Other ideas, like the notion that we could repress unpleasant memories, remain controversial.

But even if some of Freud's specific suggestions no longer seem valid, his influence on contemporary psychology cannot be underestimated. While only a tiny minority of active researchers in psychology directly employ specific psychoanalytic ideas, virtually everyone now takes for granted one of the principles Freud cared about most: the importance of unconscious mental processes. Among therapists, even the most skeptical accept and build upon the notion that Freud laid out in "The Unconscious" (1915): that we are not always aware of why we do the things we do. Beck's well-known cognitive therapy (see Chapter 17), for example, all but dismisses the Freudian emphasis on early psychosexual development, yet still revolves around getting patients in better touch with their unconscious mental processes. As later chapters will make clear, the unconscious also plays a central role in the modern studies of cognitive psychology (for example, Wegner's selection on consciousness in Chapter 9) and social psychology (as in Cialdini's studies of persuasion in Chapter 13). Though written almost a century ago, the selection here still stands as a powerful argument in understanding what lies beneath the surface of the mind.


From The Principles of Psychology

William James

Psychology is the Science of Mental Life, both of its phenomena and of their conditions. The phenomena are such things as we call feelings, desires, cognitions, reasonings, decisions, and the like; and, superficially considered, their variety and complexity is such as to leave a chaotic impression on the observer. The most natural and consequently the earliest way of unifying the material was, first, to classify it as well as might be, and, secondly, to affiliate the diverse mental modes thus found, upon a simple entity, the personal Soul, of which they are taken to be so many facultative manifestations. Now, for instance, the Soul manifests its faculty of Memory, now of Reasoning, now of Volition, or again its Imagination or its Appetite. This is the orthodox 'spiritualistic' theory of scholasticism and of common-sense. Another and a less obvious way of unifying the chaos is to seek common elements in the divers mental facts rather than a common agent behind them, and to explain them constructively by the various forms of arrangement of these elements, as one explains houses by stones and bricks. The 'associationist' schools of Herbart in Germany, and of Hume, the Mills and Bain in Britain, have thus constructed a psychology without a soul by taking discrete 'ideas,' faint or vivid, and showing how, by their cohesions, repulsions, and forms of succession, such things as reminiscences, perceptions, emotions, volitions, passions, theories, and all the other furnishings of an individual's mind may be engendered. The very Self or ego of the individual comes in this way to be viewed no longer as the pre-existing source of the representations, but rather as their last and most complicated fruit.

Now, if we strive rigorously to simplify the phenomena in either of these ways, we soon become aware of inadequacies in our method. Any particular cognition, for example, or recollection, is accounted for on the soul-theory by being referred to the spiritual faculties of Cognition or of Memory. These faculties themselves are thought of as absolute properties of the soul;
that is, to take the case of memory, no reason is given why we should remember a fact as it happened, except that so to remember it constitutes the essence of our Recollective Power. We may, as spiritualists, try to explain our memory's failures and blunders by secondary causes. But its successes can invoke no factors save the existence of certain objective things to be remembered on the one hand, and of our faculty of memory on the other. When, for instance, I recall my graduation-day, and drag all its incidents and emotions up from death's dateless night, no mechanical cause can explain this process, nor can any analysis reduce it to lower terms or make its nature seem other than an ultimate datum, which, whether we rebel or not at its mysteriousness, must simply be taken for granted if we are to psychologize at all. However the associationist may represent the present ideas as thronging and arranging themselves, still, the spiritualist insists, he has in the end to admit that something, be it brain, be it 'ideas,' be it 'association,' knows past time as past, and fills it out with this or that event. And when the spiritualist calls memory an 'irreducible faculty,' he says no more than this admission of the associationist already grants.

And yet the admission is far from being a satisfactory simplification of the concrete facts. For why should this absolute god-given Faculty retain so much better the events of yesterday than those of last year, and, best of all, those of an hour ago? Why, again, in old age should its grasp of childhood's events seem firmest? Why should illness and exhaustion enfeeble it? Why should repeating an experience strengthen our recollection of it? Why should the associationist admit the cranial fact? For why should drugs, fevers, asphyxia, and excitement resuscitate things long since forgotten? If we content ourselves with merely affirming that the faculty does not exist absolutely, but works under conditions; and the quest of the conditions becomes the psychologist's most interesting task.
Bodily experiences, therefore, and more particularly brain-experiences, must take a place amongst those conditions of the mental life of which Psychology need take account. The spiritualist and the associationist must both be 'cerebralists,' to the extent at least of admitting that certain peculiarities in the way of working of their own favorite principles are explicable only by the fact that the brain laws are a codeterminant of the result.

Our first conclusion, then, is that a certain amount of brain-physiology must be presupposed or included in Psychology.

In still another way the psychologist is forced to be something of a nerve-physiologist. Mental phenomena are not only conditioned a parte ante by bodily processes; but they lead to them a parte post. That they lead to acts is of course the most familiar of truths, but I do not merely mean acts in the sense of voluntary and deliberate muscular performances. Mental states occasion also changes in the calibre of blood-vessels, or alteration in the heart-beats, or processes more subtle still, in glands and viscera. If these are taken into account, as well as acts which follow at some remote period because the mental state was once there, it will be safe to lay down the general law that no mental modification ever occurs which is not accompanied or followed by a bodily change. The ideas and feelings, e.g., which these present printed characters excite in the reader's mind not only occasion movements of his eyes and nascent movements of articulation in him, but will some day make him speak, or take sides in a discussion, or give advice, or choose a book to read, differently from what would have been the case had they never impressed his retina. Our psychology must therefore take account not only of the conditions antecedent to mental states, but of their resultant consequences as well.

But actions originally prompted by conscious intelligence may grow so automatic by dint of habit as to be apparently unconsciously performed. Standing, walking, buttoning and unbuttoning, piano-playing, talking, even saying one's prayers, may be done when the mind is absorbed in other things. The performances of animal instinct seem semi-automatic, and the reflex acts of self-preservation certainly are so. Yet they resemble intelligent acts in bringing about the same ends at which the animals' consciousness, on other occasions, deliberately aims. Shall the study of such machine-like yet purposive acts as these be included in Psychology?

The boundary-line of the mental is certainly vague. It is better not to be pedantic, but to let the science be as vague as its subject, and include such phenomena as these if by so doing we can throw any light on the main busi-ness in hand. It will ere long be seen, I trust, that we can; and that we gain much more by a broad than by a narrow conception of our subject. At a certain stage in the development of every science a degree of vagueness is what best consists with fertility. On the whole, few recent formulas have done more real service of a rough sort in Psychology than the Spencerian one that the essence of mental life and of bodily life are one, namely, 'the adjustment of inner to outer relations.' Such a formula is vagueness incarnate; but because it takes into account the fact that minds inhabit environments which act on them and on which they in turn react; because, in short, it takes mind in the midst of all its concrete relations, it is immensely more fertile than the old-fashioned 'rational psychology,' which treated the soul as a detached existent, sufficient unto itself, and assumed to consider only its nature and properties. I shall therefore feel free to make any sallies into zoology or into pure nerve-physiology which may seem instructive for our purposes, but otherwise shall leave those sciences to the physiologists.

Can we state more distinctly still the manner in which the mental life seems to intervene between impressions made from without upon the body, and reactions of the body upon the outer world again? Let us look at a few facts.

If some iron filings be sprinkled on a table and a magnet brought near them, they will fly through the air for a certain distance and stick to its surface. A savage seeing the phenomenon explains it as the result of an attraction or love between the magnet and the filings. But let a card cover the poles of the magnet, and the filings will press forever against its surface without its ever occurring to them to pass around its sides and thus come into more direct contact with the object of their love. Blow bubbles through a tube into the bottom of a pail of water, they will rise to the surface and mingle with the air. Their action may again be poetically interpreted as due to a longing to recombine with the mother-atmosphere above the surface. But if you invert a jar full of water over the pail, they will rise and remain lodged beneath its bottom, shut in from the outer air, although a slight deflection from their course at the outset, or a re-descent towards the rim of the jar when they found their upward course impeded, would easily have set them free.

If now we pass from such actions as these to those of living things, we notice a striking difference. Romeo wants Juliet as the filings want the magnet; and if no obstacles intervene he moves towards her by as straight a line as they. But Romeo and Juliet, if a wall be built between them, do not remain
If, on the contrary, in surveying its irremediable flux, we can think of the present only as so much mere mechanical sprouting from the past, occurring with no reference to the future, we are atheists and materialists.

In the lengthy discussions which psychologists have carried on about the amount of intelligence displayed by lower mammals, or the amount of consciousness involved in the functions of the nerve-centres of reptiles, the same test has always been applied: Is the character of the actions such that we must believe them to be performed for the sake of their result? The result in question, as we shall hereafter abundantly see, is as a rule a useful one,—the animal is, on the whole, safer under the circumstances for bringing it forth. So far the action has a teleological character; but such mere outward teleology as this might still be the blind result of vis a tergo. The growth and movements of plants, the processes of development, digestion, secretion, etc., in animals, supply innumerable instances of performances useful to the individual which may nevertheless be, and by most of us are supposed to be, produced by automatic mechanism. The physiologist does not confidently assert conscious intelligence in the frog's spinal cord until he has shown that the useful result which the nervous machinery brings forth under a given irritation remains the same when the machinery is altered. If, to take the instance, the right knee of a headless frog be irritated with acid, the right foot will wipe it off. When, however, this foot is amputated, the animal will often raise the left foot to the spot and wipe the offending material away.

Pflüger and Lewes reason from such facts in the following way: If the first reaction were the result of mere machinery, they say; if that irritated portion of the skin discharged the right leg as a trigger discharges its own barrel of a shotgun; then amputating the right foot would indeed frustrate the wiping, but would not make the left leg move. It would simply result in the right stump moving through the empty air (which is in fact the phenomenon sometimes observed). The right trigger makes no effort to discharge the left barrel if the right one be unloaded; nor does an electrical machine ever get restless because it can only emit sparks, and not hem pillow-cases like a sewing-machine.

If, on the contrary, the right leg originally moved for the purpose of wiping the acid, then nothing is more natural than that, when the easiest means of effecting that purpose prove fruitless, other means should be tried. Every failure must keep the animal in a state of disappointment which will lead to
all sorts of new trials and devices; and tranquillity will not ensue till one of
these, by a happy stroke, achieves the wished-for end.

In a similar way Goltz ascribes intelligence to the frog's optic lobes and
cerebellum. We alluded above to the manner in which a sound frog impris-
oned in water will discover an outlet to the atmosphere. Goltz found that
frogs deprived of their cerebral hemispheres would often exhibit a like inge-
nuity. Such a frog, after rising from the bottom and finding his farther up-
ward progress checked by the glass bell which has been inverted over him,
will not persist in butting his nose against the obstacle until dead of suffo-
cation, but will often re-descend and emerge from under its rim as if, not a
definite mechanical propulsion upwards, but rather a conscious desire to
reach the air by hook or crook were the mainspring of his activity. Goltz con-
cluded from this that the hemispheres are not the seat of intellectual power
in frogs. He made the same inference from observing that a brainless frog
will turn over from his back to his belly when one of his legs is sewed up, al-
though the movements required are then very different from those excited
under normal circumstances by the same annoying position. They seem de-
termined, consequently, not merely by the antecedent irritant, but by the fi-
nal end,—though the irritant of course is what makes the end desired.

Another brilliant German author, Liebmann, argues against the brain's
mechanism accounting for mental action, by very similar considerations. A
machine as such, he says, will bring forth right results when it is in good or-
der, and wrong results if out of repair. But both kinds of result flow with
equally fatal necessity from their conditions. We cannot suppose the clock-
work whose structure fatally determines it to a certain rate of speed, noticing
that this speed is too slow or too fast and vainly trying to correct it. Its con-
science, if it have any, should be as good as that of the best chronometer, for
both alike obey equally well the same eternal mechanical laws—laws from
behind. But if the brain be out of order and the man says "Twice four are
two," instead of "Twice four are eight," or else "I must go to the coal to buy
the wharf," instead of "I must go to the wharf to buy the coal," instantly there
arises a consciousness of error. The wrong performance, though it obey the
same mechanical law as the right, is nevertheless condemned,—condemned
as contradicting the inner law—the law from in front, the purpose or ideal
for which the brain should act, whether it do so or not.

We need not discuss here whether these writers in drawing their con-
clusion have done justice to all the premises involved in the cases they treat