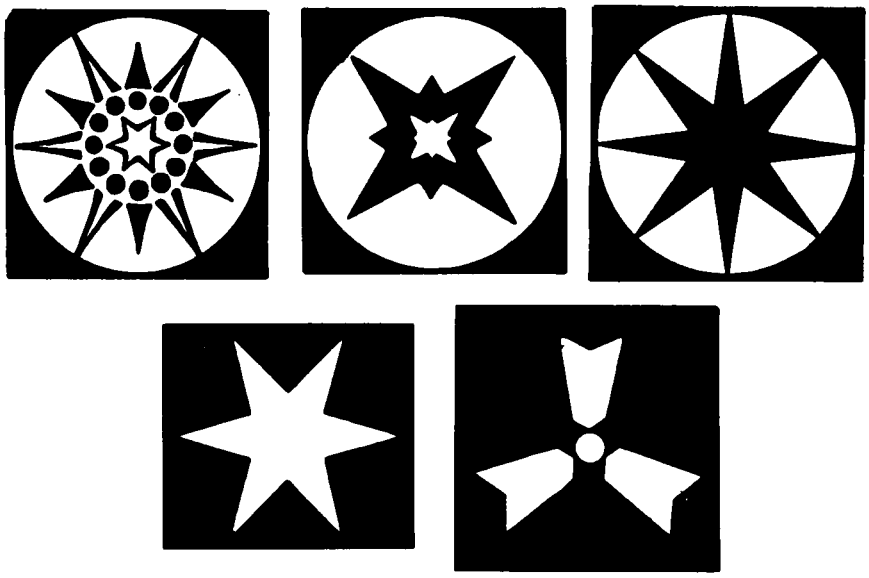

FIGURE 5
STAR VARIANT

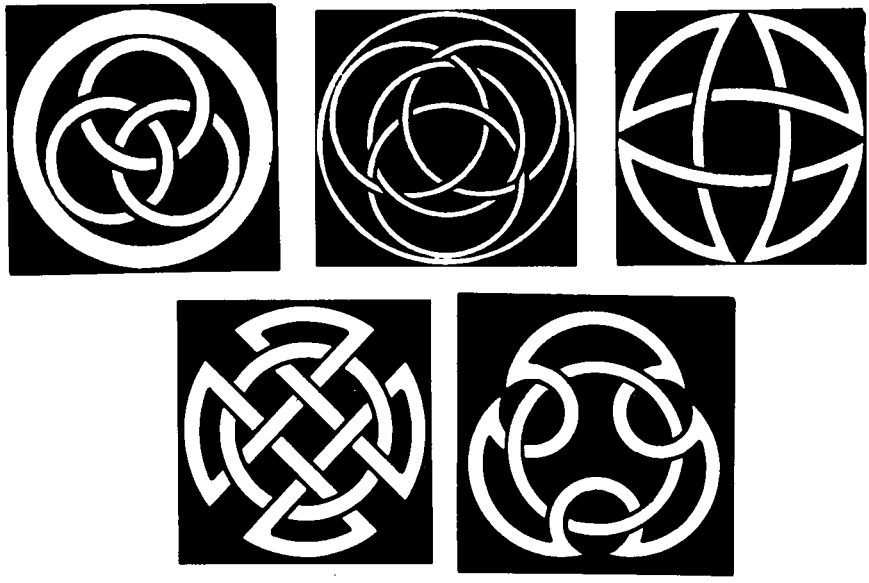

FIGURE 6
INTERLACEMENT VARIANT

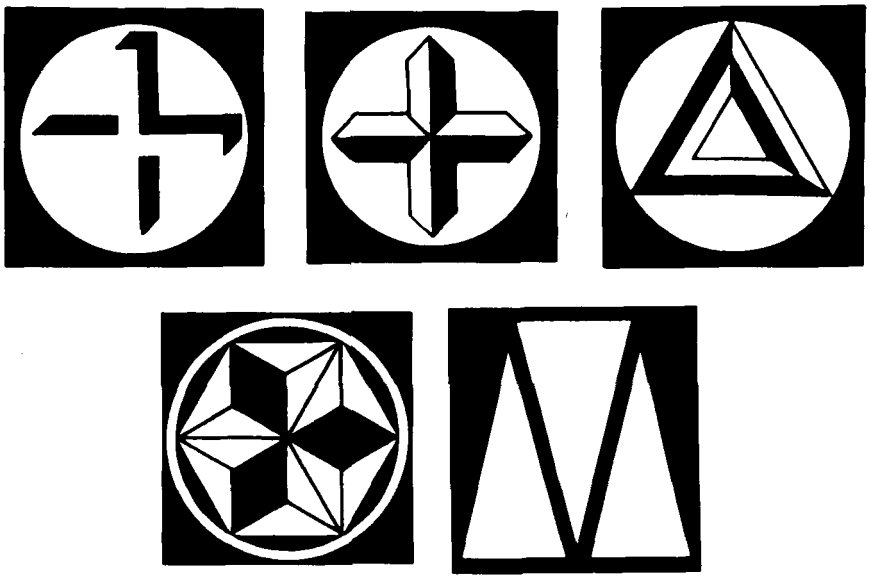

FIGURE 7
SHADING VARIANT

five designs are actually identical in this case, and the identification is fairly clear-cut. The term "shading" is perhaps not too well chosen to designate the effect which characterizes the drawings, but it has been difficult to find a better one.

Figure 8 represents the "three-dimensional variant" of the earlier analysis. Two of the five designs actually correspond, and the others are all characterized by high loadings.

Figure 9 represents the previous "order" or "simplicity" factor. Four out of five designs are identical, with only one slightly different. This again is a very clear-cut factor and, in addition, one which, like the star variant, had been previously observed in polygonal figures as well (7).

E. CONCLUSION

It is clear that the factorial analysis of our data for the Japanese sample gave results very similar in every way to that carried out previously on the English sample. We may conclude that the formal determinants of aesthetic judgments of designs of the kind used here are similar or even identical for these two samples in spite of the great cultural and racial differences between them. It is of course impossible to say at this stage to which of these two

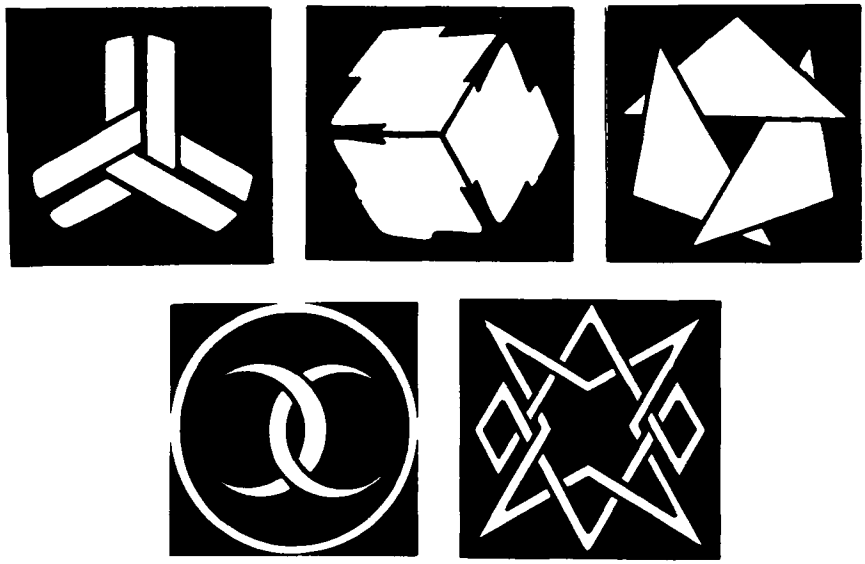

FIGURE 8
THREE-DIMENSIONAL VARIANT

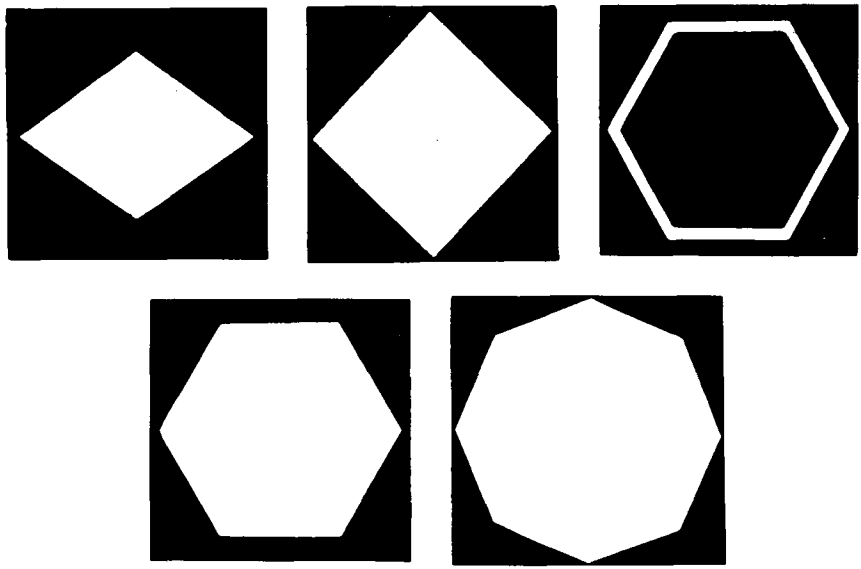

FIGURE 9
ORDER OR SIMPLICITY VARIANT

great interacting factors any of the observed differences in preference judgments ought to be attributed. The English groups taking part in the experiment would have only the most rudimentary knowledge, if any at all, of Japanese art; conversely, the Japanese sample would be largely ignorant of European traditions in the visual arts. It is remarkable that in spite of these tremendous differences in culture and upbringing, marked similarities were in fact observed. This suggests that possibly certain genetic factors may lie at the basis of the "good gestalt" and its recognition, very much as the Gestalt psychologists hypothesized (5). Direct experimental evidence using MZ and DZ twins, or some alternative genetic paradigm, would of course be needed to put this hypothesis on a firm footing.

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