endings and gives rise to sensations of rotation. These rotation sensations in turn occasion those movements of the eyes known as nystagmus. The more recent view, as expressed by Nagel in the *Handbuch der Physiologie*, is that the nystagmus is a reflex directly coördinated with, and not caused by, the sensations of rotation. Bárány, in this article, reverses the relationship and furnishes experimental evidence to show that the sensations of rotation are, at least in part, caused by the nystagmus movements, since in certain cases where there is no nystagmus the sensations of apparent rotation are also lacking.

After rotation to the right has ceased a horizontal nystagmus is observed, the slow phase of which is to the right. When the eyes are open, therefore, objects in the visual field appear to be moving to the left, and with closed eyes the subject's own body appears to be rotating to the left. Bárány finds that by directing the gaze strongly to the right the nystagmus may be inhibited, and along with it the sensations of moving objects or of the rotation of the body disappear. If the gaze is now directed to the left the nystagmus reappears and the sensations of apparent rotation return. In like manner disturbances of equilibrium are found to be associated with nystagmus, and are inhibited with inhibition of the nystagmus. The sensations of eye-movement, then, would seem to be the chief cause of the apparent rotation and of the disturbances of equilibrium, and the function of the semicircular canals would be confined to calling forth the reflex slow phase of the nystagmus. The presence and degree of nausea in rotation dizziness varies with individuals, and is probably due to a direct connection of the semicircular canals with the nerves of the alimentary canal through the nuclei of the medulla.

A clearer and more lucid analysis of the phases of nystagmus and their control is given by Holt ('Vision during Dizziness,' *Harvard Psychol. Studies*, 1906, II., 67-73), who reaches practically the same conclusions as Bárány.

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ÆSTHETICS.

The Essentials of Æsthetics in Music, Poetry, Painting, Sculpture and Architecture. GEORGE LANSING RAYMOND. New York, G. P. Putnam's Sons, 1906. Pp. xix + 404.

The general position maintained by the author in this book is that art is nature made human. "Art of the highest and finest quality," he says, "involves three things: First, a reproduction of the phenomena of nature, especially its sights and sounds; second, an expres-

sion of the thoughts and emotions of the artist; and, third, an embodiment of both these other features in an external product like a symphony, a poem, a painting, a statue, a building." Beauty is defined as 'a characteristic of any complex form of varied elements producing apprehensible unity (*i. e.*, harmony or likeness) of effects upon the motive organs of sensation in the ear or eye, or upon the emotive sources of imagination in the mind; or upon both the one and the other.'

The artistic impulse is identified with the play impulse, and is differentiated from the religious and scientific consciousness by reason of the fact that it involves both subconscious inspiration — by which the author seems to mean intuitive mental action — and conscious investigation and observation; whereas the religious consciousness involves dominantly the former, and the scientific consciousness the latter. Art, then, 'is a development of the earliest endeavor of men to give form to thought for which they have no form at their command.' The artistic temperament is quick to apprehend the effects of nature, to seize upon and represent them in a significant fashion. Art is not a means of communication, but of representation. Since the 'art-impulse' is attributed to the 'life-force' issuing from the subconscious or spiritual nature of man, it follows that this personal note dominates his product; and the product will be successful in the degree in which it represents the artist's surroundings in such ways as to manifest his own personality, his individual thoughts and emotions. This renders his work distinctive, but not less universal for that, since he derives his concepts direct from nature.

According to the three normal impulses: religious, scientific and artistic, there are three sorts of art: idealistic, realistic and idealized realistic. The first emphasizes the good, may be characterized as sublime, grand, or horrible, and finds its adequate expression in the epic form. The second emphasizes the true, may be characterized as picturesque, simple, or pathetic, and finds its adequate expression in the realistic form. The third emphasizes the beautiful, may be characterized as brilliant, striking, or violent, and finds its adequate expression in the dramatic form. An art-product which is neither distinctly epic, realistic nor dramatic is lacking in definiteness of effect, and usually felt to be inartistic. The argument here is rather dogmatic and not thoroughly convincing.

In discussing the elements of form, the author considers first the influence and significance of duration, pitch, intensity and quality in the arts of sound; then, in the arts of sight, he attempts, by analogous

treatment, to show the relation of size or extension, shape or outline, solidity and temperature respectively to each of the first mentioned elements. The general conclusion is that 'certain audible or visible effects traceable to material or to human nature have, either by way of comparison, as in imitation, or of association, as in conventional usage, a recognized meaning.' It is not quite clear, however, what has been gained by coupling the relative significance of the four attributes of sound as applied to music and poetry with four more or less arbitrarily selected attributes of vision as applied to painting, sculpture and architecture.

The methods of art-composition are said to result, as applied to duration, in rhythm; as applied to extension, in proportion; as applied to quality and pitch of note and color, in harmony. All three, rhythm, proportion and harmony, are the result of grouping together effects of sound or sight that are alike, or multiples of others that are alike. Since all consciousness is due to vibrations of the nerves in the brain, the inference is that harmonious vibrations of the ether produce harmonious effects on the brain, allowing always for the change in medium which causes us to interpret things somewhat at variance with their actual external nature, and makes the effect rather than the cause the important factor.

In the application of this general theory a point or two may be worth noting. First, with respect to form as visual outline, it is concluded that the upright elliptical figure, or 'elliptic lanceolate,' is that form which requires the least visual activity, work, or effort to recognize it, and is therefore the one most conformed to the physiological requirements of the eye. The basis of this contention is that the fields of vision of the two eyes, each field taken to be circular, overlap to form a combined field, only the central portion of which, in the shape of an upright ellipse, is common to both eyes. The error in reasoning seems to be revealed when we consider that the fields of vision of the two eyes taken separately are horizontal ellipses rather than circles. The field of vision common to both eyes is, therefore, more nearly a circle than an 'elliptic lanceolate.' It is difficult to understand why lines which would coincide with, or run parallel to the limits of this field should be more easily apprehended than are any others. We must, therefore, conclude the author's point that the 'absence of like curves' such as are described in the 'elliptic lanceolate' makes for unæsthetic effects to be not convincing.

Another point is made in tracing the analogous effects of harmony in sound and color. The author's main thesis with regard to music

seems to be that harmonic relations are built on the basis of notes whose overtones are the most alike. Thus the relation of C to F is found to be the closest. This relation is numerically expressed as 3:4. Now, in the color scale the vibration rates, as given, extend from 392 to 757 'trillions' (the author of course means *billions*, though he uses *trillions* consistently throughout his book). This scale is conceived as analogous to the musical octave with the upper note omitted, *i. e.*, C to B inclusive. The author then finds that by applying the ratio 3:4 he can produce the most harmonious color combinations. This constitutes a very pretty analogy, if the facts bear him out; but even so it is not quite clear what advantage is gained in such an explanation of æsthetic effectiveness. Facility of physiological functioning doubtless plays a part in determining elementary æsthetic effects, but in view of our meager knowledge of the physiological mechanism of the eye and ear, it appears rather futile to juggle overmuch with seeming analogies of vibration rates. In the case of musical theory, there are many reasons why certain simple ratios should, in the history of the race, have attained a significance and ease of functioning. It is not quite so evident that analogous conditions should obtain within the narrower scale of visual stimulation, nor, in case they do, just in what sense the real problem has been clarified.

As a whole, the work lacks those psychological foundations which many of us consider desirable in a treatise on æsthetics. As a result, the subject matter is more that of art theory than of æsthetics in any broad sense. Yet the pervading tone is one of sanity and tolerance which will commend the book to many. Although we cannot, perhaps, agree entirely with the author's own estimate of his work, we can; at least, conclude our review by quoting it:

"It is gratifying to the author to be able thus in closing to point out that the conception of art and of its mission presented in this volume is one—and, probably, the only one—which can logically be made to harmonize with all those conceptions of right thinking and right living which, when applied to practice, have proved to be the most effective in promoting human welfare."

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DREAMS.

Le Reve. MARCEL FOUCAULT. Pp. 304. Paris, Alcan, 1906.

M. Foucault formulates his own theory of dreams, at the same time paying due regard to the discoveries and theories of other investigators. He illustrates the various points in his analysis by more