

EXPERIMENTAL PSYCHOLOGY AND INDIAN MUSIC*

K. G. Virmani

Introduction

At the outset, it may be stated that in the strictest sense of the term, 'experimental psychology' is different from 'scientific psychology'. Scientific is experimental and much more. Non-experimental does not necessarily mean unscientific. But for the scope of the present paper the two terms will be used interchangeably.

Four *methods of knowing* are usually enlisted: method of tenacity, method of authority, *a priori* method (also called the method of intuition) and the method of science. In method of tenacity men hold firmly to truth, the truth that they know to be true, and hold firmly to it because they have always known it to be true. Method of authority is the method of established belief; if *sama veda* says it, it is so; if a prominent professor says it, it is so. In the method of intuition people fix their beliefs because they are 'agreeable to reason', a reasoning which is suitable to human agent. In the method of science, however, beliefs are determined by some external permanency, by something upon which our bias has no effect (Kerlinger, 1964).

'Statesmen' in modern research feel that a method of knowing should be such that the ultimate conclusion of every man through it shall be the same; there are real things whose characters are entirely independent of our opinions about them.** Only the method of science satisfies these characteristics. There is an added advantage. Method of science is the only method which is self correcting (Kerlinger, *op. cit.*). It is natural, then, that this method should be 'in vogue'.

Western thinkers have widely applied the method of experimental psychology as a branch of behavioral science to aesthetics including music: pop, folk and classical. Why should its application to Indian Music by

our musicologists lag behind? The present paper is being dedicated as a plea to Indian musicologists to also accept the method of experimental psychology as a method of knowing their subject, and is being presented in the form of suggesting some areas in Indian music wherein this method can be fruitfully employed. It is high time to drop heatedly expressed opinions and arguments and offer cool correlations (Pratt, 1961).

Aesthetics as Behavioral Science

Two reasons immediately come to mind when we think of why Indian musicologists have not applied with zeal modern experimental psychology to music so far. The first concerns being clear about the 'territory' of aesthetics and the second with attitudes of scholars in humanities who try to resist an invasion of their territory by men of scientific bent.

In this connection, it is to be remembered that the term aesthetics is unique in being widely used to designate both a branch of philosophy and a branch of behavioral science (Child, 1969). Experimental psychologists are more concerned with the latter. There should be no dispute about including aesthetics as part of behavioral sciences. A work of art is created for public appreciation. It is imperative that the work will submit itself to 'public enquiry'. A work of art is after all an empirical matter of the "look and see" or may be the "sit and listen" type (Brown, 1969).

Regarding the attitude of scholars in the humanities towards scientific bent of mind, it will be useful to convey the personal feelings of someone who has lived through the process:

"Sometime ago I attended a series of seminars on aesthetics at the home of one of my colleagues. Most of the participants in that seminar were from the humanities and the arts. The seminars were devoted to discussions about the theory of aesthetics. In some of those discussions it occurred to me that the question at issue could be treated as a question of experimental fact, and I ventured to suggest how the psychophysical methods could be adapted to obtain an empirical answer to the question at issue. It was an illuminating experience to discover that some of my friends in the humanities were hostile to the very idea of subjecting questions of aesthetic theory to empirical enquiry. On one of those occasions a friend showed me a question from Aristotle that settled the matter for him. It was heresy when I suggested that we knew more about this problem than Aristotle" (Thurstone L.L. quoted in Pratt, *op. cit.*).

Such a resistance is not expected from scholarship. Knowledge is one. It is not divided in terms of the names allotted by us to the departments in a university. The inter-disciplinary approach has to be accepted. Everybody gains through it.

Subject Matter of Aesthetics as Behavioral Science

As part of behavioral science, aesthetics is the study of man's work of art, man's making works of art, man's experiencing works of art, and the effects on man of this making and experiencing. The term work of art needs further explanation.

A distinction is made between arts in which beauty is revealed in the coexistence of signs (i.e., sensuous material) and those in which the signs succeed one another in time. Painting, sculpture and architecture are the fine arts. Poetry, drama, literature are neither fine nor beautiful. For a long time the classification of music gave trouble but its wanderings are now about over, for although its signs succeed one another in time, the predominance of form is nearly beyond all dispute. Music has at last become a fine art (Pratt, *op. cit.*; Child, *op. cit.*; Rieser, 1966).

The work of art: What is the nature of a work of art? What is the meaning of music? Is it emotions? Has experimental psychology contributed anything to the understanding of the nature of meaning of music? These are some of the questions which will be considered under this heading.

The artistic experience: Why do people perceive as they do in music? Where do the emotions come from in a piece of music? Are emotions part of the creative work or do they come from the listener? Can psychology help us to understand this phenomenon? We will consider this topic under 'perception and music.'

The artist: A work of art is produced by human behavior. The person whose behavior creates the work of art may schematically be called "the artist". The artist's behavior in producing the work is, like other behavior, influenced by the creativity in him, his aptitudes in the initial years of his life, the ways by which his skills were developed, his mental and emotional characteristics and the life situation. Each of these has in turn been brought about by processes into which we may like to inquire with the help of scientific psychology.

Effects of experiencing a work of art: It is often claimed that artistic experience has a broad general influence. There is something like musical taste. A work of art is stated to effect understanding, morality and even mundane things. Music as a mass communication medium is well established. There are effects in therapy, in industry. Has psychology anything to do with them?

Scope of the Paper

Taking all the above points into consideration, the scope of the present paper was delimited to the following topics under various branches of psychology:

1. Meaning of music
2. Perception and music
3. Creativity
4. Musical aptitude
5. Scientific approach to *Riyaz* (practice) in music
6. Mental and emotional characteristics of musicians
7. Scientific approach to designing musical instruments
8. Musical taste
9. Effects of music in therapy; in industry
10. Statistical methods and music
11. New trends in music; computer music

In covering the above points the content of the present paper often follows the arguments of Irvine Child of Yale University, Carroll Pratt and Paul Farnsworth. Specific references are cited at appropriate places.

Meaning of Music

Experimental psychology's contribution in understanding meaning of music has been two-fold: empirical and conceptual. In the empirical, efforts are made to ascertain as to how particular kinds of people do understand particular aspects of music. On the conceptual plane, psychology has tried to clarify the nature of musical meaning.

Empirical Contributions of Psychology to Meaning of Music

Extracts from musical compositions have been played to persons who were instructed to indicate what emotions seem to be expressed in the music. Respondents have been college or high-school students, generally unselected for special background in music. The responses obtained in terms of the well-known Hevner's adjective clusters (Farnsworth, *op. cit.*) are known to most of us. However, most of these researches were on Western music and on Western listeners and antedated the sharpening of conceptual issues and tools of measurement by recent musicological/psychological writings. Few studies used Indian Music on Indian respondents. Recently, Deva and Virmani (1968) conducted a study using Indian Classical Music and improvised research tools in psychology to study empirically psychological responses of Indians to Indian Classical Music. As the study was delimited by many factors, results were termed exploratory. The purpose was rather to suggest as to how scientific psychology could be used in music with the help of a methodology in current use in the behavioral sciences.

Efforts were made to quantify the components of the feelings aroused by classical Indian Music (Hindustani) excerpts, in Indian listeners. The aim, as already stated was to 'suggest' rather than to 'create', since the data reported was based on just one small portion of the musical form, the *raga*, as also from a very small sample of respondents. Four musical excerpts consisting of two minute recordings on Ravi Shanker's sitar recitals of four

raga-s — *Kafi*, *Misra Mand*, *Puriya Dhanashri* and *Rageshri* — were played through a tape recorder. 37 students of the National School of Drama, New Delhi, age range 20 — 30 years, acted as respondents. Osgood's semantic differential technique, used for measuring the psychological meaning of things, in music viz., *Rageshri* for "evening, dark, sombre and deep" using a set of twenty-two bipolar adjective scales was employed. Details of the technique have been given elsewhere (Deva and Virmani, 1968). Factor analysis, a multivariate statistical method, was used to analyse the data; this procedure has also been detailed for those musicologists who were not trained in statistics (Virmani, 1968). The basic question in the minds of the researchers was, "What do you think this music is like?" (Keil and Keil, 1967).

The results showed that the technique in question showed great promise for further well-controlled and extensive research. It was found for example, that the 'intended' mood of say, *Kafi* — gaiety, devotion, romance, pleasantness — was actually found to be there as reported in terms of responses on the semantic differential by the respondents. Similarly for the other *raga-s*.

Obviously, the findings were rather exciting. It is then desirable that more research on these lines should be conducted.

Conceptual Contributions of Psychology of Meaning of Music

Under this section, only a reference is intended to be made. Irvine Child has suggested a typology of meaning and its use to aesthetics research on the role of emotions in meaning. His discussion along with that of Pratt considers at length the conceptual issues involved. Useful hypotheses have been derived and are being submitted to empirical tests. A few points may be mentioned here out of these deliberations.

First, music is a psychological event. The meaning in music is to be found in the psychological experience. This experience has been explained to be centering upon the role of emotions. Meyer, as you all know, finds the meaning of music through emotions, in the arousal and resolution of expectations; emotion emerges as a result of delayed expectations. The experience of a piece of music is a complicated structure of perceptions, expectations, and relations between them (Meyer, 1956). Of course, the experienced listener with technical knowledge may speak to himself or view the experience as in strictly descriptive musical terms whereas a person lacking technical knowledge may feel it as emotion, the same expectations and tensions (Deva, 1967).

Another approach, terms the concentration of theoretical discussion on the above emotional meaning, as somewhat one sided. A case for 'exemplary' emotional meaning (Child, *op. cit.*) is made; in the exemplary type of meaning, the meaning seems to reside partly in the fact that the whole thing is taken as implicitly referring to the concepts of which it is an

example; when colours in a painting are predominantly blue and black, the visual experience is one of darkness, of blueness, of starkness and simplicity. In this connection a study is reported in which Karwoski, Odbert, and Osgood (1942) had college students draw visual images suggested to them by hearing a single tone played by a clarinet, first increasing in loudness, then decreasing in loudness. Decided consistency was found in the responses. Quite a few respondents agreed in presenting a visual form structured like the auditory experience.

The above point incidentally, opens up an area for research in inviting our attention to the picture presentation (imagery) of *raga*-s in Indian Music. Can those representations be empirically confirmed. Further discussion brings us to the domain of perception.

Perception and Music

Why do people perceive emotions in music as they do? Perception in psychology is defined as sensation plus meaning. In our case the sensation will be the sound vibrations called music and meaning will be the emotions in them. Now, music of Abdul Karim Khan is "melancholy". *Puriya Dhanasri* is reported to be 'physically tired, evening, longing, grave, dark and somber' (Deva and Virmani, *op. cit.*). But a *raga* cannot be sad. Then where does the emotion lie?

The theories of empathy tried to state that the sadness must be in the listener. Serious doubts about empathy were expressed by gestalt psychologists. Wertheimer who demonstrated experimentally that visual movement can exist without any eye movement at all (phi-phenomenon) argued that such qualities as sadness in music were rather too immediate. 'Tertiary qualities' was the name given to them. Koffka and Kohler, his student, furthered the idea by stating that if the sadness existed in the listener then we were robbing the artist of his due. In connection with the above controversy a point was raised as to what happens when the creator is also the perceiver (Deva, 1970). Are we going back to empathy? (Also see Pratt, *op. cit.*). Whatever the point, the question is that the nature of perception of a *raga* is still an open question and something could be done with the help of the above framework.

The leads of the gestalt psychologists are being recently studied through what Heinz Werner has termed as physiognomic perception (Pratt, *op. cit.*). A simple illustration will explain the term. You will agree that the face of a person is much more easily and frequently remembered as being alert, clever, energetic than as being triangularly shaped, having slanted eyebrows, straight lips etc.; a piece of music as soft, soothing, deep and so on. The conclusion thereby is that expression is the primary content of sensory experiences. A humble suggestion is that Indian musicologists could keep pace with these findings; they might solve for them some of the existing problems in their aesthetic theory.

Creativity

Creativity as a measurable concept became prominent in psychology only recently when it was found that those who were 'intelligent' may or may not be 'creative' (Getzels and Jackson, 1962). Since then a great amount of research has been conducted in this field. Applications in musical creativity or creativity in the fine arts are not lacking. Some tests of creativity have been standardised in psychology and used on the musically talented. A few tentative generalizations are available. For example, tests of 'originality' using different types of material or task show at times a decided correlation (Child, *op. cit.*). One or two studies are also available on Indian musicians (Raychaudhuri, 1966, for example; the study is being described in a later section). More studies seem desirable in this country.

Cooperation of the Indian musicians and musicologist is especially solicited. Unless they offer themselves for research and spare some time for testing, no headway can be made in this direction.

Musical Aptitude

All perception, affection and attitude presuppose abilities. Aptitude is inferred ability which is partly innate and implies potentiality, rather than achievement, ability underdeveloped before formal training has taken place. Without going into the theoretical consideration regarding whether only one general ability or several must be assumed in 'musical talent' it may be mentioned that several psychological tests were standardized to tap such individuals in Western music. Seashore's test is internationally known. It was standardized in 1919 on the idea that since music was a phenomenon of tones, times, and rhythms, discrimination tests in these areas should make it possible to pick out the potentially musical with those having the best acuities being expected to give the greatest musical promise (Farnsworth, *op. cit.*). Obviously the test was criticized on a number of counts; it concerned with psychophysiology not music. A revised edition with minor changes was made available in 1939. Other attempts were also made. For example, Kvalsasser-Dykema music test battery included in its sub-tests, besides Seashore tested areas, two sub-tests about appreciation. Many more tests were also made (Farnsworth, *op. cit.*). But it is regrettable to say that not a single Indian Musical aptitude test of national standards has been worked out by either a psychologist or a musicologist. Theory of mental tests is very much advanced by now in psychology. The problem of non availability of a well standardized aptitude test of Indian Music (Hindustani or Karnatak) is serious.

Scientific Approach to 'Riyaz' (practice) in music

On the one side we realize that painting, sculpture and music are formalized arts, they must be learned, they have a highly developed technique which must be acquired because a special technical skill is indispensable to put a melody in the air and on the other we also find that more students

enter college today with far greater knowledge about one or more forms of art than their parents ever had. It is necessary that we should put on a 'universal' system, the methods of '*Riyaz*' advocated by various *Ustads* and *Gurus*. We do not challenge the ancient well established methods. We only want to know as to what principles underlie their approach.

'Learning' as a branch of experimental psychology has covered many milestones. Quite a few principles have been evolved. Musicologists while training their *shishya* can use them with profit.

Whole versus part learning, massed practice versus distributed practice, motivation, prestudy and mental rehearsals, retroactive inhibition, are some of the areas which have been studied thoroughly in experimental psychology (Woodworth and Schlosberg, 1954). Some special problems in training methods in music have also been pin-pointed (Farnsworth, *op. cit.*).

Mental and Emotional Characteristics of Musicians

Very little is known about the personal make up of our musicians. It might be due to non-cooperation of musicians themselves. Yet the area is important. If studied it will enhance our knowledge of the 'intellect' of the creative from mental and emotional angles. Besides creativity, it will be interesting to know their level of intelligence (IQ, 150?), their emotional characteristics and so on. Well standardized tests are available in these areas in psychology. Measurement will be no problem.

In this connection it is necessary to refer to a study already conducted on the Indian scene by Manas Raychaudhari (*op. cit.*). The scholar found that musicians did not come from a stock which was especially musical. Musicians appeared to display more affective richness, emotional vivacity, and 'expanse'. Their fantasies were richer and more varied. They were more exhibitionistic, more curious and more involved in their work. They had more lonely early lives, had less love for outdoor and physically active leisure-time activities, and had found the environment a little more unfriendly. The study was based on the responses on psychological tests of musicians who broadcasted on All India Radio.

The investigation by Raychaudhari has been found to have many limitations from the 'design' point of view (Farnsworth, 1967), yet it points towards a fertile field which is still lying uncultivated in India.

Certain social factors could also bring useful information. For example, the socio-economic status of most of our musicians is low. Do we understand its causes? Can we also say that lower socio-economic status leads to 'closed thinking' and is thus the cause of their negative attitude to scientific method? The point is debatable and worth experimentation.

Designing Musical Instruments

We have a branch in psychology known as human engineering. The philosophy behind it (which is just the opposite of another of our branches,

'selection', in which we fit the individual to an instrument; musical and creativity tests which will 'screen' individuals for coaching classes in music fall under this category) is that we devise the instrument in such a way that it fits almost all human beings. Human engineering takes human limitations as its starting point and suggests such a design that the possibility of error on the part of the human user is minimized. We appreciate that good music cannot be learnt from a convenient instrument unless the creative part is not there in the individual, yet, a creative individual can be made to learn it quickly if the mechanics of the show is designed on the principles of human engineering. As a point of illustration let us consider the design of *tabla*. It was designed for the two hands. Is the design pragmatic or scientific? Physiological part of the organism cannot be neglected in studying its psychology.

It is wondered whether the above suggestion opens up any new engineering in the design of almost all the musical instruments.

Musical Taste

Farnsworth (*op. cit.*) after citing research concludes that musical taste is not a matter of whimsey, but is rather lawful. Musical taste has its definitions but it has been taken by psychologists to mean 'preferences' not limited to momentary pleasure. Taste is rather a larger attitudinal picture. Measures of musical tastes are also proposed by him.

Taste in the fine arts has been studied through a variety of approaches in psychology. For example, it was studied in terms of social norms of a group. But researchers found that there were no reasons to infer, that conformity to social norms was the only or even the main source of influence on preferential reactions to art (Child, *op. cit.*).

A new approach, however, can be suggested for research.*** Taking musical taste as an over-all attitudinal set, one has toward the phenomena which collectively comprise music, such preferences can be studied in terms of theories of attitude structure, particularly cognitive consistency theories in social psychology. The notion behind consistency theories is that a person tends to behave in ways that minimize the internal inconsistency among his interpersonal relations, among his intrapersonal cognitions, or among his beliefs, feelings and actions (McGuire, 1966). Rosenberg's approach (Fishbein, 1967) may be cited as an example. According to his consistency approach, attitudes, relatively stable affective response to an object, covary with the intensity of person's values and the perceived importance (instrumentality) of the attitude object in leading to or blocking the attainment of his values. It will be interesting to use these concepts on taste in Indian music. It will be easier to do so because methodological issues have already been straightened in this area. A topic worth-studying might be attitudes

of North Indians to South Indian music and *vice versa*. Or, why youngsters or moderners like film music more, nowadays?

En passant, musical taste also forms part of audience research.

Music in Therapy, Industry

Some applications of music to therapy and industry have been summarized by Farnsworth which include subjects like effect of music on physiological changes, music in physical therapy, music in mental therapy, effect of music on achievement in industry, etc.

In physiological changes such statements are available: music increases bodily metabolism, accelerates respiration, influences the internal secretions etc. Boring indeed are the exercises that the muscle — and joint-injured must practise day after day. But if set to music, with tempos and rhythms, the exercises become, if not actually enjoyable, at least considerably more endurable (Farnsworth, *op. cit.*).

In mental therapy it has been used to quiet the apprehensive, to calm the hyperactive (on milder terms lullaby of the mother) to stimulate the depressed, and even to reduce accidents in hospitals or to distract those about to undergo dental work or surgery. Reassuring compositions for use just before electroshock-treatment are also reported to have been composed in Western Music.

In industry it has been observed that music tends to reduce or delay fatigue, it speeds up such voluntary activities as typewriting, has proved very useful for repetitive work. Keen musicologists who belong to north of the country must have heard 'Zor Lagake, Haisa' being used to push loads in the cities, more quickly. The effects of martial tunes in the forces is known from antiquity.

The general conclusions of scientific psychology in these areas, however, are that these claims largely await validation. Why not study them with the help of various *raga*-s in Indian Music?

Music as Mass Media

Research on mass communication has in itself developed a vast field of methodology and purpose in modern psychology. Music as mass media has also been taken up. Research on music from Radio, TV has only recently gathered momentum in our country. We should accelerate our pace particularly when scientific techniques are available. We could study, for example, as to why music is used in ads on radio in preference to prose.

Statistical Methods in Music

Most of the musicians are well aware of the use of psychological methods in music. However, new advances in multivariate statistics particularly, are still not very common in use. We have already referred to

factor analysis and its applications in the study of meaning in music (Virmani, *op. cit.*). Applications of probability theories particularly in information theory are still not many in Indian musicology. Some beginnings have nevertheless, been made (Deva and Nair, 1966).**** More work should follow.

Computer Music

A new trend is discernible in Western thinkers concerning application of science to music. The trend has received its formalisation from information theory. With the recent strides in the developments of high speed electronic digital computers, the opportunity exists for precise and quantitative systematic studies of various musical structures on a scale that was not previously possible.

The use of electronic digital computer for musical composition had its inception in 1955-56 in a series of experiments carried out by Hiller and Isaacson at the University of Illinois digital computer, ILLIAC. A twenty minute composition was formed and named as 'Illiac Suite for String Quartet'. By now much more has been achieved by them. The procedure was adopted because little attempt had been made to describe music from the composer's point of view. Can Indian composers, if they compose, benefit from these findings and applications, is a question which has certainly started bothering us.

As an illustration, statistical analysis of 'style' in computer music may be defined here:

If, after all influencing features are taken into account, there are still a number of possible outcomes, then that outcome is most 'stylistic' which is most statistically probable (Hiller and Baker, 1962).

Conclusion

It will be useful to conclude this paper by repeating the appeal made in the beginning. Many areas are unexplored in Indian music and at many places scientific method particularly of the behavioral sciences is unused. Of course, switching over will be a change in the methods. But only thinkers think of change (Brown, 1965). We need not be impressed by the colossal material gains which have been attained with the use of scientific methods although there is a possibility of an halo effect, because greatness does show greatness (Rieser, *op. cit.*). Let the criterion be enhancement of knowledge. It is still felt that modern advances in experimental psychology have certainly to 'join in' Indian music. 'Proselytising' is certainly not our ethics.

Notes and References

*I am grateful to Dr. B. C. Deva for his valuable comments which he so generously gave in the preparation of this paper. This work was done 'on the time of' Prof. Udai Pareek. My special thanks to him for the same. He is also to be thanked for professional stimulation.

**This is not necessarily true, as for instance in atomic physics, where the tool of observation itself affects the thing observed—B.C.D.

***This idea, I especially owe to Prof. Pareek.

****See the papers by B. C. Deva, G. N. Ramabhadran and Kirit Parik in this issue.

1. Brown, L. B., 1969: Definitions Art Theory, *JAAC*, 2, 7, 4, 409—415.
2. Brown, Rogers 1965: *Social Psychology*. NY: Free Press.
3. Child, Irvin 1969: 'Esthetics' in Lindzey, G. and Aronson, E. (Eds.) — *The Handbook of Social Psychology*, Vol. III, Second edition, Reading: Addison Wesley.
4. Deva, B. C. 1967: *Psychoa coustics of Music and Speech*. Madras, Music Academy.
5. Deva, B. C. 1970: Personal Communication.
6. Deva, B. C. and Nair, P. S. 1966: Forms in Music, *Sangeet Natak*, No. 2, April.
7. B. C. Deva and Virmani, K. G. 1968: Meaning of Music; an Empirical Study of Psychological Responses to Indian Music, *Sangeet Natak*, No. 10, Octo. — Dec.
8. Farnsworth, P. R. 1958: *The Social Psychology of Music*, NY: Hold, Rinehard & Winston.
9. Farnsworth, P. R. 1967: Review, *JAAC*, 26, 1, Fall, p. 142.
10. Fishbein, M. (Ed.) 1967: *Readings in Attitude Theory and Measurement*, NY: John Wiley.
11. Getzels, J. W. & Jackson, P. W. 1962: *Creativity and Intelligence*. NY: Wiley.
12. Hiller, L. A. Jr & Baker, R. 1962: *Computer Applications in the Behavioral Sciences*. Englewood Cliffs, N.J.: Prentice Hall.
13. Karvoski, T. F. Odbert, H. S. Osgood, C. E. 1942: Studies in synesthetic thinking; II. The role of form in visual responses to music, *Journal of General Psychology*, 26, 199—222.
14. Keil, C & Keil, A. 1967: *Musical meanings: a preliminary report*. Personal communication.
15. Kerlinger, F. N. 1964: *Foundations of Behavioral Research*. NY: HR & Winston.
16. McGuire, W. J. 1966: 'The current status of cognitive consistency theories', in S. Feldman (Ed.), *Cognitive Consistency Motivational Antecedents and Behavioral Consequences*. Academic Press.
17. Meyer, L. B. 1956: *Emotion and Meaning in Music*. Chicago: The University of Chicago Press.
18. Pratt, C. C. 1961: Aesthetics, in *Annual Review of Psychology*. California: Annual Reviews.
19. Raychaudhuri, M. 1966: *Studies in Aritstic Creativity: Personality Structure of the Musician*. Calcutta; Rabindra Bharati.
20. Rieser, M. 1966: Problems of artistic form: The concept of form, *JAAC*, 251.
21. Rosenberg, M. J. 1956: Cognitive Structure and Attitudinal Affect, *Journal of Abnormal and Social Psychology*, 53, 367—372. Please also see Fishbein M. (1967).
22. Virmani, K. G. 1968: Addendum to Reference No. 7.
23. Woodworth, R. S. & Schlosberg, H. 1954: *Experimental Psychology*. NY: Henry Holt.