Teleology and the Emotions

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IN A recent article Professor M. C. Nahm, defending what he characterizes as an amplified version of the James' theory of the emotions, argues that teleological principles are required in any adequate definition of the emotions.[1] Mechanistic principles may account for the physiological basis of emotional experience,[2] it is maintained, but if we are to define the total experience, which includes a certain conscious content, we must go beyond the mechanistic hypothesis and regard the emotions as directed toward certain ends. He proposes to reveal the "epistemological core" of the problem of the emotions with the evident intention of indicating the lines which the development of the theory of the emotions should follow. It is the aim of this paper to scrutinize the general problem of the emotions in the light of Mr. Nahm's arguments and to consider specifically: (1) the alleged teleological implications of the problem, (2) the statement of the problem of the emotions as it is given in Mr. Nahm's paper, and (3) the present state of research as it may be relevant to the question whether Mr. Nahm's presentation makes for philosophical clarity or methodological advancement in science.

II

What Mr. Nahm means by teleology is not entirely clear. Historically the term has been subject to a considerable am-

[1] M. C. Nahm, "The Philosophical Implications of Some Theories of Emotion", this journal, 6, 1939, pp. 458–486.

[2] *Idem*, p. 461.

biguity, but there appear to be at least three main senses in which it has commonly been used, two of which merge into each other. There is in the first place what may be called the descriptive sense, a loose, not very well defined sense in which the term is regarded as synonymous with "purposive" or "having a purpose". It is intended as nothing more than a description of a common mental attitude in which some plan is projected for the future, or, in biological terms, as a description of a process, the causes of which are not yet clear, in the light of its obvious results. The term in this sense asserts no particular view of the nature of the processes involved, being consonant with mechanistic associationism or even extreme forms of behaviorism, and posits, further, no particular view of causality which requires us to suppose that there is a determination of processes beyond what is given in any set of conditions. If teleology meant nothing more than this, there is no reason why every scientist should not be a teleologist. It must be clear, therefore, that when the term is used as a principle of explanation, it is not used in this sense.

In the second sense the term is taken to mean that the goal or end toward which a process is directed is itself a determinant of the process. Thus on the telological hypothesis so defined, the character of the process is determined by that which is as yet unrealized, *i.e.*, the end or goal. Expressed in non-temporal terms, this same idea is conveyed by saying that there is some informing principle or entelechy above and beyond what is actually given and that this entelechy is a determinant of the nature of the thing. It is the mysterious "life-principle", according to the vitalist, which differentiates living organisms from inorganic things. It is this entelechy or formal principle which transcends the elements taken in their relations that causes the thing to be what it is and determines the process in the realization of its end. Teleology in this sense implies more than means to an end. It indicates that the means exists for *the sake of* the end, for without the end the means would not be what it is.

The third sense, which may be called the metaphysical sense, is nothing more than a systematic extension of this same principle to the entire universe. Reality is conceived to be an hierarchy

of ends, exhibiting varying degrees of systematic completeness and tending toward a single end, which thus to the extent to which all other things are instruments in its service determines their existence and character—the "one far-off divine event to which the whole creation moves". The classic example of teleology in this sense is the Aristotelian theology of the Middle Ages.

Now it must be clear that if by teleology Mr. Nahm means to say something about the way in which emotional experience is determined, he must use the term in some sense other than the descriptive sense. He must regard the teleological character of the emotions as an explanation of the particular way in which these states are brought about. No one would deny that in psychology, for instance, there are such attitudes as those described as "having a purpose" or "seeing a means toward an end". But these descriptive phrases of common psychological attitudes do not entail the assumption that the end toward which an organism moves is itself a determinant or cause of that action. At our present state of knowledge purposive behavior is explicable in terms of the individual's drive mechanisms and past experience, being a projection into the future of an ideational content related to these. It was in accordance with this conception of purposive behavior, for example, that Tolman[3] was especially concerned to show the role of motives in the purposive activity of animals. Explanations of relatively complicated forms of goal directed behavior have been given by Lewin in terms of needs and tensions, the functions of which have been described in topological and vectorial terms.[4,5] On this view there is no need to assume any of the mysterious principles of the vitalist or the entelechist. In much of what Mr. Nahm has to say about the purposive character of the emotions there is nothing incompatible with the working hypotheses of empirical science, and teleology is thus reduced to little more than a name for the fact that empirical science has not as yet explained everything about the emotions. But surely by teleology Mr. Nahm means to suggest

[3] E. C. Tolman, *Purposive Behavior in Animals and Man*, New York, 1932.

[4] K. Lewin, *A Dynamic Theory of Personality*, New York and London, 1935, pp. 43–65.

[5] K. Lewin, *Principles of Topological Psychology*, New York, 1936.

more than the fact that we do not now know all there is to be known about the emotions: "The teleological or vitalistic hypothesis of emotion attempts a definition of the emotional experience in terms of goal, end or function assumed to be involved, without reference to the *type-of-act*."[6]

It seems clear enough that Mr. Nahm is not inclined to apply the concept of teleology universally as a metaphysical principle, for he does not feel called upon to defend the "*finalisme théologique*" into which a universal extension of the principle would appear inevitably to lead.[7] Thus it seems that the sense in which Mr. Nahm uses the term teleology is nearest to the second of the three senses that have been enumerated. It must be observed that his usage is not altogether free from ambiguity and that he is inclined to see in teleology, even when it appears in the first sense (as, for instance, in Cannon's writings), his own concept of teleology. It is therefore not surprising that he points out in his discussion of Cannon that the notion is not applied consequently.

The issues which are controversial for mechanism and vitalism have been so often resuscitated[8] that it would be difficult and perhaps profitless to attempt to deal with all of them in these few pages. The central, and perhaps ultimately the only, question with which we are concerned is this: Precisely what does Mr. Nahm's discussion add to our knowledge of the emotions? It is the task of philosophical analysis to clarify the underlying problems of the several sciences in order to help in the solution of these problems. If philosophical analysis is not carried out in a spirit which is sympathetic toward the methods and aims of science, it confuses and obscures the issues and only makes the problems of science more difficult of solution.

We have now to inquire into the grounds which Mr. Nahm adduces in support of his contention that teleological principles must be introduced into an adequate definition of the emotions.

[6] "The Philosophical Implications of Some Theories of Emotion", p. 461.

[7] *Idem*, p. 473. See footnote.

[8] An extensive discussion pertinent to the issues here discussed is given in J. H. Woodger, *Biological Principles*, New York, 1923.

The main argument which he cites in support of his teleological thesis follows that of Kant: Because of the nature of the organization of certain complex phenomena in the natural order, it is necessary to supplement mechanistic principles by postulating teleological conceptions. There are certain limits beyond which mechanistic principles of explanation cannot go, so that it becomes necessary, if we are to understand these more complex phenomena, to introduce the concept of purpose to account for these higher forms of organization.[9]

This argument is, both historically and logically, entirely negative and wholly lacking in conclusive force. The fact that there are complicated phenomena, particularly in the biological world, which have as yet failed to yield to analysis in non-teleological terms does not constitute a refutation in principle of the mechanistic hypothesis.[10] Only when it can be shown that certain phenomena require principles of explanation which are incompatible with the fundamental assumptions of the mechanistic hypothesis will the mechanistic hypothesis be demonstrated to be inadequate or false. One of the historically embarrassing facts which the proponents of vitalism and teleology in general have had to face is the constant invasion, on the part of experimental investigations revealing causal relations, of those spheres of scientific investigation which the teleologists had relegated to themselves

[9] What the significance of the Kantian doctrine of teleology in scientific terms is and what its relevance to the procedure of science may therefore be are somewhat puzzling questions, mainly because the Kantian system is more than an empiricism. It is accordingly sometimes difficult to see where scientific empiricism leaves off and where critical metaphysics begins. Kant's view that teleology is a regulative rather than a constitutive principle, for example, raises the question whether the notion has any meaning in empirical terms. A similar question arises in connection with Kant's belief that the apparent opposition between mechanism and telology is reconciled at a higher level of insight than that of which the empirical mind is capable.

[10] Whether it is possible to amplify and amend the mechanistic hypothesis in such a way as to meet the objections posed by the vitalists or whether the further postulates of the organismic hypothesis are required is a question which would take us beyond the limits of this paper. It is important to observe, however, that in any case the hypothesis must be stated in terms that lend themselves to empirical testing. Mr. Nahm's argument at this point is based on the questionable assumption that the inadequacy of the mechanistic hypothesis implies the truth of the supplementary vitalistic hypothesis. The possibility of another alternative is ignored.

on the ground that they were intelligible in teleological terms alone.[11] The history of modern science has been little more than the history of the substitution of problems and explanations in the quantitative terms of empirical science for older explanations in terms of purpose, entelechies, "life-principles", etc. Science as it is known today had its beginning in those times when the teleological principles of Aristotle, which formed the basis of science in the Middle Ages, were replaced by principles which implied a denial of the purposive character of the universe.

In its attempts at explanation vitalism introduces a mysterious "life-principle" or entelechy to which are attributed certain characteristics of the organism. Were this vitalistic principle nothing more than a name for a problem, there would at times be justification for its introduction. But the vitalist regards it as more than a name for a problem; he makes the mistake of attributing explanatory efficacy to it and thereby violates the canons of empirical science. For it is an axiom of the method of empirical science that explanation must always be given in terms of experienceable entities rather than in terms of mysterious forces for which we can have no experimental evidence.[12] Phenomena must be explained in terms of forces and entities immanent in the observable phenomena themselves. Such concepts as those of a vital principle, purpose (in the strict vitalistic sense), or entelechy are, as in their very nature unverifiable, scientifically meaningless; or they are but names of problems. Thus the general notion of vitalism is not calculated to help in carrying out the business of science. In its lack of concreteness and in its essential unverifiability the vitalistic hypothesis is conducive only to scientific apathy and indifference and contributes nothing to the furtherance of research in the field. It is the point of view of those who prefer darkness to the light.

III

After having thus discussed the general argument for teleology, we may now go on to consider the specific and more concrete

[11] Cf. L. Bertalanffy, *Modern Theories of Development*, London, 1933, pp. 30 f.

[12] What is the difference in operational terms between entelechy, the phlogiston theory, and the "purposiveness" of emotions?

arguments advanced to justify the introduction of teleological principles into the theory of emotions. Mr. Nahm regards his own theory as basically an amplification of James' theory. After summing up the theory of James in three points, he states that "implied in the three propositions and in what has already been written of James' theory are two modes of definition, the one primarily concerned with the physiological and neurological basis for their reaction, the other primarily concerned with the end or purpose subserved by the reaction".[13] Unfortunately, it is not at all clear how this conclusion follows from his three points quoted from James, and there is no explicit reference to "what has already been written" to inform the reader precisely what the author had in mind. There are, however, two possible explanations of what Mr. Nahm had in mind. The first concerns the first part of his second quotation, where James refers to the "total situation" and to the "instinctive reaction on that one of the elements which strikes us for the time being as most vitally important". In this quotation "total situation" and "most vitally important" might be interpreted to signify something teleological in character. But a reference to the context from which these quotations were taken makes it clear that such an interpretation misrepresents James' position. In that part of "The Physical Basis of Emotions"[14] from which the quotation was taken, James considers Worcester's observation that a bear has different effects on us when in a cage, when in chains, and when loose in the woods. According to the latter, it is a feeling factor, the expectation of being eaten, and not the perception of the bear, which excites the movements of fear. The quotation cited was part of James' answer to this objection. A part of this passage which is not quoted by Mr. Nahm, however, causes James to appear to be more mechanistic than vitalistic: "A reply to these objections is the easiest thing in the world if one only remembers the force of association in psychology. 'Objects' are certainly the primitive arousers of instinctive reflex movements. But they take their place *as experience goes on*, as

[13] "The Philosophical Implications of Some Theories of Emotion", p. 461.

[14] W. James, "The Physical Basis of Emotions", *The Psychological Review*, 1, 1894, p. 518.

elements in total situations, the other suggestions of which may prompt to movements of an entirely different sort".[15] Mr. Nahm appears to have misunderstood James' position in favor of his own argument; this becomes clearer when further statements of James are considered.[16]

James uses the term "teleological" several times in his writings on the emotions, once to warn against unwarranted extensions of the concept to emotional experience.[17] For him it signifies ordinarily a means to an end, but it never implies that the means exists for the sake of the end in the sense that the means would not exist if it were the case that the end did not exist. James denies that metaphysical teleology is implied in his system when he says that his theory has no philosophical implications.[18] Quite the contrary is the case, he points out. There are many instances of emotional expression which appear to have served no useful purpose, being "the purely mechanical results of the way in which our nervous centers are framed",[19] and others that are entirely accidental.[20] The conception of instrumentality here postulated is as mechanistic as Darwinism itself: Events occur in a causal series; the effects may or may not be useful in the struggle for existence. The events are not determined to fit into a design or plan, and their nature is therefore not determined by the end they serve. The sole principle which decides that certain effects (and with them their causes) shall survive is that of natural selection. Now if teleology means nothing more than this, namely, that every cause is the means to an end, its effect, then there is nothing in it which the mechanist does not himself assert, for a denial that there are means to certain ends is a denial of the principle of causality itself. But teleology and vitalism, as representing points of view distinct from mechanism,

[15] *Ibidem.* Italics ours.

[16] Listed in the index of *The Principles of Psychology*, under the heading "Teleology", is the topic, "its barrenness in the natural sciences", which indicates well enough James' general attitude toward telology in natural science.

[17] W. James, *The Principles of Psychology*, Vol. 2, p. 483.

[18] "The Physical Basis of Emotions", p. 522.

[19] *The Principles of Psychology*, Vol. 2, p. 484.

[20] *Ibid.*

intend to assert more than this: They maintain in general the subservience of means to end,[21] the determination of things by that toward which they tend; and, in biology, the introduction of a mysterious "life-principle" which transforms matter into living organisms.

The other point Mr. Nahm might have had in mind is suggested in the latter part of the second quotation and in the third quotation, namely, the connection of the emotions with the instincts.[22] The instincts, as inherited, purposeful reactions, might well serve as prototypes of teleological reaction. Now, quite apart from the issue implied in the third quotation, that emotions are "weakened *repetitions of movements which* formerly *were of utility*",[23] the main issue on this formulation of the problem lies in the nature of instinctive behavior. Mr. Nahm quotes Bernard, but makes no attempt to cope with the latter's non-teleological theory of instincts. If, instead of insisting that instincts and emotions are alike purposive in nature, Mr. Nahm had tried to ascertain what the present status of the problem of the instincts in the light of experimental investigation is, what he has to say might have been stated in terms which lend themselves to further experimental research on the nature of the emotions. But his insistence on the basically teleological character of instincts and emotions only makes it more difficult to understand what is useless and purposeless in them.

Modern research on the problem of instincts by Mueller, Lorenz, and others has taught us that even instincts yield to empirical research more information than merely the dubious fact of their "purposefulness". Thus Lorenz in a lucid ornithological essay has been able to show that the instincts are not necessarily inborn in their full-fledged form and that in a certain

[21] Aristotle, *Physics*, $199^{a}15$–$^{b}4$; $^{b}15$–28.

[22] This interpretation is supported by his later extended discussion of the relation between these, which constitutes in effect an argument for the purposive character of the emotions based on the alleged purposive character of the instincts and the intimate connection between instincts and emotions. "The Philosophical Implications of Some Theories of Emotion", p. 478.

[23] "The Philosophical Implications of Some Theories of Emotion", p. 461. "Formerly" is italicized in the original quotation.

sense they are adaptive and thus "purposeful", while in another sense they are rigid and thus entirely "purposeless".[24] In an investigation of the social instincts of birds, particularly with reference to the role of the comrade in the life of birds, he was able to show that, while certain birds, especially autophagous species, will attach themselves from the very beginning only to grown-up individuals of their own species, others, *e.g.*, the gray goose, have a sensitive period after coming out of the egg, during which the first subject seen becomes the subject of attachment. If this happens to be a human being, they will be attached to individuals of the human species. After the very short sensitive period is over, the attachment becomes unchangeable. Thus it is seen that this instinct has in certain species an innate "imprinted parent-image", while in other species this image is acquired in a sensitive period, and, far from being purposeful, is determined by the accident of a first meeting. In the light of instances of this latter kind, it seems clear that instincts are best understood, not as directed purposively, but in terms of their genetic antecedents, particularly as these are revealed in the variations that occur in the life-history of the different species. If the assumption is made that all instinctive behavior is purposive, these negative instances become unintelligible; if, on the other hand, it is assumed that the explanation of this kind of behavior is to be sought in the genetic conditions which determine this behavior, new light is thrown on the whole problem of instincts and on the problem of the emotions to the extent to which the two are interrelated.

IV

Mr. Nahm's arguments against the theories of Cannon and Dumas likewise fail to justify the assumption of teleological principles. Mr. Nahm's principal criticism of Cannon is that he is inconsequent: Although Cannon writes about "usefulness" and "preparation for emergency action", he fails to come to a teleological theory. Cannon's failure to follow through consistently

[24] K. Lorenz, *Journal für Ornithologie*, 83, 1935.

the implications of his position is for Mr. Nahm especially obvious in his distinction between "emotional behavior" and "emotional experience". This distinction, however, shows only that Cannon used the term "useful" in a purely descriptive sense and discarded it when it was no longer "useful" for purposes of description. This was the case when, for example, it was found that, "in normal conditions the bodily changes, though well marked, do not provoke emotion".[25] Although he criticises the experimental evidence adduced by Sherrington and Cannon, there is no reference to the important pathological material which gives evidence regarding the role of the hypothalamus in human emotions included in Cannon's book and in Bard's summary of the research on the emotions.[26] Cannon's theory can hardly be criticized without taking into account this body of evidence.

In his criticism of the physiological theories of Dumas and Piéron, Mr. Nahm confuses behaviorism and mechanism. What his criticism of Dumas and Piéron really comes to is that in their introduction into their description of the emotional state of such terms as "joy", "sadness", etc., they have exceeded the limits of strict reflexology, which denies the significance of such subjective aspects. But this is a criticism of behaviorism rather than of mechanism, and in identifying the two, Mr. Nahm has overlooked an important distinction: Mechanism implies a certain conception of causation, while behaviorism, in its strict formulation, is a psychological doctrine which denies the reality of consciousness. Now it is, of course, historically true that the mechanistic hypothesis as it was developed in physics issued in a behavioristic psychology, the reason being that mental events as they are defined in the Cartesian dualism are incapable of expression in spatio-temporal terms. The difficulty of accounting for psychophysical interaction, together with the amenability of physical events to formulation in spatio-temporal terms, was

[25] W. B. Cannon, "The James-Lange Theory of Emotions", *American Journal of Psychology*, 39, 1927, p. 114.

[26] P. Bard, "The Neuro-Humoral Basis of Emotional Reactions", *Handbook of General Experimental Psychology*, Worcester, 1939, pp. 264–311.

in a large part responsible for the behavioristic emphasis which later had the effect of denying the reality of consciousness.[27] Yet from the mechanistic hypothesis of Descartes there stemmed another psychology quite different from the behaviorism which was the result of the physicalistic emphasis: English associationism, from the time of Locke until the time of the Mills, attempted a development, on the mental side of the mind-body dualism, of a psychology analogous to mechanistic physics on the side of matter. The whole history of English associationism, then, is testimony to the fact that the mechanistic hypothesis does not necessarily imply a behavioristic psychology.

What Mr. Nahm is really criticizing is behaviorism rather than the mechanistic hypothesis as such. And with his rejection of behaviorism as inadequate because of its denial of the fact of consciousness there must be agreement, for an abundance of evidence, derived in large part from the literature of psychopathology, makes it clear that psychical mechanisms play a determining role in emotional experience.[28] But while there is agreement with Mr. Nahm's argument insofar as it is a criticism of behaviorism, it must be pointed out that his argument proceeds to an improper conclusion: What his argument has shown is that in its denial of the fact of consciousness behaviorism fails to take account of an important aspect of emotional experience. It does not at all show that there is some end or purpose subserved, for it has not been established that consciousness in itself is teleological in character.

V

James' theory is a contribution of lasting historical significance. As against the claims of Wundtian structuralism, in which the emotions were regarded as a special kind of mental element amenable to analysis in purely introspective terms, James main-

[27] Descartes was not, as Mr. Nahm implies on p. 473, a behaviorist, at least as far as human psychology is concerned, for in his dual-substance theory Descartes insisted upon the reality of *res cogitans*. Animals alone were true automata; in human beings there is an interaction between mind and body.

[28] The reference here is especially to the psychoanalytic literature.

tained that the character of emotional experience can be revealed only through an investigation of relations between subjective factors and bodily processes. It is not the particular form which he gave to this argument, but rather the argument itself, that makes James' contribution an important one.[29] Physiological and anatomical research into the bodily conditions of emotional experience has today gone far beyond the physiological and anatomical conceptions in terms of which James formulated his theory; at the same time there has been a parallel advance in psychology and psychiatry. Head,[30] Cannon,[31] Papez[32] and others have in recent years shown the importance of central factors in the genesis of emotional experience, so that it is now clear not only that the integration of emotional behavior is effected in the hypothalamus but also more than probable that hypothalamic activity is intimately connected with the psychological aspects of the emotions. Other recent research has shown the intimate connection between the instincts and the emotions pointed out by James in the mechanisms of the central nervous system. Grinker, for instance, writes: "As a cephalic representative of the autonomic nervous system the hypothalamus has to do with energies of visceral origin which are the forces of the instincts. . . .To achieve these slower adaptive responses the hypothalamus became subordinated to higher, newer cortical centers by inhibitory processes emanating therefrom. . .However, in turn the hypothalamus influences activity within the cortex or ego. Its drives are synonymous with Id demands or necessities of the instincts".[33] In the recent psychological literature, Lund argues for the view that the emotions have to be considered as an integration of mental, somatic, and visceral variables together

[29] Cf. J. R. Angell, "Reconsideration of James' Theory of Emotion in the Light of Recent Criticism", *The Psychological Review*, 23, 1916, p. 261.

[30] H. Head, *Studies in Neurology*, London, 1920.

[31] W. B. Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage.* New York and London, 2nd ed., 1936.

[32] J. W. Papez, "A Proposed Mechanism of Emotion", *Archives of Neurology and Psychiatry*, 38, 1937, pp. 724–743; "Cerebral Mechanisms", *The Journal of Nervous and Mental Disease*, 89, 1939, pp. 145–159.

[33] R. R. Grinker, "Hypothalamic Functions in Psychosomatic Interrelations", *Psychosomatic Medicine*, 1, 1939, pp. 44–45.

with the variables of the stimulus situation.[34] In the literature of psychoanalysis the emotions are considered as derivates of drives.[35] Their bodily as well as their feeling symptoms are regarded as the expression of conflicting drive-cathexes.[36, 37] In the field of psychiatry McKinney suggests that emotions be defined as modifications of the organism's energy in conflict.[38]

Thus our present understanding of emotional experience has been made possible through the first statement, by James and Lange, of the thesis that certain bodily processes are integral to the emotional experience. But whatever the importance of James in this respect may be, it is certain that his importance for the theory of emotions is not based on any advocacy of a vitalistic or teleological principle. James' importance derives from the fact that his statement of the problem was such as to make possible the development of this further research on the problem of emotions by showing the integration of emotional expression and feeling and the common source of both.

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[34] F. H. Lund, *Emotions*, New York, 1939, pp. 11–14.

[35] E. Jones, "The Classification of the Instincts", *The British Journal of Psychology*, 14, 1923–4, pp. 256–261.

[36] P. Federn, "Die Ichbesetzung bei den Fehlleistungen", *Imago*, 19, 1933, pp. 312–338, 433–453.

[37] Y. Kulovesi, "Psychoanalytische Bemerkungen zur James-Langeschen Affect-Theorie", *Imago*, 17, 1931, pp. 292–298.

[38] J. M. McKinney, "What Shall We Choose to Call Emotion?", *The Journal of Nervous and Mental Disease*, 72, 1930, p. 46.