

## Part I. FEAR



### CHAPTER I

#### *PASSIVE ADAPTATION TO DANGERS*

THE logical way in which to begin a discussion of fear would be to say just what fear was. That, however, is beyond me and, I believe, something that no psychologist can do—at least to the satisfaction of other psychologists. No more can he define ‘love’. The layman may be surprised at this because, of course, *he* knows. But the specialist is often at such a disadvantage. In his famous lecture on *The Name and Nature of Poetry* Professor Housman said: ‘Poetry indeed seems to me more physical than intellectual. A year or two ago, in common with others, I received from America a request that I would define poetry. I replied that I could no more define poetry than a terrier could define a rat, but that I thought we both recognized the object by the symptoms which it provokes in us.’ We all of us know what it is to be frightened.

But are there different kinds or grades of fear? Our language would seem to indicate that there are. ‘I am anxious to have a good holiday’ implies no thought of danger and so must be merely some kind of a metaphor, a reference to strong feeling. ‘I am afraid it will rain’ again indicates no apprehension of peril, only an anticipation of discomfort unless protective action be taken. Something much more poignant is experienced by the rider who says ‘I am always afraid of the first fence’. Does he envisage broken bones or is it just the ‘needle’, a state of unpleasant tension while waiting for any kind of an ordeal? This kind of apprehension is certainly compatible with unimpaired efficiency; it may even be a prelude to exceptional performance. On the other hand, who has not had to confess after some

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emergency, 'I was too frightened to do anything'; or a similar inhibition may prevent one from 'taking the plunge' even when judgment tells one there is no danger.

Clearly, then, the term fear covers many different kinds of subjective experience and a range of efficiency in action extending from zero to the maximum of which the individual is capable. The psychologist is interested in all of these and in the ways in which they are interrelated but the soldier or the air-raid warden is not. Only one form of fear is important for him—the terror that paralyzes or leads to panic. So we shall concentrate our attention on it.

What is the occasion for this terror? To this the layman can make a ready answer, particularly if he has never pondered the problem. Fear is the natural, and therefore a reasonable, response to danger. But is it? Let us consider some common examples. If the formula is correct fear ought to be proportionate to knowledge of the danger, to a realization of the risks involved. Who know so well as nurses and doctors the dangers from infections? But how many of them are afraid of patients with contagious diseases? Is the policeman or the private citizen the more frightened of burglars, the fireman or the householder of fire? Except during a Blitz season motor cars kill many more people than bombs. But who is afraid of traffic? These are all of them real dangers. But there are also what are, technically, called phobias, fears of agencies that are merely potentially, not actually, dangerous. Shew me a man or woman who is not afraid of high places, of open spaces, of enclosed places, of fire, drowning or lightning stroke, of cancer, tuberculosis, or some other disease of which he exhibits no symptoms, or of animals large or small, with no legs or many legs, or loud noises or the sight of blood—shew me such a man and I will shew you a very rare creature. So everyone is a coward. But each of us admires the courage of others who are indifferent to the terrors that assail us. So we must all be courageous.

It does not look as if there were any standard degree of danger correlated with a standard degree of fear; the extent to which a given

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danger affects a man seems to be an individual affair. But even here we get into difficulties. How many people in this country can say that they are neither more nor less afraid of bombs than they were before the Blitz began? Yet a bomb is, potentially, just as dangerous as it always was. We know that—we always have—but with experience our fear goes up or down. During the last war practically every soldier was frightened when first exposed to bombardment, but the vast majority grew accustomed to it quite quickly. They did not cease to regard shells as lethal agencies, they merely ceased to be frightened by them. These are dramatic examples. But for generations it has been proverbial that the countryman was terrified by the traffic when he *first* came to town. If habituation did not abolish, or at least reduce, fear, we should have fewer traffic accidents.

It is thus clear that fear is not proportionate to the actual risk of injury. Moreover, those who know the danger best are, as a rule, those who are least frightened. Who knows better than the tamer how vicious a lion can be? So it looks as if fear was illogical, irrational. But is it therefore lawless? Here is where psychology comes in.

Psychology recognizes that there are two great divisions, or categories, in human mental life. There is the conscious rational mind of intelligence and the unconscious illogical mind of instinct or emotion. All available evidence seems to support the view that consciousness, with its critical analysis of the environment and its capacity to reason about cause and effect, is a prerogative of the human species. Some of its attributes may appear sporadically and in rudimentary form among the higher animals, but their lives are governed by appetites, instincts and habits. This does not mean that they cannot learn by experience. They do; but only to behave differently, not to have 'knowledge' of the environment in anything like our sense of the term. Man has gained some measure of knowledge of the universe about him with a commensurate control over it—of which he is arrogantly proud—in virtue of consciousness and

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*EMOTIONS ARE CONDITIONAL REACTIONS*

the capacities that go with it. We like to think that our minds can compass the universe and that our reason—the conscious knowledge we can summon and the behaviour we can control—dominates our mental life. These are illusions. We like to think that we have left the animal behind, whereas we have merely developed a reason that may be employed in the service of the animal that survives in us and calls the tune we dance to. True this is, relatively, a very superior animal, one capable of transforming crude lusts into lofty ideals, but the loves, hates and fears which direct our energies do not come from a reasoning consciousness but from our ‘animal’ minds. The intelligence of our greatest philosopher cannot tell us why we want to live or escape death, he cannot explain to us what happiness is that we should pursue it. If the emotional side of our lives belongs to the mind that we share with animals, then the most favourable field in which to discover the laws which govern emotions should be animal psychology. Our findings there will not be confused by the complications which consciousness produces.

Fear (except in pathological cases that do not concern us here) is always associated with some sign or thought of danger. It is not the suffering which injury causes but an anticipation of it. It is a kind of crying before one is hurt. But we have seen that, emotionally, we behave both as if we were certain to be hurt and that we never could be. Do animals have similar anticipatory reactions? Do they learn to respond to signals or come to neglect them? They do and, indeed, there is no aspect of animal mentality that has been more thoroughly explored. This learning and unlearning is what is called the ‘conditioned reflex’ or, better, the ‘conditioned reaction’. It was first reported by the great English physiologist Sherrington, but a thoroughgoing exploration of the field was begun by the Russian Pavlov and his colleagues. During the past quarter-century it has been intensively studied in all laboratories engaged in animal psychology. Our present knowledge of the conditioned reaction is extensive and highly detailed, but I shall do no more than describe

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some of the basic findings which are as well established as the phenomena on which the atomic theory in chemistry is founded.

Here is a typical example. Some neutral stimulus is given to a dog, say the blowing of a whistle. The dog looks up and around. While in this attitude of attention he is presented with a bit of meat. He approaches this, he seizes it in his mouth, saliva flows, he bites it into pieces small enough to swallow and swallows it. Nothing remarkable in this, one would say, and it seems to be a complete enough description of what has happened. Yet it is incomplete. Something has happened that inevitably escapes detection, something that betrays itself only later. The dog has begun to associate in his mind the sound of a whistle with being fed. The sequence whistle-meat is repeated a number of times and then the whistle is blown without any meat being offered. One would expect—on the basis of human behaviour—that the dog would now go about looking, sniffing for the meat he had a right to expect. Not a bit of it. Instead of such reasonable behaviour he proceeds with the total behaviour he has previously rehearsed: he looks up when the whistle blows, waits for the same number of seconds as he has previously waited for the meat and then goes through all the pantomime of eating meat that is not there! This is the conditioned reaction. The easiest part of the response to measure is the watering of his mouth and, indeed, that is the most constant and enduring symptom: a sound has become the stimulus for salivation, an association between sound and food has been built up; it is irrational, but it is compelling.

All animal learning seems to be fundamentally of this nature, but before we superciliously dismiss the poor animal as a stupid brute we should pause to ask ourselves what the difference is between this canine performance and the baby who opens its mouth when it sees a bottle or our own behaviour when we go to the dining-room when a bell is rung. Careful observation and experiment fail to reveal any difference in nature between the baby's and the dog's behaviour; they are on the same mental level. The dog stays there, the baby does

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not. The latter grows into the man who goes to the dining-room and this behaviour records a big advance. There is the same basic conditioned response, but it is dealt with in a human way. Instead of behaving as if he saw the food in front of him the man realizes that he is merely thinking of it, that he has been reminded of it; he remembers (thanks to another conditioning process) that the bell means food in a distant place to which he repairs. It is man's consciousness which enables him to discriminate between his memory of something and the thing itself; with the memory—thought or image—consciousness can deal critically, accurately, logically. But if the conditioned response is a strange, unlocalized feeling, consciousness cannot grasp it and so cannot control it. Man's mental evolution is incomplete, he cannot yet exert conscious scrutiny of his instincts and emotions—they 'just happen'. However, we must examine more of the phenomena of conditioning before we can appreciate its full significance for human emotions.

Having trained the dog to salivate whenever he hears the whistle blow we might imagine that this would now constitute a permanent change in him. But this is not the case. It is found that, if the experimenter keeps repeating the noise without ever giving the dog any meat, his mouth waters less and less; finally, there is no response and, indeed, the disillusioned animal may shew his boredom by going to sleep when the whistle blows. This is called 'extinction' of the conditioned response and it occurs whenever the signal is given repeatedly without 'reinforcement', i.e. the periodical presentation of the meat which will keep the conditioned response going.<sup>1</sup>

With reinforcement and extinction we can make or unmake con-

<sup>1</sup> Extinction and reinforcement shew how the conditioned response is useful to an animal. Purely accidental conjunction of unrelated stimuli do not recur repeatedly outside the psychological laboratory or when the animal trainer is at work. If a dog is fed regularly in the kitchen that is not an accident and, if he is thus conditioned to go there when hungry, he has learned something that is useful. Similarly, if he frequently picks up the trail of a rabbit in a given field he is conditioned to hunt there. If, however, the rabbits are all killed off there, the response will soon be extinguished.

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ditioned responses at will and this makes possible an experimental achievement of great theoretic importance. This is what is called 'differentiation'. A wealth of evidence shews that the dog responds originally to the 'altogetherness' of the surroundings, including what we should at once identify as the specific stimulus or signal. It is not just the whistle: it is the whistle in that room, blown by that man and so on. An apparently well-established conditioned reaction may not appear in unfamiliar surroundings. Moreover, although a particular whistle may always be used, any other whistle will do as well. He can be trained, however, to respond to one, highly specific, stimulus. This is accomplished by a combination of reinforcement and extinction, the specific stimulus is followed by feeding while the attendant or similar stimulus is not. The dog then is confirmed in his reaction to the specific stimulus, while he loses response to others. For instance, a whistle having a pitch of the middle C in a piano is blown, the animal fed and thus conditioning to a whistle is established. If, now, a whistle having a pitch one octave higher is sounded, the dog salivates. But if no meat is ever given when the higher note has been heard response to that stimulus will die away. Clearly the animal can discriminate between notes an octave apart, but can he do better? So two whistles only half an octave apart are chosen. Again the differentiation is made. Then to a third, a twelfth and so on until the limit is reached. Thus the differentiation experiment gives us a method of determining what are the sensory capacities of animals, animals who cannot tell us directly what they see, hear or smell. In this way it has been shewn that a dog can tell the difference between two musical pitches at least as well as the average man, that he can discriminate between a circle and an ellipse that is nearly a circle with equal ability. Similarly, he can distinguish between two greys the brightnesses of which seem to the human eye to be identical. But when he is tried with colours he is a total loss. The dog is colour blind, a fact to which we shall have to refer later. For our present purposes, however, we need only note from these differ-

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entiation experiments that originally the linkage of the salivation is with a large generalized situation out of which the appearance of any one of its elements might serve to liberate the response, but that, after appropriate training, any element may be made the sole effective stimulus while the others are treated with indifference.

Thus we learn that animals learn to obey arbitrary signals, that they can lose the habit, and that they can be made to discriminate only one out of a large number of possible signals. Are these phenomena exhibited in the occurrence, or absence, of human fear? They are, and they are exhibited with clearness in the reaction of civilians to bombing.

The story of our being taught to have terror of bombs, to cry before we were hurt, begins a long way back; during the last war, in fact. During that war a considerable portion of our total population gained considerable experience of shell-fire and bullets, enough for it to have developed a fatalistic attitude towards them—it took 1400 shells to kill a man (or so it has been stated) and as 1400 to 1 is long odds on escape, why worry? But few people, either in or out of uniform, experienced heavy bombing. However, the war ended with the bomber becoming fast a weapon of considerable significance. How far would this development go? Aeroplanes were developing higher speeds and longer effective ranges; bombs were becoming heavier. Civilians were practically all agreed that when and if another war came, the bomber would be a major weapon, regardless of whatever international conventions to ban them might be adopted in the interval. (If the military mind had been similarly moved, anticipation of German tactics might have been more accurate and effective.) Further, there was universal expectation of bombing of civilian targets in order to break morale on the Home Front. But how serious a matter would this be?

Left to themselves the great British people—like others—tend to assume an ostrich attitude and to minimize, rather than magnify, remote dangers. But they were not left to themselves. Two agencies

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(at least) were unwittingly operating to rivet the mere thought of bombing with terror. The first of these was pacifist propaganda. Not content with preaching the wickedness and futility of war the pacifists made an appeal to fear. The argument ran: war will kill you, maim you or ruin you; if you don't care about what happens to your own carcass, what about your wife and babies? Bombs were made the symbol of war's wanton carnage and women and children the symbols of the innocent.<sup>1</sup> This propaganda reinforced whatever anticipation there may have been as to civilians being targets for enemy bombers. The second agency was Hollywood aviation films. Many of these included shots of bombing. For obvious dramatic reasons this bombing had two characteristics. Every bomb hit its target and, when it did so, destruction was complete. Here was vivid, realistic proof of what was feared. To be in a target area would mean certain death or hideous mutilation. The only possible means of survival were absence from the area or shelter so deep underground that even these seismic explosions could not reach one. Otherwise there would be nothing one could do and, as we shall see later, there is nothing so conducive to fear as not knowing what to do.

This, then, was the background, the psychological preparation we all had for bombing. So firmly was the association bomb-immolation fixed in our minds that we paid no attention to countervailing evidence. We read in the press that peoples as different as Spaniards and Chinese had adapted themselves to bombing; were they braver than the British? No one asked that question and the Government (I understand) made such preparations as it could to deal with mass panics. No more attention was paid to the significance of the reports of repeated bombing of the same areas. Did the first air-raid completely destroy Barcelona or Chungking? How did it come that there

<sup>1</sup> On the night before this war began I was present at a discussion in a mixed gathering about what was going to happen. Someone asked, would we bomb Berlin? Another stated that he had heard the women and children were already evacuated from Berlin. Then a good lady, intelligent, wife of a cabinet minister, asked: 'What would be the use of bombing Berlin if there were no women and children there?' *Ab uno disce omnes.*

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were either buildings or people left after many heavy raids? The statement was even published (although not prominently) that during its worst year there were more people killed in Barcelona by motors than by bombs. We went on believing, or at least feeling, that an air-raid meant a holocaust. As the war clouds gathered, preparations, both public and private, were made to meet possible air-raids and we were told that sirens would be sounded when enemy bombers approached. So the siren—not the mythical seductive maiden but a sound as of lost souls being dragged to hell—the siren was established as a signal for what? Not for retreat to a place of security but to a flimsy shelter; as a rule, a shelter that would give little protection against a direct hit, and our imaginations had been nurtured on visions of direct hits.

We all remember what happened when the war did come and the sirens first sounded. There was little panic, it is true, but the great majority of the populace scurried to their shelters with little confidence of ever seeing daylight again; not with the expectation of safety but in a spirit of obedience to Government orders. As one friend of mine described it: ‘When the first siren sounded I took my children to our dug-out in the garden and I was quite certain we were all going to be killed. Then the all-clear went without anything having happened. Ever since we came out of the dug-out I have felt sure nothing would ever hurt us.’ Her conviction of imminent death was probably deeper than that of the average and her swing to a belief in invulnerability was certainly more rapid, but otherwise her case is typical. With most people the swing was gradual. When the siren had sounded a number of times, no bombs had dropped and no planes had even been heard, there was boredom in the shelters and curiosity appeared. More adventurous spirits ventured out to have a look, soon to be followed by their companions. Then even curiosity vanished until eventually—if warnings were frequent—many, perhaps the majority of the population could not say whether a warning was in operation or not.