

# Chapter 19

## Dualism in Animal Psychology



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1 **Abstract** This chapter is Grace Andrus de Lagunas' discussion of Margaret Floy  
2 Washburn's *The Animal Mind*.

3 The second edition of Professor Washburn's text-book in animal psychology indulges  
4 as little as the first in controversy over matters of general theory. Indeed the chief  
5 purpose for which the book was written (as the author stated in the Introduction to  
6 the first edition) was to bring together, and make available for the ordinary student,  
7 the simple facts whose discovery is the result of experimental method in comparative  
8 psychology. And it is the rapid accumulation of such facts discovered since the first  
9 appearance of *The Animal Mind* in 1908,<sup>1</sup> that has led the author to prepare a second  
10 edition, a task which involved the rewriting of more than half of the earlier volume.  
11 Of the growth of theoretical controversy which has accompanied this rapid advance  
12 in comparative psychology during this decade, little intimation appears in the text.  
13 Textbooks are not, of course, the place to discuss such subjects. Yet the reader who  
14 peruses the pages of *The Animal Mind* with the issues of current controversy in the  
15 back of his head may well find food for philosophical reflection. For the interesting  
16 facts of animal behavior which the author sets before us in so orderly and clear a  
17 manner are not, after all, presented merely as interesting facts. They are selected and  
18 ordered that they may serve as evidence from which the animal mind—or minds—  
19 may be *deduced*. As the author herself remarks in the Introduction, the book might  
20 properly be entitled *The Animal Mind as Deduced from Experimental Evidence*. It

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<sup>1</sup> M. F. Washburn, *The Animal Mind*, second edition, revised. New York: The Macmillan Company, 1917.

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21 is the conception of the object of psychology, implied in this title and explicitly laid  
 22 down in the opening chapters, which gives pause to the theoretically-minded reader.

23 The conception is a familiar one. The only mind which the psychologist, or any  
 24 individual, can know is his own mind; and this he knows directly and immediately.  
 25 The only way in which the psychologist can learn to know the mind of another  
 26 conscious being is to ask himself how he would feel and think in the other's place.  
 27 Just in so far as he is able to answer this question, can he gain any insight into the  
 28 other's mind. It evidently follows that each of us can know the conscious processes  
 29 of others only in so far as they are like our own. In so far as they differ from our  
 30 own they must remain a sealed book to us. Furthermore, the feelings and thoughts  
 31 of others to be understood must not only *be* like our own; they must also express  
 32 themselves in similar words or acts. It is a fundamental postulate of all psychology,  
 33 human and animal, that like behavior is evidence of like conscious processes. There  
 34 are thus great difficulties lying in the path of the comparative psychologist. He may  
 35 perhaps hope to reconstruct imaginatively the feelings of the questing dog or the  
 36 racing horse; but to put himself in the place of the buzzing wasp or the wriggling  
 37 worm is beyond his powers. Nevertheless, precarious and devious as the path of the  
 38 comparative psychologist must be, it is the only way open, and some progress is  
 39 possible, and has, indeed, already been made.

40 Thus, according to this conception, two distinct but equally important tasks  
 41 confront the investigator of the animal mind: first, the discovery and description  
 42 of the facts of animal behavior; second, the psychological interpretation of those  
 43 facts. In order successfully to accomplish the first, training is necessary to distin-  
 44 guish the simple facts from the interpretation of them—what is actually seen from  
 45 what is merely inferred. But since what can be observed is only external behavior,  
 46 i.e., physical movements, the peculiar task of the psychologist, as distinct from the  
 47 biologist, remains to be performed: the inference as to what conscious processes, if  
 48 any, accompany these acts.

49 The frank and clear-cut statement of this familiar position which is given in the  
 50 opening chapters raises squarely a number of fundamental problems. What is the aim  
 51 of psychological science? Is the goal of the psychologist the imaginative reconstruction  
 52 of the experience of the conscious being he is studying? Surely not, since the  
 53 pursuit of science is essentially a social enterprise, and the body of facts and theories  
 54 constituting a science is a common object. Psychology, in so far as it is a science,  
 55 we should all agree, consists in the *description* of the facts concerning minds, and  
 56 the *statement* of the systematic interconnection of these facts.

57 What Professor Washburn and others of her school evidently mean to claim is  
 58 that it is only in so far as we can imagine the sensations and feelings of another that  
 59 we are prepared to give a psychological account of them, or understand the account  
 60 given by any one else. Now this claim, while it is so plausible that to question it may  
 61 seem mere perversity, I find great difficulty in admitting. For one thing, it carries  
 62 with it the acceptance of a whole body of logical doctrine to which there are grave  
 63 objections. This is too large a subject to enter upon here. Viewed more directly and  
 64 empirically, the claim raises equally serious doubts. The old objection, that, if our  
 65 knowledge of the sensations and emotions of animals depended on the possibility

66 of translating them into terms of our sensations and emotions, no psychology of the  
 67 lower animals would be possible, seems to me unanswerable. That after so staggering  
 68 a presentation of the difficulties of comparative psychology as our author gives us in  
 69 the first chapter she can yet believe in the fruitfulness of the enterprise, is an arresting  
 70 observation. One is compelled to ask whether the enterprise be, after all, the sort of  
 71 intellectual adventure it is pictured as being.

72 Let us examine it a little more closely. When I see my dog running along the  
 73 walk with his nose to the ground, and I know one of the children went that way to  
 74 school a half-hour ago, I describe his experience as an attentive discrimination of the  
 75 odor of the child with a feeling tone of pleasurable excitement. This is a description  
 76 which has an intelligible and fairly definite meaning to any one of us. And yet no  
 77 one of us ever had such a total experience nor even, perhaps, experienced a single  
 78 one of the essential elements entering into it. The individual human being has for us  
 79 no distinctive odor when he is clean, whereas we know that for the dog each person  
 80 of his acquaintance has an unmistakable odor, and that the characteristic odor of his  
 81 master is highly agreeable in a peculiar way. To me, as I suppose to most of us, the  
 82 idea of a distinctive odor attaching to a person is unpleasant. Even if this were not  
 83 so, I could not imagine an odor having the peculiar emotional coloring which the  
 84 odor of his master has for the dog—which leads him, for example, to find solace and  
 85 contentment in lying on an old glove or other article of clothing. It is true I have had  
 86 various experiences of pleasurable excitement attaching to odors. The smoke of a  
 87 locomotive always had a peculiarly delightful exciting quality; but it does not seem  
 88 to me that my understanding of the experience of the dog who follows the child so  
 89 eagerly is brought about by calling up this pleasurable excitement and translating  
 90 the dog's experience in terms of that. It even seems to me very improbable that the  
 91 description of the dog's experience would be unintelligible to me even though some  
 92 accident had deprived me in youth of all sense of smell. Is Helen Keller debarred from  
 93 entering into an intelligent discussion as to whether the white rat has color-vision,  
 94 because she can not imagine red and blue? That her blindness would entail serious  
 95 disadvantages to her psychological study of vision is undoubtedly true; but that it  
 96 would make the psychology of vision unintelligible to her is not credible.

97 The crucial question is: What do such psychological terms as red and anger and  
 98 unpleasantness and space-perception *mean*? Does each denote a "this," an incom-  
 99 municable bit of private experience, which each one of us identifies to himself by  
 100 calling it up in imagination? If so, how can we manage to be mutually comprehen-  
 101 sible? Perhaps our author would answer that while I do denote such a "this" by red  
 102 or anger, I may enable you to identify a similar "this" by describing it in terms of the  
 103 external relations it bears to stimulus on the one hand and response on the other, just  
 104 as a description may be used to indicate the denotation of any proper name. What red  
 105 or anger *denotes* is a bit of private feeling, and it is this that the psychologist studies.  
 106 To this contention the reply is that such a merely private and incommunicable some-  
 107 what can not become the object of scientific investigation. And if this reply seem a  
 108 piece of a priori dogmatism, we may point to the empirical facts themselves.

109 The psychological uniformities holding of sensation-qualities of color, such as the  
 110 laws of color-contrast, relation of brightness and saturation, etc., are all *formulations*



111 *of uniformities of discriminative responses to objectively standardized conditions.*  
 112 Does the psychologist wish to determine the complementarity of a certain shade of  
 113 red? He selects a piece of colored paper of a standard make and grade, gives it a  
 114 determinate illumination, places a normal observer in a standard relation to it, etc.,  
 115 etc. In short, what he is studying is no “this;” it is the standard paper in a certain  
 116 complex set of relations to the observer. The importance and the significance of  
 117 the introduction of experimental method in psychology lies precisely in the fact  
 118 that it provides a means for the determination of psychological phenomena. *The*  
 119 *phenomena thus investigated become in effect functions of the factors constituting*  
 120 *the standardized conditions of the experiment.* It must not be suggested, however,  
 121 that this means the identification of psychological research with either physical or  
 122 biological science. The psychological standardization of the conditions of experiment  
 123 is almost never equivalent to a physical or mechanical standardization of them. What  
 124 may constitute a wide variation in conditions mechanically considered, may well fall  
 125 within the limits of psychological constancy for the particular experiment in hand.  
 126 Nor is this determined by an unchecked introspection that a given variation does not  
 127 “look” or “feel” different, but by further experiments which act as mutual checks.<sup>2</sup>  
 128 In short, one of the most important tasks of the psychologist is the determination of  
 129 what constitutes the standardization in typical cases.

130 What has just been said refers primarily, of course, to the investigation of  
 131 sensation-qualities, which is one of the fields where experiment has proved most  
 132 fruitful. But it is not less true that other psychological terms such as those mentioned  
 133 above—anger, unpleasantness, space-perception—denote phenomena which can be  
 134 determined only by the relations which they bear to stimulus and response. What the  
 135 psychologist actually means by anger, for example, is an emotional attitude which  
 136 manifests itself in a certain characteristic mode, or rather modes, of behavior. It is  
 137 often asserted that anger is first known as a peculiar inner state by each individual,  
 138 which is later ejectionally attributed to others as a result of inference from behavior.  
 139 Now as a genetic account of the empirical origin of our idea of anger, this seems to  
 140 me to be on a par with the explanation of simple spatial ideas as due to inferences  
 141 made in early childhood from differences in sense-data. The child surely perceives  
 142 his nurse’s anger as immediately as he does her position between the chair and the  
 143 table—nay, even more directly, since he instinctively responds to her loud threatening  
 144 tones and her scowling face, while he must learn by experience what modifications  
 145 of response the position between chair and table call for. But neither the perception  
 146 of anger nor that of position is the result of *inference*, but of something much simpler  
 147 and more direct. Later on, when anger is discriminated by name, it is as likely to  
 148 denote the attitude Daddy will have if one is naughty, as one’s own feelings when  
 149 one throws a toy across the room or slaps sister.

<sup>2</sup> For example, an illumination may be psychologically constant, even though there be mechanically measurable variation. But a mechanical variation which is too slight to be directly discriminated may nevertheless count as a psychological variation. If it should be found that such a change in degree of illumination was followed by a constant variation in the results of observations of minimal changes in grays, or that the rate of eye fatigue varied with the change in illumination, such change would be classed as truly psychological.

150 It is an experience which all of us must sometime have had, to be suddenly accused  
 151 of being angry in the midst of eager discussion. After the first tendency toward  
 152 indignant denial, we may, perhaps, recognize the justice of the accusation. Now on  
 153 what is such recognition based? Is it not largely because we catch the echo of our  
 154 own raised voice, or become aware of our menacing attitude toward our companion?  
 155 Sometimes, indeed, we may be frankly doubtful whether we were angry or not, if  
 156 there be no manifest evidences of it. It is, of course, very difficult to make a reliable  
 157 introspection; one is inevitably prejudiced. But it seems clear to me that what we  
 158 mean by "being angry" is not the enjoyment of a subjectively identifiable mental  
 159 process. No psychologist, I venture to assert, ever discriminated such a process and  
 160 mentally labelled it "anger" for purposes of scientific reference and comparison.  
 161 Suppose he had done so, and tried to classify later experiences as "anger" or "not-  
 162 anger" by comparison with this. He would find himself in serious perplexity, first,  
 163 because it is very difficult to recall a past emotional state for purposes of comparison;  
 164 and second, because he would probably find himself using the term in an arbitrary  
 165 way, and making statements which could not be verified by others. As a matter of  
 166 fact "being angry" seems to cover a somewhat indefinite range of feeling. Cold, still  
 167 anger is a somewhat different feeling from hot, passionate anger; nor does it seem  
 168 probable that a psychologist continues to classify them as varieties of a common  
 169 species because of any identical element in the two experiences. What psychology  
 170 has done, indeed, just as what every science must do, is to take over classifications  
 171 and distinctions from common sense and gradually to reconstruct and systematize  
 172 them. In the case of the emotions, psychology has as yet made but slight progress.  
 173 Anger and fear as used by psychologists are practically common-sense terms. They  
 174 can be made scientific, i.e., be given that definiteness of denotation and connotation  
 175 which science demands, only as they are formulated as determinate functions of  
 176 behavior.

177 If the foregoing contention is just as regards emotion, it is more evidently so as  
 178 regards such a phenomenon as space-perception. Space-perception, unlike red or  
 179 anger, is no particular conscious experience. Rather it designates a class under which  
 180 practically all our sensory experiences fall. It can not be said of space-perception, as  
 181 it is said of a sensation-quality or an emotion, that it is something we first become  
 182 acquainted with in our own experience and then attribute to others. In one sense of that  
 183 much-abused term "acquaintance" I am indeed acquainted with space-perception,  
 184 since my experience includes or involves it; but this sort of acquaintance does not  
 185 take me very far toward my goal of scientific identification and description. Just  
 186 what are the specific differentiae of space-perception? The attempts to answer this  
 187 question constitute a long chapter in psychological controversy. Professor Washburn  
 188 judiciously speaks of it as "involving the simultaneous awareness of a number of  
 189 sensations consciously referred to different points in space." But what is a conscious  
 190 reference to different points in space? It must include the experience of the two-year-  
 191 old child who persistently tries to put the largest block of his nest of blocks into the  
 192 smallest, and the experience of the skillful dressmaker, who after a brief inspection  
 193 of an illustration of a complicated garment cuts a pattern for it offhand. "Conscious  
 194 reference," or "localization," would seem to stand in need of further analysis before it

195 can be made the basis of definite and hence fruitful inquiry regarding the experience of  
 196 the sea-urchin or the stickleback. That a scientific study of different levels or types of  
 197 space-perception and of their relationship to each other can be made without constant  
 198 dependence on standardization in terms of stimulus and response does not seem  
 199 possible. Space-perception is not an inner mental state whose relations to behavior  
 200 are merely external. On the contrary, psychology is forced to treat the relationship  
 201 to response as constitutive and determinative of the phenomena it studies.

202 At this point it seems well worth while to raise the following question: How  
 203 different in actual procedure and in results is a study of animal mind and behavior  
 204 carried out from the standpoint of such a dualism as our author's, from a similar  
 205 study made by a behaviorist?

206 The bulk of *The Animal Mind* is taken up with an investigation of the number and  
 207 kind of sensory elements which enter into animal consciousness at different levels.  
 208 There is first a chapter on sensory discrimination in general, dealing with the problem  
 209 as to what constitutes evidence for the presence of distinct sensory qualities. This is  
 210 followed by chapters on the special senses: the chemical sense (including taste and  
 211 smell), hearing, and vision. Later chapters deal with space-perception, modification  
 212 of conscious processes by experience, and lastly attention. In the chapter on the  
 213 criteria of sensory discrimination, the author argues that the fact that an animal  
 214 responds in some way to a given stimulus, e. g., sound waves, is not evidence that  
 215 the animal consciously discriminates such a stimulus as qualitatively distinct. "It is  
 216 not," she writes (p. 57) "the number of stimuli to which an animal reacts that can be  
 217 taken as evidence of the qualitative variety of its sensations, but the number of stimuli  
 218 to which it gives different reactions." Even this, however, we are told, is probably  
 219 too simple a statement of the case. A given type of stimulus, e. g., sound waves,  
 220 may be perceived as qualitatively distinct even though it brings out no specific direct  
 221 reaction. If it brings out distinctive modification of other reactions we give it a place  
 222 among the sensation-qualities of the animal's experience.

223 Now while the language used is different, and while the problems set for investiga-  
 224 tion are differently formulated, the difference between the treatment given in  
 225 this and the succeeding chapters, and a frankly behavioristic treatment is far less  
 226 radical than one might suppose. To ask: "Does the white rat have color-sensations,  
 227 and if so which ones?" is not practically different from asking: "Does the white rat  
 228 specifically discriminate chromatic wave-length?" And the case is similar throughout  
 229 the whole range of sensory discrimination. The actual concrete problems which the  
 230 dualistic psychologist is interested in investigating are essentially the same problems  
 231 which the behaviorist is led to study. What the dualist does in effect is *to add on* an  
 232 interpretation which can be only characterized justly as "metaphysical." By this I  
 233 mean that just in so far as the dualist claims to infer from the facts of behavior the  
 234 existence of an inner order of being, related in an inscrutable manner to those facts,  
 235 he is stepping outside the bounds of scientifically verifiable hypothesis and entering  
 236 upon purely metaphysical speculation in the bad sense of the term. To the actual  
 237 empirical investigation of animal psychology such an attempted interpretation adds  
 238 no significance.

239 The “epiphenomenal” character of such interpretation comes out clearly in the  
 240 treatment of various topics. Indeed the treatment of the criteria of the presence of  
 241 consciousness itself is a case in point. In the early chapter on the *Evidence of Mind* the  
 242 author argues that none of the proposed tests for the inference of mind from structure  
 243 or behavior is conclusive. Her conclusion is that no evidence exists for either denying  
 244 or affirming the presence of consciousness in animals below the very highest, and that  
 245 “for all we know it may exist in simple forms until we reach the very lowest of living  
 246 beings” (p. 37). Such a position is, it seems, to me, inevitable so long as one conceives  
 247 consciousness as a superadded thing related to behavior in a purely external way.  
 248 For the presence or absence of such a metaphysical entity there can be no evidence.  
 249 But, on the other hand, the hypothesis that such an entity is or is not present can  
 250 make no difference in the scientific treatment of the concrete phenomena of animal  
 251 psychology. Thus when the question is asked whether an animal discriminates the  
 252 visual qualities “red” and “blue,” the actual answer of the dualistic psychologist  
 253 is no whit different from that of the behaviorist. “No evidence of discrimination  
 254 between two stimuli on an animal’s part,” writes Professor Washburn (p. 53), “can  
 255 do more than show us that for the animal they are different; just what the quality of  
 256 the sensation resulting from each may be, whether it is identical with any sensation  
 257 quality entering into our own experience, we can not say. The light rays which to  
 258 us are red and blue may for an animal’s consciousness also differ from each other,  
 259 and yet if our experience could be exchanged for the animal’s, we might find in  
 260 the latter nothing like red or blue as we know them.” The same might of course be  
 261 said of the sensory discrimination of a fellow man, even though he were a trained  
 262 introspectionist. To assert: “A experiences the sensation qualities red and blue,” and  
 263 “A has the capacity for discriminatory response to the corresponding wave-lengths,”  
 264 are not descriptions of two different facts, but merely different descriptions of one  
 265 and the same fact. The belief of the dualist that there is really a difference between  
 266 the two facts is a belief which, by Professor Washburn’s own admission, could only  
 267 be justified by an appeal to a supernatural insight. For the supposition that “if our  
 268 experience could be exchanged for the animal’s we might find in the latter nothing  
 269 like red or blue as we know them,” is essentially an appeal to a sort of knowledge  
 270 which only a God might enjoy, or perhaps a mortal blessed with a magic power.

271 One might, if it were worth while, take up one after another the particular prob-  
 272 lems of sensory discrimination discussed by our author and show that the so-called  
 273 psychological interpretation of the facts of behavior is either a pure piece of meta-  
 274 physical speculation, or else merely such a classification of them as a behaviorist  
 275 might make. The positive scientific conclusions reached in each case differ only  
 276 in mode of formulation. Let one more instance suffice—the case of what is called  
 277 by the dualist the “sense of hearing” in frogs and by the behaviorist the “auditory  
 278 response” of frogs. The case has been of interest to investigators because frogs under  
 279 experimental conditions have not given evidence of hearing, i. e., specific response to  
 280 noises. Frogs do, however, possess specialized auditory apparatus and in their native

281 habitat appear to respond to the croaking of their fellows. Observation by Yerkes<sup>3</sup>  
 282 revealed the apparent fact that they depend almost wholly upon visual stimuli for  
 283 avoidance of danger. Upon experiment it was found that while no direct specific  
 284 response was given to auditory stimuli, such stimulation had a specific indirect effect  
 285 in modifying reaction to other stimuli, which was particularly marked during the  
 286 mating season, and which ceased when the auditory nerve was cut. On this evidence  
 287 the dualist decides that probably the frog does possess a sense of hearing or have “true  
 288 auditory sensations,” while the behaviorist is content to ascribe merely a capacity  
 289 for “limited auditory response.” But unless the dualist distinguishes his conclusion  
 290 as one verifiable only by supernatural insight, he must be content to equate it with  
 291 that of the behaviorist.

292 And yet in spite of what seems to me the fatal weakness of the dualist’s position, his  
 293 protest against the claims of *mechanistic* behaviorism must be granted a large justifi-  
 294 cation. As against the claims of a Bethe or a Loeb, the dualism of Professor Washburn  
 295 is indeed inevitable. And such a formulation as theirs of the behaviorist position is  
 296 apparently the only alternative to dualism considered by our author. The behavior  
 297 of animals, in her view as in the view of the mechanists, is adequately describable  
 298 as a series of physico-chemical processes, so that if psychological science can not  
 299 legitimately infer inner psychical states as the accompaniment of these processes,  
 300 it must confine itself to the observation and measurement of these purely physical  
 301 phenomena themselves.

302 Accordingly we find our author writing: “If a physiologist perfected an instrument  
 303 by which he could observe the nervous process in my cortex that occurs when I am  
 304 conscious of the sensation red, he would see nothing red about it; if he could watch  
 305 the bodily movements that result from this stimulation, say, for instance, the slight  
 306 contraction of the articulatory muscles that occurs when I say “red” to myself, he  
 307 would not see them as red. *The red is in my consciousness, and no devices for*  
 308 *observing and registering my movements will ever observe the red, though they may*  
 309 *easily lead to the inference that it exists in my consciousness.* And precisely the same  
 310 is true of all my sensations, thoughts, and feelings” (pp. 23–24; italics mine).

311 If certain behaviorists had not actually laid themselves open to the charge of  
 312 identifying red with a form of nervous discharge, it would be incredible that such a  
 313 doctrine should be deemed worthy of serious criticism. Need it be pointed out that  
 314 not even mechanics confines itself to existents that can be observed? As well might a  
 315 metaphysical physicist declare that since no observation of physical changes yielded  
 316 a glimpse of energy, he must either deny its existence outright or else assign it to a  
 317 transcendental realm. The behaviorist surely can claim the same theoretical advan-  
 318 tages enjoyed by scientists in other fields. It is open to him to assert of the subject’s  
 319 red—as the physical chemist asserts of the electrical charge of the ion—that it is a  
 320 function of directly observable phenomena; in this case, of discriminative responses  
 321 to a set of standardized conditions. What the red may be “in itself” or for a super-  
 322 natural insight with which he may imagine himself to be endowed, the psychologist

<sup>3</sup> Cited by Professor Washburn, *op. cit.*, p. 130, and by Professor John B. Watson, *Behaviorism*, p. 387.



323 has no more concern than the physicist. That such a theoretical formulation accords  
324 with the actual empirical procedure of psychology has already been argued.

325 What stands in the way of such a formulation is the status of introspection as a  
326 psychological method. The mechanistic behaviorist would either ignore it or consign  
327 it to the scrap-heap without further consideration; while for the dualist it is enshrined  
328 as the indispensable and sacred method of the true faith. But as a matter of fact the  
329 one rejects it and the other clings to it for the same reason. It is because both alike  
330 regard it as a sort of observation wholly different from the observation of objective  
331 phenomena engaged in by the behaviorist, an immediate vision of an inner world  
332 hidden from all but one. The mechanistic behaviorist is led by this preconception to  
333 deny the value of the empirical fruits of introspection; the dualist, made confident  
334 by the attested value of the empirical fruits, entrenches himself the more obstinately  
335 in his theoretical conceptions.

336 But we may ask: May not behaviorism find a place for much of the empirical  
337 procedure which is labelled introspection; and may not one be convinced of the  
338 fruitfulness of introspective investigation without becoming a dualist? That is for me  
339 the critical question of psychological methodology.