## Pleasure and Pain

## INTRODUCTION

other simple ideas, cannot be described, nor their names defined; the way of knowing them is... only by experience." That pleasure and pain are elementary experiences, attributed to animals as well as enjoyed or suffered by men, is attested by poets and physiologists alike, by economists and theologians, by historians and moralists. Yet in the tradition of western thought, few of the great writers are content to leave the nature or meaning of pleasure and pain to the intuitions of experience alone.

Conflicting definitions are proposed. Psychologists disagree about the conditions under which the feelings of pleasure and pain occur, their causes and consequences, their relation to sensation, to desire and emotion, to thought, volition, and action. Moralists dispute whether pleasure is the only good and pain the only evil, whether pleasure is only one good among others to be assessed according to its worth in the scale of goods, whether pleasure and pain are morally indifferent, whether some pleasures are good, others bad, or all are intrinsically evil.

Not only in the theory of good and evil, but also in the theories of beauty and truth, pleasure and pain are fundamental terms. They are affected by all the difficulties which belong to these great themes; and also with the difficulties attendant on the ideas of virtue, sin, and punishment, of duty and happiness, into the consideration of which pleasure and pain traditionally enter.

The traditional use of the words "pleasure" and "pain" is complicated by more than the variety of definitions which have been given. Other words are frequently substituted for

them, sometimes as synonyms and sometimes to express only one part or aspect of their meaning. Locke, for example, uses "pleasure" or "delight," "pain" or "uneasiness," and he observes that "whether we call it satisfaction, delight, pleasure, happiness, etc., on the one side, or uneasiness, trouble, pain, torment, anguish, misery, etc., on the other, they are still but different degrees of the same thing." Other writers use "joy" and "sorrow" or "grief" as synonyms for "pleasure" and "pain."

The words "pleasure" and "pain" are closely associated in meaning with "pleasant" and "unpleasant," though Freud sometimes uses "unpleasure" (*Unlust*) to signify an opposite of pleasure which is not the same as ordinary pain (*Schmerz*). The pleasant is often called "agreeable," "enjoyable," or "satisfying." In the language of Shakespeare, the words "like" and "dislike" have currency as the equivalents of "please" and "displease." A person who is displeased by something says of it that "it likes me not."

THE PROBLEM OF what pleasure and pain are seems logically to precede the ethical consideration of their relation to good and evil, happiness and misery, virtue and duty. But in the tradition of the great books, the psychological questions about pleasure and pain are usually raised in moral or political treatises, and sometimes in connection with discussions of rhetoric. What pleasure is, how it is caused, and the effects it produces are seldom considered apart from whether pleasures should be sought or avoided, whether some pleasures should be preferred to others, and whether pleasure is the sole criterion of the good. Sometimes, as with Marcus Aurelius

and Epictetus, the ethical point—that pleasure and pain are in one sense morally indifferent—is made without any psychological account of the nature and origin of these experiences. More frequently, as in Plato's *Philebus* and Aristotle's *Nichomachean Ethics*, or in the writings of Hobbes, Spinoza, Locke, and J. S. Mill, the psychological discussion is imbedded in an ethical or political context.

Even Lucretius and William James do not seem to be complete exceptions. James's theory that the feeling of pleasure accompanies activity which is unimpeded, whereas pain attends arrested activity, seems to be a purely psychological observation, and one which can be readily divorced from moral considerations on the ground that it makes no difference to the occurrence of pleasure and pain whether the activity in question is ethically good or bad. Yet James makes this observation the basis for arguing against those whom he calls "the pleasure-philosophers"—those who make pleasure the only motive or goal of conduct. They confuse, he thinks, the pursuit of pleasure itself with the pleasure which accompanies the successful achievement of other things which may be the goals of activity.

"A pleasant act," he writes, "and an act pursuing a pleasure are in themselves two perfectly distinct conceptions, though they coalesce in one concrete phenomenon whenever a pleasure is deliberately pursued... Because a pleasure of achievement can become a pursued pleasure upon occasion, it does not follow that everywhere and always that pleasure must be pursued." One might as well suppose that "because no steamer can go to sea without incidentally consuming coal, and because some steamers may occasionally go to sea to try their coal, that therefore no steamer can go to sea for any other motive than that of coalconsumption."

Psychological observations of this sort have an obvious relevance to Aristotle's theory of good and bad pleasures, as well as to Locke's and Mill's position that pleasure is the only good or the only object of desire. They reveal an ethical strain even in the psychologist's view of pleasure and pain. The same point can be made with regard to James's observation that

"pleasures are generally associated with beneficial, pains with detrimental, experiences."

Lucretius appears to give a purely physiological account of pleasure and pain in terms of the effect upon the sense organs of various atomic configurations:

No sense-delighting object has been made Without some elemental smoothness in it, And, on the other hand, whatever seems Noxious, disgusting, has, as its deep core, The presence of rough matter. In between Are things by no means absolutely smooth, Yet not all barbs and hooks, but little spurs Projecting just a bit, to tease our senses.

But Lucretius is concerned to point out not only the basis of pain in the atomic nature of things, but also the natural tendency of all sensible things to avoid pain as the one besetting evil. "Nature snarls, yaps, barks for nothing, really, / Except that pain be absent from the body / And mind enjoy delight, with fear dispelled."

Without giving any psychological explanation of the pleasures of the mind, Lucretius sets them above the pleasures of the body because the latter—as his diatribe against love makes clear-seem to be inevitably followed by bodily torments or even to be admixed with them. The first maxim of nature, then, is not to seek pleasure, but to avoid pain; and among pleasures to seek only the unmixed or pure, the pleasures of knowledge and truth. The distinction between different qualities of pleasure (pleasures of the body and of the mind, mixed and pure pleasures), which is made by Plato and Mill as well as by Lucretius, inevitably tends to have at once both moral and psychological significance.

If, in the great books, there is any purely psychological theory of pleasure and pain, divorced from moral considerations, it is probably to be found in Freud. The pleasure-principle, according to him, automatically regulates the operation of the mental apparatus. "Our entire psychical activity," he writes, "is bent upon procuring pleasure and avoiding pain." Though pleasure and pain are for him primary elements of mental life, Freud admits the difficulty they present for psychological analysis. "We should like to know," he writes, "what

are the conditions giving rise to pleasure and pain, but that is just where we fall short. We may only venture to say that pleasure is in some way connected with lessening, lowering, or extinguishing the amount of stimulation in the mental apparatus; and that pain involves a heightening of the latter. Consideration of the most intense pleasure of which man is capable, the pleasure in the performance of the sexual act, leaves little doubt upon this point."

Yet for Freud the pleasure-principle is not the only regulator of mental life. In addition to the sexual instincts, which aim at gratification and pleasure, there are the ego-instincts which, "under the influence of necessity, their mistress, soon learn to replace the pleasureprinciple by a modification of it. The task of avoiding pain becomes for them almost equal in importance to that of gaining pleasure; the ego learns that it must inevitably go without immediate satisfaction, postpone gratification, learn to endure a degree of pain, and altogether renounce certain sources of pleasure. Thus trained, the ego becomes 'reasonable,' is no longer controlled by the pleasure-principle, but follows the reality-principle, which at bottom also seeks pleasure—although a delayed and diminished pleasure, one which is assured by its realization of fact, its relation to reality."

This recognition of a conflict between pleasure and reality, with a consequent attenuation or redirection of the pleasure-principle, is not amplified by Freud into a moral doctrine. It does, however, bear a striking resemblance to the theories of moralists like Kant who oppose duty to pleasure; and also to the teachings of those who, like Aristotle and Aquinas, conceive virtue as the foregoing of certain pleasures and the endurance of certain pains, through a reasonable and habitual moderation of these passions.

IF PLEASURE AND pain were simply sensations, like sensations of color or sound, they would pose a problem for the physiological psychologist no different from the problems which arise in the fields of vision and audition: Modern physiological research claims to have discovered differentiated nerve endings for pain which, together with the specific sense organs

for pressure, heat, and cold, make up the cutaneous senses. But whether there are special cells for the reception of pain stimuli or whether cutaneous pain results from the too intense stimulation of the pressure and thermal nerve endings, there seems to be no evidence of organs sensitized to pleasure as, for example, the nerve cells of the retina are sensitized to light. The feeling of pleasure, it would seem to follow, is not a sensation. This seems to be confirmed by the traditional observation that every type of sensation, including the sensation of pain, can be pleasant.

Even if pain, unlike pleasure, is found to be a specific mode of sensation with a special sense organ of its own, all other types of sensation-visual, auditory, olfactory, etc.might still have painfulness or a feeling of unpleasantness as an attribute. That such is the case seems to be a matter of traditional observation. Locke, for example, says that "delight or uneasiness, one or the other of them, join themselves to almost all our ideas of sensation and reflection: there is scarce any affection of our senses from without . . . which is not able to produce in us pleasure or pain." So understood, pleasure and pain-or the pleasant and the unpleasant—are not opposite sensations, as are hot and cold, but contrary attributes with which every sort of sensation can be affected. All need not be. Some sensations may be neutral with respect to what psychologists call "affective tone" or "affective quality."

The kind of pleasure and pain which is called "bodily" or "sensuous" would thus be sensuous because it is an attribute of sensations, and bodily because sensations involve bodily organs. But in almost every great discussion of pleasure and pain, other types are recognized: intellectual delights, the pleasures and pains of learning, aesthetic pleasure in contemplating beauty with the mind as well as with the senses, and the pain of loss, the grief accompanying deprivation, which is so different from the torment of a painful affliction of the senses. The human suffering with which the great poems deal is much more often a torment of the spirit than of the flesh.

To cover these other types of pleasure and pain, we must go beyond sensation to two other terms traditionally connected with the psychological analysis of pleasure and pain. One is emotion, the other desire, the latter to be understood broadly as including both the sensitive and the rational appetites—both the passions and the will. Aquinas, for example, treats joy and sorrow as specific emotions which represent the appetite in a state of satisfaction or frustration. So, too, the will as an appetite can come to rest in the attainment of its object and, with fruition, be in a state of joy.

In the great books of fiction, pleasure and pain are interwoven with emotion and desire, particularly with love. The usual formula connects pain with unrequited or lost love, and pleasure with the uniting of the lovers in the end. This formula becomes more complex in the writings of Proust. Swann's love for Odette is only pleasurable as long as he possesses her, or more importantly, the idea of her in his mind. Proust would have us believe that it is only such ideas of the beloved that we do love, for Swann's love—with its alternating joys and torments—is strongest when Odette is not around.

As conditions of the appetite, pleasure and pain (or joy and sorrow) can be either passions and, like all other emotions, bodily states; or they can be acts of the will and, according to Aquinas at least, spiritual states. But either way pleasure and pain seem to represent the satisfaction or frustration of desire rather than objects desired or averted. To be pleased by the attainment of an object desired, such as food and drink or knowledge, is not the same as to desire pleasure itself, as, for example, the pleasant sensations which may be involved in eating or drinking.

Aquinas talks about the desire for pleasure and the aversion to pain, as well as the pleasure and pain of satisfied and unsatisfied desires. Since the same words are almost always used to express both meanings, the two senses of pleasure and displeasure may go unnoticed unless by context or by explicit mention the author refers to pleasure as an object of desire or identifies it with the satisfaction of any desire, whether for pleasure or for some other object. As a passage already quoted from James indi-

cates, and as we shall presently see more fully, the distinction between these two senses of pleasure has a critical bearing on the dispute between those who think that pleasure is the only good, and those who think that pleasure is one good among others.

The generally recognized difference between two kinds of pain—the pain of sense and the pain of loss or deprivation—parallels the distinction which most writers acknowledge between sensuous pleasure and the pleasure of possession or satisfaction. Plato's example of the pleasure involved in the relief of itching by scratching seems to catch both meanings, and, in addition, to show that bodily pleasures may be either sensual objects or sensual satisfactions. In contrast, the pleasures of the mind are satisfactions of intellectual desire, as in the contemplation of beauty or the knowledge of truth.

Aristotle deals with pleasure and pain as objects when he defines temperance as a moderate pursuit of bodily pleasures, and courage as controlling the fear of pain and its avoidance. But he also conceives pleasure as that which completes any activity, whether of the senses and the body or of thought and the mind. "Without activity," he writes, "pleasure does not arise, and every activity is completed by the attendant pleasure." This meaning of pleasure seems to be analogous to, if not identical with, pleasure as satisfaction, at least insofar as the satisfaction of a desire is that which completes the activity springing therefrom. There can be as many different kinds of pleasure as there are kinds of activity; the quality of the pleasure is determined by the character of the activity it accompanies.

Though Mill refers to pleasure and freedom from pain as "the only things desirable as ends," he admits many other objects of desire, in the attainment of which men find pleasure or satisfaction. It is wrong to suppose that human beings, he writes, are "capable of no pleasures except those of which swine are capable." Precisely because "human beings have faculties more elevated than the animal appetites," they have sources of pleasure or gratification not open to swine. Here as before two meanings of pleasure seem to be involved. In pointing out that "money, in many cases, is desired in and for itself," Mill is naming an object of desire which, like health, knowledge, power, or fame, is not pleasure, yet which, through being desired, is a source of pleasure (*i.e.*, satisfaction) when achieved. Like other objects of desire, sensual or bodily pleasures may also be sources of satisfaction.

These two meanings of pleasure are most in need of clear distinction when the relation of pleasure to happiness is being discussed. If happiness, as Aristotle and Mill seem to say, consists in having all desires satisfied, then the content of the happy life can be described either in terms of the goods which the happy man possesses—the objects of desires fulfilled—or in terms of the pleasures which accompany the goods possessed, that is, the pleasures which are satisfactions of desire. If pleasure in the other meaning, especially sensual or bodily pleasure, is only one object of normal desire, then lack or deficiency of pleasure may, like loss of health or fortune, impair a man's happiness. But the pursuit of pleasure in this sense cannot be identified with the pursuit of happiness. A life including every sort of bodily pleasure and free from every sort of bodily pain, if it lacked other things men normally desire, would be marred by many dissatisfactions inconsistent with happiness.

Talking to Don Quixote of the island he would like to govern, Sancho Panza says: "When I'm king, I'll do as I please, and doing as I please, I'll be satisfied; and when you're satisfied, there's nothing more to be desired." Here, it would seem, Sancho conceives happiness as the sum of pleasures in the sense of satisfactions—all desires come to rest through the possession of their objects.

Dr. Johnson seems to make the opposite point about pleasure and happiness. Boswell asks him whether abstention from wine would be "a great deduction from life." "It is a diminution of pleasure to be sure," Johnson replies, "but I do not say a diminution of happiness." But, Boswell asks, "if we could have pleasure always, should we not be happy?" Johnson explains his negative answer by saying that "when we talk of pleasure, we mean

sensual pleasure. When a man says, he had pleasure with a woman, he does not mean conversation, but something of a different nature. Philosophers tell you that pleasure is contrary to happiness."

This last observation does not seem to describe the position taken by those philosophers who make happiness the greatest good or ultimate end of human striving. Both Aristotle and Mill distinguish the life of pleasure, the bestial or swinish life, from one which employs the higher faculties peculiar to man. In this sense, perhaps, the life of pleasure can be regarded as contrary or opposed to what Johnson, along with Aristotle and Mill, calls "the rational life." But pleasure itself, far from being inimical to happiness, either represents the state of satisfaction which is identical with happiness, or one of the things a man desires and hence a constituent of the happy life.

Hobbes and Locke seem to go further in the direction of identifying pleasure with happiness or the good. "Pleasure," writes Hobbes, "is the appearance or sense of Good...and Displeasure, the appearance or sense of Evil." Similarly, Locke says that "things are good or evil only in reference to pleasure or pain. That we call good which is apt to cause or increase pleasure or to diminish pain in us . . . And, on the contrary, we name that evil which is apt to produce or increase any pain, or diminish any pleasure in us." As for happiness, it is, according to Locke, "the utmost pleasure we are capable of, and misery the utmost pain; and the lowest degree of what can be called happiness is so much ease from all pain, and so much present pleasure, as without which anyone cannot be content."

In which sense of the term is Locke identifying pleasure with happiness? Not sensual pleasure, nor even pleasure as an object of desire, it would seem, for he says: "Let one man place his satisfaction in sensual pleasure, another in the delight of knowledge; though each of them cannot but confess there is great pleasure in what the other pursues, yet neither of them making the other's delight a part of his happiness, their desires are not moved, but each is satisfied without what the other enjoys." Yet his understanding of happiness

as consisting in the pleasures or satisfactions accompanying the possession of things desired leads him to criticize "the philosophers of old" who "did in vain inquire whether the summum bonum consisted in riches, or bodily delights, or virtue, or contemplation; they might have as reasonably disputed whether the best relish were to be found in apples, plums, or nuts, and have divided themselves into sects upon it. For as pleasant tastes depend not on the things themselves, but on their agreeableness to this or that particular palate, wherein there is great variety; so the greatest happiness consists in the having those things which produce the greatest pleasure... These, to different men, are very different things."

The difference between Locke's position and that of Mill seems, therefore, not to lie in a different conception of the relation of pleasure—as object or as satisfaction of desire—to happiness, but rather in Locke's conception of degrees of happiness as being determined only by larger and smaller quantities of pleasure, whereas Mill insists upon diverse qualities of pleasure, and upon the possibility of ordering pleasures as higher and lower. In consequence, Mill can say what Locke would seem unable to approve, namely, that "it is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied."

Locke's denial that happiness is the same for all men explicitly takes issue with Aristotle's contrary view. It also involves an issue about pleasure. For Locke, as apparently for Hobbes and Mill, the good and the pleasant are inseparable. Nothing which satisfies a desire can be evil. Whether, as in Locke's view, one satisfaction is as good as another, and the only thing which matters is the amount or number of satisfactions; or whether, as in Mill's view, one pleasure may be better than another, in no case is a pleasure bad so long as someone desires it, or desires the thing which produces satisfaction when possessed.

But, for Aristotle, desires themselves can be good or bad, and consequently there can be good and bad pleasures, as well as pleasures which vary in quality and in degree of goodness. "Since activities differ in respect of goodness and badness, and some are worthy to be chosen, others to be avoided, and others neutral, so, too," Aristotle writes, "are the pleasures; for to each activity there is a proper pleasure. The pleasure proper to a worthy activity is good, and that proper to an unworthy activity bad; just as the appetites for noble objects are laudable, those for base objects culpable."

Pleasure and pain, in Aristotle's judgment, are measured by virtue, not what is good and evil by pleasure and pain. Pleasure and pain are elements common to the good life and the bad, but only the pleasures which the good man enjoys, and the pains he willingly suffers, can be called good. That is why "in educating the young we steer them by the rudders of pleasure and pain . . . for to enjoy the things we ought and to hate the things we ought has the greatest bearing on virtue or character." Virtue is possessed only by those who habitually take pleasure in the right things.

Nietzsche dismisses pleasure and pain as having little or no ethical significance. "Whether it be hedonism or pessimism or utilitarianism or eudaemonism: all these modes of thought"—to be found in Aristotle, Hobbes, Locke, and Mill—"which assess the value of things according to pleasure and pain" should be regarded "with derision, though not without pity." To which Nietzsche adds that "there are higher problems than the problems of pleasure and pain and pity; and every philosophy that treats only of them is a piece of naïvety."

As INDICATED IN THE chapters on Happiness and Duty, the moralists who make duty rather than virtue the spring of right conduct, and who make the goodness of anything depend upon its rightness according to the moral law, see little difference among the various theories of pleasure and happiness as the ultimate good and the standard of conduct.

The most eloquent tribute which Kant can pay to the idea of duty is that it "embraces nothing charming or insinuating." Reason, he says, "will never let itself be brought around" to the view that "there is any intrinsic worth in the real existence of a man who merely lives for enjoyment . . . even when in so doing he serves others." Admitting that "the greatest aggregate of the pleasures of life, taking duration as well as number into account," would appear to merit "the name of a true, nay, even of the highest good," Kant adds that "reason sets its face against this, too." The line of duty is always set against the seductions of pleasure or any calculations of utility, whether in terms of the means to achieving happiness or the ways of augmenting life's satisfactions.

According to Stoics like Marcus Aurelius, "pleasure is neither good nor useful," nor is pain an evil, for when we are "pained by any external thing," we should remember that "it is not this thing which disturbs us, but our own judgment about it." Pleasure and pain are morally indifferent, for like death and life, honor and dishonor, pain and pleasure are things which "happen equally to good men and bad" and therefore "make us neither better nor worse... and are neither good nor evil."

From the same observation, that pleasure is enjoyed by good and bad men, Aristotle and Plato seem to draw the conclusion, not that it is morally indifferent, but, as we have seen, that there are good and bad pleasures. Plato uses pleasure and wisdom to typify fundamentally different kinds of good. Wisdom is always true and good, but like opinion, which can be either true or false, there are true and false pleasures, good and evil pleasures. Furthermore, wisdom or knowledge represents the kind of good which is definite or intrinsically measured, whereas pleasure, like wealth, is an indefinite good, requiring something external to itself, something like wisdom, to measure it and limit its quantity.

If wisdom be allowed to choose among pleasures, Socrates suggests in the *Philebus*, it will choose those associated with itself in the activities of the mind, not the bodily pleasures which are always mixed with pain. So far as pleasure belongs to the realm of change or becoming, it is, again like opinion, inferior to knowledge and wisdom, which draw their goodness from the realm of immutable being. Yet Plato does not seem to think that knowledge and wisdom are the only goods. The

argument against those who think so seems to be as conclusive as against those who think that pleasure is the only good.

Each of the simple lives—the life of pleasure or the life of wisdom—is deficient. Only the mixed life, the life which combines both pleasure and wisdom, is the complete life. Like the happy life in Aristotle's view, it includes every kind of good; and the difficult problem, for Plato as for Aristotle, seems to be finding the principle which determines the goodness of the mixture or the right order and proportion in which the variety of goods should be combined.

THE MORAL ISSUES which have been raised here with respect to pleasure and pain are more broadly considered in the chapters on Good and Evil and on Virtue and Vice, Temperance, and Sin, as well as in the chapters on Happiness and Duty. Other issues are reserved entirely for discussion elsewhere, such as the role of pleasure in the perception of beauty and in judgments of taste (the chapter on Beauty), or the role of pain in relation to the government of men (the chapter on Punishment).

Two special problems which involve pleasure and pain remain to be briefly mentioned. The first concerns the contrast between asceticism and self-indulgence or even profligacy.

In the tradition of western thought and culture, and in the ancient as well as in the modern world, those who worship pleasure, though perhaps only as a minor deity to be celebrated in bacchic revels, stand opposed to those who turn away from pleasure, as from the world, the flesh, and the devil, even mortifying the flesh and sanctifying themselves with pain. In their less extreme forms these contrasting attitudes generate the traditional issue concerning the place of worldly recreations in man's life and in the state. Is the pleasure of play a necessary and proper relief from the pain of work, or is it always an indulgence which provides occasions for sin? Are the enjoyment of the theatre, of music and poetry, the gaiety of public festivals, and the diversions of games or sports things to be promoted or prohibited by the state?

Man's avidity for amusements and diversions of all sorts leads Pascal to say, "How hollow and full of ribaldry is the heart of man!" The fact that "men spend their time in following a ball or a hare" and that "it is the pleasure even of kings," indicates to him how deep is the misery from which men try to escape through play and pleasure. "If man were happy," Pascal suggests, "he would be the more so, the less he was diverted." But "so wretched is man that he would weary, even without any cause of weariness, from the peculiar state of his disposition; and so frivolous is he, that, though full of a thousand reasons for weariness, the least thing, such as playing billiards or hitting a ball, is sufficient to amuse him." Men need such diversions in order to "prevent them from thinking of themselves."

Men indulge in pastimes for another reason, according to Aristotle. They "need relaxation because they cannot work continuously" and "amusement is a sort of relaxation." But "happiness does not lie in amusement. It would, indeed, be strange," he says, "if the end were amusement, and one were to take trouble and suffer hardship all one's life in order to amuse one's self." It is true that "pleasant

amusements" resemble happiness in having the nature of an end, because we engage in playful activity "not for the sake of other things," whereas we do serious work for some end beyond itself. But in Aristotle's opinion "a virtuous life requires exertion" and since "the happy life is thought to be virtuous," it follows that "serious things are better than laughable things and those connected with amusement."

These reflections on work and play, and the pains and pleasures they involve, lead us to the second of the two problems mentioned above. That concerns pleasure and pain in the life of learning. Here there seems to be no fundamental issue, for the tradition speaks with an almost unanimous voice of the pleasure all men find in knowing and the pain none can avoid in the process of seeking the truth. The problem is rather a practical and personal one which the great books put to their readers, to solve in their individual lives. Their invitation to learning should not be accepted, nor their promise of pleasure relied upon, by those unwilling to take the pains which, however great initially, gradually diminish as the mind, in the very process of learning, learns how to learn.