Theodore Lidz

The Human Endowment

The Person

The Human Endowment

Theodore Lidz

e-Book 2016 International Psychotherapy Institute

From *The Person* by Theodore Lidz

Table of Contents

The Human Endowment

When the infant emerges into the world from the mother's womb, a loud wail marks the entry of air into the lungs and the shock of exposure to the world. Without being asked, the child is committed to the world and the life that lies ahead. If reluctant, the obstetrician holds the infant by the heels and raps them sharply, for this is the moment of decision. The baby has given up the symbiotic existence within the mother, where nutriment came through the placenta by filtration of the mother's blood. Now the umbilical cord is cut and tied. The neonate, or newborn, appears puny and is helpless—among the most helpless of all creatures born into this world—and will require total care for a long time. Still, the infant is a member of the human species that has inherited the earth and gained mastery over all that inhabits it: the most far-ranging and adaptable species that has ever existed—creatures who increasingly change the environment to suit their needs and desires.

This is an awesome moment, and it is a rare obstetrician who, despite the hundreds of similar deliveries he or she has performed, has not marveled at the process of the unfolding from the fertilized ovum that has taken place, and wondered what the future will hold for this particular infant who has just been ushered into the world. After the cord is cut, the obstetrician, with practiced eye, will examine the infant to see if it is properly equipped for the task that lies ahead. At this point of transition we too shall pause to review what human children bring into the world with them, considering certain essentials of what they acquire during the ten dark lunar months in the womb and then what they must assimilate in order to survive and develop into individuals.

THE DUAL HERITAGE OF THE HUMAN

The neonate is just sufficiently complete to survive with the help of a mothering figure. Despite the relative incompletion at birth, the neonate possesses a great deal. The organism contains an inborn directedness for further growth and the potentiality for the very special type of adaptation that human beings acquired at the end of a billion or so years of evolution from a unicellular organism. Within the mother's uterus the fetus recapitulated in a token fashion the emergence of the human through many

prior evolutionary forms and the preparation, through evolutionary trial and error, for survival. Although human beings attained their present physical structures some thirty thousand years ago and their genetic makeup has changed little in essentials since then, their way of life and their adaptive capacities have altered enormously—to an extent that makes their pre-Stone Age progenitors seem closer to the anthropoid apes than to the astronaut.

Infants can grow up to become contemporary persons because they have a second heritage that they acquire after birth from those with whom they will live. It is a heritage that has accumulated over countless generations, and which had been made possible by the uniquely human capacity to use words to communicate and think. The newborns will acquire an organized filtrate of the ways their forebears had learned to cope with their environment and live together—that is, a culture and its instrumentalities. They will learn these ways slowly as they grow up, for the ability to acquire them is an essential part of their physical endowment and they cannot even survive and grow into adulthood without them. Not only is the newborn infant physically immature and incomplete, but the human's method of adaptation, in contrast to that of all other animals, rests upon learning essential techniques of adaptation during the long period of immaturity that is a necessary correlate of the development of the complicated cerebral cortex which permits thought, learning, and decision making to supplant inborn patterns of behavior essential for survival. Infants, then, are born with two endowments, or, more properly stated, with one and into one. They possess at birth a genetically determined biological endowment which is both common to all mankind and also uniquely individual and which has already been modified by interaction with the intrauterine environment. They will grow into and assimilate a cultural heritage that is a product of the cumulative experiences of the particular ethnic group into which they are born but which also will be somewhat different for each person. The two endowments will be inextricably intertwined as the child matures and develops. Unless both of these endowments and their fusion in the individual are taken into account, human development and integration can never be understood properly. All dynamic psychologies have been concerned, either explicitly or implicitly, with the growth of the biological organism in its interpersonal setting, varying in emphasis on the importance of the genetic endowment and environment in shaping the personality. Neglect of one or the other has led to gross distortions of understanding, and unawareness of the problem has led to many of the grievous errors that have plagued psychology and psychiatry.

Evolutionary Considerations

Questions concerning why human beings are constructed as they are, why their physiological processes function as they do, why their adaptation depends upon their capacities to use tools and language, why and how they developed a "mind" or "psyche," can be answered only in evolutionary terms—through an understanding of the emergence of the human being from a unicellular organism through countless forms of animal organization by means of innumerable genetic mutations. We can ask such questions as "What for?" and "What purpose does it subserve?" without embarrassment over teleological implications. The process of evolution promoted survival through selecting out through mating those mutations or recessive genes that permitted a new or improved means of adaptation to a segment of the environment. We can assume that a structure or process found in the organism subserves the preservation of the individual or species and is a modification of something found in prior evolutionary forms, or that it is vestigial from a structure that had been useful in a prior form.

When, to speak symbolically, our post-simian ancestors climbed down from their arboreal habitat to give up their monkey business and keep their feet on the ground—clutching a stick as a club instead of hanging to it as a branch, and calling to one another with words instead of through interjectional sounds of warning or passion—a new phase in the history of our planet had its primordial origins some three or four million years ago. Once the value and superiority of the new form of adaptation were established, man emerged by successive modifications until approximately thirty-thousand years ago. Then, within the brief thirty thousand years of his existence *Homo sapiens* has changed the order of nature radically, interposing the switching system of the human brain into the sequence of events and even the selection of species until eventually—now—the question of how long life in any form may continue on this planet depends more upon what transpires in people and between people than upon the eventual dimming of the sun.

Let us note in summary fashion what is distinctive about human evolution and adaptation. All forms of life are variations of a single theme. They are different means of assuring survival and reproduction of the fundamental unit of life, the cell. The cell contains chromosomes composed of genes —chemical templates that reproduce themselves and then control the development, structure, and organization of the organism. Single-celled organisms can survive and reproduce only under very

specific conditions and are dependent upon the immediate availability of essential chemicals in the environment in order to function, if not to survive. Increasingly complex organisms evolved which could exist under more varied conditions and with longer periods of self-sufficiency. Each new form of life had a somewhat different structure suited to interacting with a different segment of the environment. Changes in structure that permitted such changes in adaptation depended upon utilization of mutations in the germinal cells—chance failures of the genes to reproduce themselves precisely, so that the new genes gave rise to an organism that was different from the parents. Stated succinctly, at least as far as higher animals are concerned, there can be no question about the answer to the age-old riddle—the egg preceded the hen. For the hen to have attained attributes different from those of its non-hen parents, a change had to have occurred in the chromosomes of the fertilized egg from which it emerged.

Let us shift from a chicken to a finch—to take a classical example. Darwin's finches, which played an important role in the evolution of the theory of evolution, comprise a number of varieties of finches, all of which emerged from common ancestors who happened into the Galapagos Islands. They flourished and competed for the available food supply—they might occasionally peck a bug from the bark of a tree, but they could not survive only by eating bugs from beneath the bark. Some underwent an accidental mutation of the genes that provided a longer and sharper beak—and could now enjoy a diet other finches could not reach—and as the trait aided survival, it was retained by means of the mating of finches with this characteristic. Other finches gained an advantage from other modifications in structure—such as permitted them to suck nectar from flowers or to eat insects in flight. Each structure permitted a different way of competing and a better use of a different segment of the environment and fostered the ability to survive and produce eggs. Birds that lived in and used the same environmental niche tended to mate with one another, and eventually the new mutant traits replaced former physical characteristics and thus changed the finch into a new variety.

While the emergence through such means of the millions of different forms of life that have inhabited the earth may seem highly improbable, we must remember that mutations are very common, that a billion years is a long time, particularly for rapidly reproducing simple organisms, and that, as Simpson (1950), the renowned paleontologist, has pointed out, selective mating is a means of achieving a high degree of improbability.

Selective Mating and Evolution

The emergence of a new species—at least in more complex forms of life—does not occur by the selecting out of a single mutation through mating. It results by selecting out in mating those specific mutations which, from among the myriads that occur by chance, improve some particular attribute or set of attributes that bestows a greater chance of survival in a given environment as mutations improve this attribute over thousands or hundreds of thousands of generations. In herbivorous mammals, for example, increased neck length allowed a mutant group to eat leaves competitors could not reach—and continuing selecting out of improvements in neck length permitted better use than competitors of a different segment of the environment. Another line fed in the open plains and its chances were increased by developing the fur that permitted ranging northward—combined with strength and horns to defend itself in the open country. The mutation that gave rise to a trait that permitted moving into a different environment led to selecting out further improvements in this trait that increased chances of survival and reproduction in that environment.

Although this summary of the evolutionary process is a gross and perhaps a brazen oversimplification, I believe it will suffice for our purposes.

The Evolution of Human Attributes

The human species, of course, emerged in the same gradual way. We cannot here trace the many fascinating phases in our evolution, but it seems important to note that humans with their inordinately complex brains may have been able to emerge only from an arboreal ancestor who had developed an opposable thumb to aid in climbing, who could nurture only one offspring at a time because the infant had to cling to its mother while she jumped from tree to tree, and thereby was more amenable to education by example, and who lived in groups that were dependent upon the exchange of vocal signals for defense and was already rewarding through selective mating increases in brain size and intelligence as means of survival.

Tools and Language

When our ancestors, for whatever reason, returned to live on the ground, and left the protection of

the rain forest, the direction of future evolutionary selection had been established. Out of the trees, these ape men must have been highly vulnerable. They had little in the way of physical characteristics to safeguard their existence: no body armor, horns, tusks, claws, or massive strength, special fleetness of foot, or protective coloring. But they were endowed with a brain that, even in its relatively rudimentary form, bestowed new attributes that were worth the sacrifice of other characteristics. They could use tools: the stick that their ancestors had grasped for millions of years now became an extension of their physical structure—disposable and replaceable extensions that could be used as a club or throwing stick, and later as a digging tool to root out foods; as material for a shelter, as a bit of fuel for fire; and as charcoal for drawing pictures. It was an extension of the self—but also one object with many uses, and many objects with the same use, and thereby something that had a symbolic connotation.[1]

The ability to use tools depended upon the evolutionary acquisition of a brain and neuromuscular system capable of exquisite voluntary movements that could be learned. It was a brain that also made possible the fine coordination of movement of lips, tongue, larynx, and facial and respiratory muscles that permitted the acquisition of another tool, that less tangible tool that faded into thin air as its waves spread out in widening circles—the word. Upon the importance of this abstract tool grown into language rested the further evolution of the hominid into the human—that is, upon the word which permitted protohumans to communicate explicitly in order to direct others, and eventually to direct themselves by reflective thinking.

The Human Brain

Over the ensuing several million years many changes in prehominid physical structure took place. Many varieties of protohuman species developed until one became dominant or the more successful lines fused. But the important characteristics selected out of the mutations that occurred were those which had to do with the increasing development of the cerebral cortex and particularly of those several areas of the brain as well as skeletal structure essential for language development and with the accompanying increase in nerve pathways that permitted inborn or instinctual patterns to be supplanted by learned ways, and permitted complex choice and decision.[2] Over these millions of sears—that is, over more than twelve million generations—through the selecting out of the proper mutations the brain tripled in size until the human species came into existence about thirty thousand years ago. It is a species whose

newborns are among the most helpless of all animals, depending upon parental protection and nurturance for a dozen or more years, and with little capacity for survival anywhere without being taught—that is, without learning the essential techniques of adaptation from those who raised them—yet a species that has spread out and flourished almost everywhere on earth, from tropic to pole, from beneficent islands nurtured by green plants to harsh brick and concrete canyons nourished by green paper,[3] Yet, despite this increase in the range of environments, the many changes in human techniques of adapting to them have occurred with very little, if any, basic alterations in physical structures, including the brain. This is in complete contrast to all other living things. We can say that although the human as an animal has remained unchanged, the human as a person changes continually. In contrast to other animals in which changes in adaptive techniques await changes in physical structure, humankind continues to evolve without such changes. The completion of the human brain through genetic mutations did not imply the completion of the human mind. Indeed, it was only after the emergence of the human brain that the mind really began to develop. It is, I believe, through the contemplation of how this evolution without genetic change could take place that we may gain an understanding of human adaptation and of what we mean by the human mind.

What then was so valuable about this ability to manipulate tools, both tangible and symbolic, that it was selected out as a superior means of assuring survival, and led to the development of *Homo sapiens* and to a new type of evolution?

Some are skeptical that humans could evolve from a pre-Stone Age specimen to their present state without incurring changes in their brain capacity. But consider, we can observe a transition of almost this magnitude occurring today in but one or two generations. While living in a remote country, I worked with a well-trained physician and enjoyed conversing with his brother, a colonel who was skilled in the civilized techniques of killing with a tommy gun and bazooka—and yet their grandfather had gained prestige and position by his skill in wielding a solid club of wood and showed his good manners by using a specially carved fork rather than his fingers when eating the men he killed with his club. As the sons of the chief, my friends had been educated in England. But one need only wander about most sheltered university campuses to encounter scholars whose parents or grandparents lived in Stone Age fashion in Africa or New Guinea as had countless generations of their ancestors.

Let us, for purposes of clarity, examine separately two sets of consequences of the acquisition of language, even though they are in actuality inextricably linked: those derived from verbal communication and those arising from its internal counterpart, mentation.

Language, Communication, and Culture

All animals communicate through actions and odors, if not through sound. Communication is a major adaptive attribute. Two animals who can cooperate through communicating have abilities that far exceed the sum of their individual capacities. They can warn one another, signal the presence of food, mark out areas against intruders, inform the opposite sex of their presence at appropriate times, etc. Apes that live in bands—such as baboons—depend greatly upon group organization for protection and survival. Indeed, the young and injured adults have little chance of surviving for a day if separated from the band.

Further, all higher animals depend upon learning from their mothers to supplement inborn patterns of behavior. Even a squirrel must be taught how to run properly along a branch, and how to scurry for cover upon jumping to the ground; but such learning depends upon following direct and tangible examples. Humans, in contrast, could, by means of the language they had gradually constructed, communicate the fruits of experience to others without having to resort to direct illustration. They could convey what they had learned to the next generation and across generations. They might, for example, prepare their grandchildren to survive a flood by telling them to take to high ground when certain signs of danger appeared, or give directions where to find game in years of scarcity. Methods of coping, adapting, means of surmounting crises—experience in general—became cumulative. Gradually, each group of persons living in the same area built up sets of ways of coping with their environment and of living together cooperatively that formed their culture and its instrumentalities. These included the language itself and ways of perceiving, thinking, and experiencing, as well as the tangible tools they created to work upon nature.

A body of information, customs, sentiments became part of the human heritage. The newborn no longer started life from scratch, only acquiring knowledge of ways of surviving that could be learned during a lifetime, but rather children assimilated the ways of the people who reared them through the

long years of their immaturity. The language itself is a central part of these acquisitions, for after infancy a person's learning depends largely upon language.

Unless we understand clearly that human infants are born with a dual heritage, we can never understand human behavior rightly. They have a biological inheritance that is transmitted through the genes from generation to generation, and a cultural heritage into which they grow and which they must assimilate to become persons. These cultural and social institutions form a new environment that engulfs all individuals as much as does the air they breathe, entering into the children and nourishing them into persons rather than animals, teaching them how to live and how to survive, as Aleuts or Zulus according to where they happen to have been born.

This assimilation of ways of being transpires so naturally that we are apt to accept much of it as part of the unfolding of a person's physical endowment. We may laugh when we read in Herodotus of how the Pharaoh Psainmetichos learned to his chagrin that the Phrygians rather than the Egyptians were the original race. Unable to find out through inquiry from the sages, Psainmetichos gave two infants to a herdsman and instructed him that they be fed by goats and that no one ever speak a word in their presence. Herodotus' informants specifically denied the canard that Psammetichos had the children raised by women whose tongues he had cut out. He wanted to learn what word the children would first articulate after the babblings of infancy were past. After two years both children clearly enunciated and then frequently repeated the single word "Becos," which, as we well know, is the word for bread in Phrygian. At least one ignorant commentator on Herodotus observed that if there were any truth whatsoever in the story, the children were probably imitating the bleating of goats.[4]

Yet, many of us are apt to believe in inborn ethnic or national personality characteristics. We may even have to check our credulity when we read of an infant who grew into manhood reared by apes, and who eventually became their leader by dint of his human intelligence; and of how, when a young and beautiful white woman inevitably was cast up by the sea, he revived her and gently carried her to his treehouse where he served her tea—for, after all, he was really a scion of English nobility and would not have done otherwise. Such childish credulity is scarcely greater than that of a biologist who wrote an article suggesting that we might soon be able to send fertilized embryos to colonize other planets and thus conserve space and weight in rocket ships. Apparently this scientist expects the offspring to emerge

like Pallas Athena from the head of Zeus, fully educated and capable of perpetuating the human species on some distant planet.[5]

What would the natural child be like—the child unaffected by a cultural and interpersonal environment? There are many tales of feral children aside from those of Romulus and Remus. None has been definitely substantiated. The most plausible account is found in Arnold Gesell's *Wolf Child and Human Child,* which contains the diary of an Indian, Reverend Singh, recording how he raised two girls saved in early childhood after having been reared by a wolf. According to the account, Kamala, the girl who survived for some years, remained more animal than human: she continued to crawl on all fours; ate only from the floor; and could never be taught to speak. We cannot advocate belief in the report, for most authorities contend that a child could not survive if mothered by an animal. However, in India infant girls were sometimes abandoned because they impose a grave financial liability upon a family. Still, the children simply may have been congenital idiots found soon after abandonment.[6]

THE CULTURAL ENDOWMENT

A culture, then, has become an essential part of the human endowment. To examine the influence of the culture upon personality development is not to continue an old conflict concerning the importance of cultural versus biological factors in personality formation, but simply to recognize that the biological nature of the human organism is such that it depends upon the assimilation of cultural instrumentalities to make possible survival and development into a person. The culture in which the child is raised serves as a mold to shape the rough outlines of the personality, delimit drives, and provide organization to the manifold ways of adapting to the environment permitted humans by their physical endowment. Although the repressive and limiting influences of society have been bemoaned,[7] delimitation is essential to the realization of potential. A person cannot develop into a harmonious entity without it. Indeed, without the skills and customs provided by society, a child cannot become anyone at all.[8]

Culture and Human Adaptation

The accumulation of abilities to work upon nature; to control fire; to make clothing, tools, and shelters; to cultivate plants; to domesticate animals, diminished the sway that natural forces held over

people. Such acquisitions increased, far beyond limits permitted by their innate physiological capacities, the range of environments in which people could live. The control of the temperature of the body, for example, no longer rested solely upon the physiological mechanisms of regulating heat loss through the dilation and constriction of peripheral blood vessels, and upon sweating, shivering, and muscular activity: these physiological mechanisms were augmented and often obviated by the use of fire, clothing, and housing. Eventually, the body's thermostatic control could be abetted by a person's sleeping under a thermostatically controlled blanket within a thermostatically controlled house. Through humans' interference with the process of natural selection by selecting to their purposes, a minute wild grain was transformed into hybrid corn which, together with the domestication of the hog and cow, provides some groups of people with a constant surplus of food which they must be cajoled into buying lest the economy fail and some persons go hungry. While the fundamental needs for the sustenance of life have not altered, the means of satisfying them have.

The culture influences physiological functioning in a great variety of ways. What stimulates or abolishes appetite depends on the culture more than on physiology; swallow nest soup, ancient eggs, grasshoppers, termites, human flesh are all considered delicacies by some, though none of these is apt to arouse American appetites. Anger and fright are innate emotional states, but what enrages and what frightens vary greatly. Physique may be affected by preferred activities: the high-status Greek in ancient times cultivated his physical prowess, whereas the Talmudic scholar of eastern Europe was rarely of muscular

The ways of reacting to life situations vary profoundly and affect the total functioning of the person. The Hopi Indians, for example, believe that thinking and concentrating bring about manifestation—that is, cause something to happen (Whorf, 1939). Thus relatives and friends beseech a sick person to forgive any slights they may inadvertently have given, to have positive thoughts about living, to wish to live for their sakes. They seek to save a relative's life by having affectionate thoughts about the person and by collectively wishing for his or her recovery. Should such patients perversely persist in remaining ill and worsen, those around them become enraged and start berating them for being mean and disregarding the needs and wishes of their relatives and friends. Eventually they may even beat the sick person to force a change in attitude.[9] Further, in our society we feel sorrow or are supposed to feel sad when a friend or relative dies; we rarely feel rage, and if we do we try to repress such feelings. Tears are

accepted if not expected. However, a Hopi found crying when a relative is dying would be stigmatized as a "witch," for only a person who had purchased one's own life at the expense of the life of the relative would cry.

Culture and Personality

It becomes increasingly clear that the manner in which children are raised in a society influences their personalities. Balinese mothers, for example, customarily indulge their children during their first few years of life while they are nursing, but after weaning will frustrate and tease children who seek closeness and affection and foster jealousy of younger siblings: the schizoid aloofness of the Balinese can virtually be seen developing in response to such treatment (Bateson and Mead, 1942). Hopi parents also indulge their children and avoid antagonizing them by punishment but rather threaten that the supernatural Kachinas will come and beat them if they are not obedient. Then if a child misbehaves, the parents act as if they are protecting the child, whereas in reality they have summoned relatives to come in disguise and whip the child, sometimes very severely. It is a case of Santa Claus in reverse. The children are deeply disillusioned when they eventually learn the truth, and this disillusionment helps foster the suspiciousness of the motives of others that is so characteristic of the Hopi. This character trait is also fostered by the Hopi belief that any close relative, including the mother, might be a malevolent witch who will trade the child's life for her own. The relationship between a society's belief systems and child-rearing methods forms an extremely complex topic that extends beyond the scope of this book.[10]

The ways in which different ethnic groups have patterned their lives and the customs they pursue are amazingly diverse, and some are almost beyond the imagination of persons from other cultures. Still, amidst these extremely varied patterns there are some requisites that all cultures must fulfill. No society can long survive without taking into account the biological makeup of its members. It cannot, for instance, neglect the total dependency of its newborn, or the sequence of the biological maturation of the child, or the presence of two sexes. Some small societies have placed a ban on all sexual relationships but they have not lasted for long, somehow finding but few recruits from the outside. A society is not only essential to its members but it has an existence of its own, and its culture is its heart, which its members will defend with their lives because without it they are rootless and lost. As all societies must fill certain identical needs for their members, including preserving the society itself, some features are common to all cultures,

so common that they are often taken for granted and their critical nature overlooked. Families and language are of the essence and will be examined in greater detail below.

This, then, is one of the advantages bestowed by the capacity for verbal communication. It enables the gradual acquisition of a cultural heritage that becomes an essential part of the human endowment. It enables children to be born into very divergent environments and acquire from those who raise them the techniques essential for survival and for adaptation to the physical and social environment in which they will live.

Language and Thought

We must now examine another consequence of the acquisition of symbolic capacities—that internal counterpart of communication that we term thought or mentation.

Words make reflective and conceptual thinking possible. Even though we think with visual symbols as well as with other sensations and perceptions, words are the switching points—the symbols that we can manipulate in order to shift from one associational trend to another. They are our symbolic tools. Thought and language are inseparable. The autobiography of Helen Keller and the accounts of her remarkable teacher, Anne Sullivan, make it clear that even this person with her extraordinary intellectual potential remained imprisoned in a world of diffuse impressions and feelings until she was released by the word, and particularly until she grasped that each word her teacher spelled into her hand meant something.[11] Even the congenitally deaf who use sign language may be impaired intellectually unless they learn to use words. Efforts are made to insist that they use an alphabet and preferably learn to lip read, not because it is esthetically and socially superior but because the sign language does not contain symbols that are sufficiently abstract for higher intellectual functioning.[12] If, as occasionally happens, a child is born with damage to one of the areas of the brain essential to symbolic activity—areas necessary for the comprehension and expression of words as symbols rather than for simply hearing and saving them—the child remains an idiot.

Let us return to that protohuman and the stick he was grasping so that we may examine the functions of words in thinking. The stick the individual was wielding as a club was important because it

was a tool—a disposable, interchangeable extension of himself. The word "stick" was also important, for it not only meant that specific piece of wood used as a club but it also denoted other pieces of wood used for fuel, for building shelters, for making arrows, for charcoal with which to draw mastodon, for "digging sticks." The word had acquired an abstract meaning or categorical usage designating pieces of wood of a certain approximate shape. It was abstract in another related context: pivoting about the word were all of the individual's many experiences with sticks—those tossed into the river and floating, those breaking off the branches of a tree as it crashed to earth, those turning into flame, the feel of various sticks, their weight, their odor when freshly peeled or after a rain. These various experiences could shift back and forth, one leading to another, connecting a variety of experiences that were dissimilar except in that they involved sticks.

People could think about sticks: their uses in the past, current needs for them, and potential uses for them in the future. They could fragment their memories and utilize them selectively, drawing upon past experiences to construct a hypothetical future. They could anticipate that something they were told was made of "wood" would burn; that an object they had not seen but was termed an "arrow" could be used for shooting from a bow. The word contained a predictive value that helped them direct their behavior. We shall return to consider the importance of the categorizing and predicting functions of words when we consider the child's linguistic development and how it relates to his "ego" functioning (Chapters 5 and 6).

As John Dewey (1925) pointed out, by means of verbal tools people can "act without acting." They can go through trial-and-error performances imaginatively, without committing themselves to the consequences of an actual deed. A person could consider whether a certain stick would suffice to kill an animal or whether it would be better not to risk the encounter until obtaining a better weapon. An individual is freed from the need to act in order to learn whether an action will be advantageous or disastrous. A person can select between alternatives upon the basis of what the imagined outcomes will be.

By the use of symbols, a human can select out appropriate fragments of the past and project converging lines through the momentary present into an imagined future. Herein lies a momentous change from animal behavior that greatly increases the chances for survival. Persons are no longer bound

to motivation by their immediate past experiences and their present impulses, drives, and wishes. They can strive to achieve future gains and objectives that they keep in their minds. We can say that the human is goal-directed as well as drive-impelled. Any increase in the ability to plan toward the future greatly enhances one's chances of surviving. Much of human behavior is directed toward a consciously projected future—to provide for needs of the morrow, the next year, or for a future generation. With such potentialities, people gain a sense of free will; for when we leave theological matters out of consideration, this is what we mean by free will: the ability to select from among alternative paths into the future on the basis of past experiences.[13]

We cannot attempt to consider the many ramifications of the human capacity to symbolize, primarily through the use of words. This capacity enables people to create a symbolized internal version of reality which they manipulate imaginatively in order to increase the predictability of events, to find means of controlling them, and to be prepared in advance to meet them—but also to create and re-create worlds of their own that have no existence except in their own minds. How a person behaves and learns no longer depends upon conditioning. According to Greek mythology, civilization started when Prometheus stole fire from the Olympians and bestowed it upon humankind—a first harnessing of nature to people's ends. Prometheus means "forward thinking," or foresight. With this attribute came an awareness of contingency and death that bred anxiety—perhaps like the vulture pecking at the liver of the enchained Prometheus—but also the ability to eradicate imaginatively the ultimacy of death if a person so wished.

These, then, are the characteristics—stated in bare outline—that permitted people to survive, flourish, spread out over the earth, and become masters of it; altering nature to serve their ends rather than simply living in their natural environment. Humans can utilize symbols in order to think and plan ahead, and they do so by imaginatively creating a symbolized version of their worlds that they can manipulate; and they learn new techniques of mastering their environment which they transmit to others so that learning becomes cumulative, and each new generation can possess the knowledge of its forebears.

THE HUMAN MIND

Humans think and meet the future, anticipating what will come. But what do they think with? The possession of a human brain is, of course, the sine qua non of abstract thinking, but the structure and functioning of this brain determines only in part *how* we think, and virtually nothing of *what* we think. True, the body, through the mediation of the brain, demands that we direct attention to the basic needs for survival of ourself and our species. If we lack oxygen, water, food, warmth, sleep, salts, or sexual outlets, or if we are endangered, primitive drives—mechanisms that antedated the human species—direct us toward seeking relief and influence our thinking. Starving persons can think of little other than food and dreams of food pervade their sleep. But how we set about stilling such needs will vary with time and place. One hungering individual picks up a crossbow and seeks water buffalo; another picks up a harpoon, finds a hole in the ice, and waits for a seal; another balances her checkbook and drives off to a supermarket. Then, too, people because of their foresight may have long periods during which they can be occupied with other matters, relatively free from the direct dictation of basic drives.

We say, rather, that we think with our minds. Mind! The concept of "the mind" carries varying degrees of purposeful vagueness. It refers to something so complex and intangible that we prefer not to be pushed into a definition that we may be expected to defend. We speak constantly about the "unconscious mind" but are not clear at all what we mean by either conscious or unconscious mind. The term contains residues of countless variant philosophies and psychologies that continue to haunt us. Ever since people started to ponder about themselves, they have puzzled over that intangible attribute that permits them to direct their behavior; that distinguishes them, at times, from the beast; that bestows upon them the godlike ability to reorder nature and enables them to surmount the dull or aching reality through soaring fantasy, or to note the poignancy of their experience in poetry or song. They have been apt to consider their minds as separate from their bodies, and even as distinctive from matter. Descartes strengthened the mind-body dichotomy and achieved a long but restless peace with the church by considering the mind an attribute bestowed by God and influenced by the soul that funneled into the brain via the pineal gland; he claimed the body and matter for science and left the soul and the mind to the church and to philosophy.

During the past half century, the scientists of the mind, the psychologists, envious of the tangible

physical and chemical foundations of the biological sciences, have sometimes insisted that the functioning of the mind could be understood in terms of the neural impulses in the brain. Some have convinced themselves that the mind and brain are synonymous. Some have studied man through the examination of lower animals and found no place for a "mind." Some have sought to solve the problem by maintaining that we have simply been caught up in antiquated prescientific religious and philosophical speculations in seeking to locate and define the mind. The very word "mind" disseminates a decadent odor, and any respectable scientist who uses the term must be out of his mind. We can outlaw the word; we can use other terms; we can chant daily in unison that "the body and the mind are one" so as to exorcise the dichotomy from our thinking, but somehow none of these maneuvers quite comes off. "Mind" is not an archaism; we have need for such a concept, whatever we may term it; and no serious thinker can encase the mind within the skull as part of the brain. We can well envy that nineteenth-century pundit who managed to make short shrift of the problem: "What is Mind? No matter! What is Matter? Never mind!"

Of course, in writing a book about the personality it would be possible to evade the issue by avoiding the term. Still, as a psychiatrist who spends his days and years contemplating the mind, I should know what it is I study. I can say, like Humpty-Dumpty speaking to Alice on the other side of the looking glass, "When I use a word—it means just what I choose it to mean-—neither more nor less" (Carroll, 1871). This state of affairs may have been all right for Humpty-Dumpty, even though it left Alice somewhat perplexed, but on this side of the looking glass meanings are measured in terms of how they foster communication. If we wish to join hands in a scientific effort to learn about the nature of human beings and their development, we require a common understanding of what we are scrutinizing.

Surprisingly or not, I think I do know what we mean when we speak of "the mind." By means of our brains we manipulate symbols, and without these symbols we cannot think. What we term "mind" includes both the complex neural apparatus and the symbolized material gained from experience that it utilizes. As we have been noting, the nature of the brain is determined genetically, but the nature of the symbolic material varies widely. How we think is established partly by the structural organization and physiology of our brains and bodies. We cannot, for example, utilize supersonic vibrations as does the bat, or carry-out calculations for hours as does an electronic computer; but how we think also depends upon our education. Scientific thinking, to take one example, is a relatively recent phenomenon, a disciplined

method of thinking that has been utilized for only a few hundred of the tens of thousands of years of human existence.

The brain is the apparatus with which we think, but it must be programmed to become a mind even as an electronic brain must be programmed. There are, of course, vast differences between the brain and the most complex electronic computers aside from the size and rigidity of the machine. Among the many differences is the fact that the brain is part of a living person and is not passive but seeks out and takes in according to its drives, needs, desires. It programs itself to a large extent. The brain as part of an organism is influenced by passions and desire; and as part of a person it partakes of character. Still, there are interesting similarities. The machine also utilizes a language. It stores memories that can be recovered only by the appropriate symbol. It can serve as an executive organ which utilizes insignificant amounts of energy to direct and control activities expending vast quantities of energy—as when a computer directs a foundry. But it must be programmed, and it is incapable of learning;[14] the programmers must learn for it.

Enculturation—Programming the Brain

In the human mind, the basic programming is the process of enculturation—children's assimilation of the ways of the society in which they grow up. Children are taught and learn the verbal symbols essential for thinking, but they must also have experiences for which the words stand. Persons think with the memories of their experiences, but their experiences include what they have learned from others. They have available to them that collectivity of experiences which is their cultural heritage and which, even though it is the product of human minds, has an existence outside of any single brain. In literate societies a large segment of the experience and knowledge of the culture is recorded in print and conserved in books which are repositories of other minds. Individuals may tap these repositories in order to add to their experiences and to expand the information with which they think. The particular mind which has assembled a particular set of experiences and utilizes a unique way of perceiving and understanding the world ceases to exist with the death of the individual. Books such as *The Making of the Modern Mind* (Randall, 1940) and *The Mind in the Making* (Robinson, 1921) are treatises not on the development of the brain, but on the gradual emergence of the body of ideas and the ways of thinking of contemporary man. The existence of brains, or rather of persons with brains capable of carrying on the tradition, is taken for granted. In the sense in which I am using the word "mind" the content alone is

insufficient, for the word also encompasses the brain which utilizes the material.

A basic part of the process of enculturation concerns the acquisition of ways of thinking. People do not simply accumulate sensations or even experiences but require ways of perceiving and thinking about what they experience. Each cultural group has evolved its own system of meanings and logic,[15] and how people think and feel about events affects their physiological processes. The experiences that a person lives through, or which impinge upon a person, can be categorized and understood in countless ways. Each culture perceives its environment somewhat differently; and even the language we use, with its specific vocabulary and rules of grammar, sets limits and guidelines for our thinking.[16] One difference between English and German philosophy—indeed between the English and German mind—would appear to result from the linguistic sanction in German for the coinage of new words to fit approximate nuances, whereas in English we are disciplined to fit our thoughts to the common vocabulary. We can also note that scientific efforts in the Western world had to remain limited until contact with the decimal system invented in India and until abstract algebraic thought introduced through Moslem culture brought release from cumbersome numerical systems and concrete geometric conceptualizations. While our minds have always been our cardinal instrument for adaptation, a new era of human existence opened when we consciously recognized that through the use of the mind as a tool to understand nature we could begin consciously to alter nature for our purposes. This revolution in the use of the mind, which was first specifically promoted by Francis Bacon (1625), was more basic than either the industrial or atomic revolutions which were but outgrowths of it. The possession of a mind (at least what I—using my Humpty-Dumpty prerogatives—mean by the mind) is a human attribute dependent upon the genetic evolution of a brain with a unique structure that permits the use of symbols as tools for communication and thinking. These are distinctively human capacities that make possible an extraordinarily useful method of adaptation and assurance of survival. This brain with its large cerebral cortex allowed less rigid patterns of living by replacing built-in instinctive patterns with learned ways of coping with the environment. The ability of humans to live in many different ways in vastly different environments depends upon the cumulative transmission of what they have learned, their ability to plan for the future, and to work upon nature and alter it to their ends. Our individual minds consist of the internalized, symbolized representation of our world and the techniques for living in it which our brains enable us to assimilate and manipulate. We cannot understand the mind in terms of the physiological functioning of

the brain any more than we can seek to understand a telephone conversation in terms of the telephone system: though some garbled phone conversations are due to defects in the apparatus, and others to the confusion of the speakers.

To understand the mind, we must understand the capacities afforded us by our anatomic structure and our physiological processes; and we must understand how our unique brain enabled us to symbolize, communicate, and build up social systems and cultures, and also to communicate with ourselves by utilizing the verbal symbols that our progenitors had gradually developed as their language. It becomes apparent that the human mind could increase in complexity as the culture and its language became enriched by the accumulation of experiences and learning. Mind, culture, and language are intimately related.

BIOLOGICAL DRIVES

We have been considering the essentially human capacities of adaptation that permitted humans to survive, spread out over the globe, and become masters of it. Although it is necessary to recognize that we humans are not monkeys and to study our development and behavior as integrated through the capacities bestowed by symbolization, it is equally important to realize that we are animals and are directed and impelled by biological drives that often hold sway over our intellectual capacities and that our survival as individuals and as a species depends upon biological processes that were firmly established even before our emergence as human beings.

Although we cannot review all of the inborn genetic endowment that influences personality development, we shall consider briefly the nature of our basic drives and the biological bases of our emotions. The basic drives can be divided into three, and perhaps four, groups: those deriving from the tissue needs indispensable to life; the sexual drives; the defensive drives; and somewhat less clearly, the impulsions to stimulation and activity. All furnish primary directives in personality development.

The Homeostatic Drives

As noted earlier in this chapter the continuation of life in the simplest unicellular organism depends upon maintaining its composition constant within the relatively narrow limits that permit the

chemical processes fundamental to life. No living thing is a closed system but carries out a constant interchange with its environment, from which it obtains nutriment for its development and its vital processes and into which it excretes waste products. Simple organisms can exist only under fairly specific environmental conditions, and the evolutionary process involves providing new ways of assuring the chemical transactions essential to life in the face of competition and environmental change. More complex and highly integrated organisms became less dependent upon the immediate constancy of the external environment. Higher organisms developed an "internal environment" of tissue fluids that surround the cells with a relatively constant environment despite the changes that take place in the external world. Maintenance of the internal constancy of the cells of the organism provides a major motivating force in all living things. "Homeostasis," the term used to designate this maintenance of constancy, is a key word in the study of physiology and behavior. It refers to several things. The internal environment is highly buffered chemically, and filled with checks, balances, and feedback systems that resist change; the organism is provided with various means of regulating its interchange with its surroundings that help maintain its constancy; there is an impulsion to activity that furthers the necessary assimilation and excretion. Such activities are automatic in lower systems of integration but include volitional activities in higher forms.

With the increasing complexity that permitted ever greater freedom from reliance upon the constancy of the external environment, organisms required more involved systems for interchange with the environment and for inner regulation to assure the proper milieu for every cell.[17] The chemical processes essential for the existence of the unicellular organism are no less vital to the most complex forms of life, whose intricate integrations are, in essence, only a means of maintaining the environment necessary for the occurrence of these processes in the cells. However, when a brain that permitted decision making developed, those functions that are indispensable to the preservation of the animal and the species were not left simply to choice or chance.

In humans the executive system involving the cerebral cortex, which is concerned with the choice of alternatives and decision making, remains subject to powerful persuasion that directs attention to homeostatic needs. Centers sensitive to such needs are located in the hindbrain, which developed early in vertebrate evolution; these centers send out signals in response to chemical changes in the blood and to neuronal stimuli which, when necessary, can virtually dominate the thought and activity of the

individual. The person becomes preoccupied with the need to alleviate a state of tension or discomfort produced by the chemical imbalance in the tissues—and, in some instances, to gain a sense of pleasure achieved by supplying the need that restores the requisite balance.

The most imperative need is for oxygen. We live in air and cannot survive for more than a few minutes without it. A diminution of oxygen in the tissues[18] reflexly produces increased respiration; but cutting off the air supply, as by strangulation, sets off immediate frantic efforts to free the air passages. We can withstand thirst longer; but as tissue fluids become depleted, a craving for water dominates our thoughts, feelings, and dreams, and virtually forces us to direct our energies to obtaining water. Lack of food does not create as impelling a need in us, for stored reserves in the body can be mobilized but hunger preoccupies; and the need for food and the efforts to be secure that food supplies are always available form a major motivation of human behavior, individually and collectively. The force that starvation can exert in directing a life and upon the mood can readily be overlooked or forgotten in a land of abundance, but even existence on a semi-starvation diet can seriously influence the ethics and emotional health of the individual.[19] It is not clear whether a deficiency of specific chemical elements or compounds other than water produces a drive to obtain them. Lack of sodium, which is vital to maintaining a proper fluid balance, causes animals to make long migrations to salt licks, and groups of people living in areas where salt is sparse set up complicated trade channels to obtain it regularly. Children's craving for candy may be due to, or at least reflect, their need for large quantities of carbohydrates to supply their lavish expenditures of energy. However, it is well to remember that human beings are so constituted that despite the intensity of hunger as a drive, persons have starved themselves to death amid plenty for political or religious convictions.

The maintenance of an internal body temperature very close to 98.6°F. (37°C.) is essential for the bodily chemistry; and although the regulation of temperature is carried out reflexly, there are limits to the body s ability to dissipate and generate heat. The search for warmth, and sometimes for relief from excessive heat, can also become an imperative drive that takes precedence over almost everything else. When a person is freezing to death, apathy-—as in starvation—may finally intervene and replace the drive.

Although the functions of sleep are still poorly understood, the need for it can become a dominant

motivation. Though it seems difficult to think of the urge to sleep as a drive, it can also preoccupy, but usually it will simply occur despite efforts to remain awake. Prolonged sleep deprivation can lead to mental confusion. The men in an army unit which I studied in the South Pacific, after fighting for eight days and nights with almost no sleep, suffered from mass hallucinosis.

The excretion of urine and feces also is vital and the need to urinate can also be an impelling preoccupation. However, the problems are somewhat different from those of the tissue needs, as any need for prolonged delay in satisfying such urges is a result of social requirements.

In fulfilling the body's needs for food and sleep and to excrete wastes, the individual is not only motivated by a need to relieve tension or pain but also because the alleviation of the imbalance can be pleasurable. People enjoy eating and sleeping, and many gain some erogenous pleasure from urinating and defecating, as will be discussed in later chapters.[20] Indeed any of the vital activities of breathing, drinking water, eating, seeking or avoiding heat, sleeping, and excreting can sometimes become perversions in the sense of being carried to excess for emotional reasons rather than because of bodily need, and some clearly become erotized through becoming connected to the sexual drives.

The Sexual Drive

In the post-Freudian world it seems unnecessary to emphasize the pervasive importance of sexuality in human behavior, or to draw the attention of the reader to how sexual impulsions furnish the themes around which fantasies are woven, or how desire populates the dream world and inserts itself between the pages of books one studies, seeking to replace the dull facts recorded on them, or how it heightens sensitivity and at times would seem to provide invisible antennae with which a person can detect the feelings and cravings of another person.

The reasons why the evolutionary process led to the elaboration of strong sexual drives seem apparent. All higher forms of life are divided into two genders. The need for a union between two germinal cells for propagation permits opportunity for the selecting out of favorable mutations and assures a constant reshuffling of genes that lessens the influence of harmful mutations. As the perpetuation of the germinal cells is the essence of life, after the separation into two genders the act of

mating could not be left to chance or entirely to choice; a drive to procreate exists in some form in all creatures. In some species instinctive patterns almost completely control mating behavior. The life cycle may lead to procreation and then death as in some fish. In most mammals a rutting period exists when the sexual drives become dominant and may even take precedence over self-preservative drives. In response to the sexual impulsion, the male may neglect almost all else and even court death in combat for the female. Anyone who has seen the torment of a male beagle (about the most "highly sexed" canine, I am informed) if confined when a female in heat is nearby; or watched two otherwise docile and domesticated tomcats turn into miniature tigers and slash and bite one another for priority with a female feline who acts as if nothing concerned her less than which of her two overardent suitors triumphed—must be impressed by the power of the sexual drive. Anthropoids and humans do not have rutting seasons, even though sexual drives may well be influenced by the season. Humans can delay gratification of the drive and forgo the pleasurable reward indefinitely, perhaps aided by the capacity for masturbatory release from compelling tensions. But the drive toward sexual union is denied only with difficulty. The sexual act is impelled both by the need for relief from tissue tensions and by the reward of positive sensual pleasure: the pleasure is accompanied by heightening of tension that further impels, and the climactic orgasm becomes a goal and reward in its own right. Sexual union between people is often further motivated by desires for the interpersonal closeness and sharing involved in love, and including recrudescences of "attachment behavior" that will be discussed in Chapter 5. Nature has created strong impulsions and rewards to assure the continuity of the species.

Although sexuality exerts one of the most compelling forces in the lives of humans, it does not have the inexorable power over human behavior of the homeostatic drives. Only persons leading relatively sheltered lives in which water, food, and warmth are readily available and in which sexual drives are impeded by social conventions can consider sexuality more compelling.[21] Indeed, upon consideration we can realize that it is because sexual gratification is not vital to life, as well as because the satisfaction of the drive can be delayed, displaced, and sublimated into other types of outlets that sexuality forms a critical lever in the educational process and forms a significant force in shaping the personality. The topic will be discussed in subsequent chapters.

Sexuality and aggression are crucial forces in human motivation and personality development, not because they are the most fundamental drives but because they are modifiable and subject to socializing

influences and also because both sex and aggression must be controlled and channeled lest they become disruptive of the family and the community upon which people depend so greatly for their survival and well-being. Aggression is one of another set of essential drives.

Defensive Drives

An array of physiological defenses against danger that concomitantly arouses fear or aggression can also dominate the organism's motivations and behavior. These built-in automatic defenses against danger, which arose early in the evolutionary process to implement the capacity to fight enemies, flee danger, and mobilize resources in emergencies, are only slightly less important to the preservation of the animal than the drives arising from tissue needs. As soon as danger is sensed the bodily processes alter almost instantaneously to prepare for flight or fight without the intervention of conscious decision. Such defenses are crucial to survival in a world filled with enemies and inanimate hazards. The shifts in the physiological processes convey an ability to run faster, jump farther, fight beyond the limits of endurance; and to sense more keenly, react more rapidly, and think more alertly; as well as to minimize the effects of injury. The human being is heir to these physiological responses, even though they may impede as often as they help in dealing with dangers in civilized societies; but, as we shall see, these defensive drives continue to exert a profound influence on both behavior and mental activities.

Fear and aggression are potent drives, either of which can change a man's life in a split second, sweeping aside resolve, training, plans, judgment, and careful reasoning. The dreams of glory of many a youth have vanished and turned into self-hatred with the first bombardment by the enemy; or the tensions of pent-up hostility suddenly unleashed have carried persons into conflicts in which they were hopelessly outclassed. The two behaviors are intimately related both physiologically and emotionally: fear is not synonymous with cowardice, and aggression is one means of overcoming the dysphoria of fear[22]—and there is an old adage about those who fight and run away.

The automatic physiological changes may be initiated in response to some signal of impending danger that is not even consciously recognized. The autonomic nervous system, particularly the adrenal-neural system, is most clearly involved in these changes and employs many of the same mechanisms utilized in the preservation of the homeostatic needs, and can even interfere with the homeostatic

functioning, as will be discussed in Chapters 8 and 20. The animal or person is first alerted and then prepared to save itself by fighting or fleeing; which of these responses will predominate varies with the species and the total development of its means of survival—a tiger is primarily prepared to fight and a doe to flee. In some forms, such as the human, it is possible that lesser stimuli to the adrenal-neural mechanisms prepare for flight while more intense and prolonged stimulation prepares for fighting. Epinephrine secretion tends to heighten fear, which increases alertness to danger; and norepinephrine secretion helps prepare for action, particularly aggressive action, and thus helps induce feelings of hostility. We will not, at this point, discuss the complexities of these automatic preparations for self-defense. They are not just dysphoric feeling states from which individuals seek to free themselves; they are accompanied by immediate pervasive changes in the physiological functions, such as speeding of the heart, sweating, changes in respiration and distribution of blood flow, as well as numerous less apparent alterations. (See Chapter 20.)

The capacity or proneness to experience fear and aggression is born into us, but aggressivity is not a quality that must find an outlet. It is a type of response to danger that can dissipate when danger passes and the physiological processes resume their non-emergency functioning. Some persons may be innately more prone to aggressive feelings than others, but chronically aggressive individuals are more usually persons who grew up under conditions that trained them to respond readily to certain circumstances or people—such as authority figures—with defensive aggressivity.[23]

In humans, anxiety is a derivative of fear and is accompanied by much the same physiological manifestations. Anxiety is largely concerned with unconscious dangers, particularly those that could result from one's own impulses, and it is also concerned with anticipated future dangers rather than tangible matters that can be coped with through action. Aggression has the derivatives of hostility and resentment, which like anxiety are not usually relieved by overt action. These derivative drives or emotions play major roles in motivation and behavior, as will be discussed in various contexts throughout the book.[24]

Assimilatory Drives

The group of phenomena that we shall consider under this heading concerns the innate

impulsions of the infant and child to seek stimulation and to carry out motor activity. Proper physical and intellectual development of the child appears to rest upon such needs to assimilate new experiences; and, as we shall see, a new type of experience in itself serves as a stimulus to the individual to seek its repetition. There is now ample evidence that the basic motivations of animals, including humans, arise not only from needs to reduce physiological tensions, but that the organism requires arousal for its well-being. The organism requires stimulation and seems motivated to seek it. Infants require stimulation beyond their own capacities to obtain it, and failure to provide it leads to the disastrous consequences that the Pharaoh Psammetichos and the Emperor Frederick II reputedly found. Absence of stimulation is also almost unbearable to adults who may lose their holds on reality when kept in solitary confinement or when subjects in a sensory deprivation experiment (Solomon *et al.,* 1961) in which they are shielded as completely as possible from any stimulation.

We shall also note that an impulsion to the use of the neuromuscular system seems to be a built-in part of the organism's means of survival. The child enjoys movement for its own sake, including the use of vocalizations. Such more or less spontaneous activity seems essential for gaining mastery over the sensori-motor apparatus and for explorations of the environment.[25]

Consideration of such innate motivation for assimilation of experience is fundamental to Piaget's theory of cognitive development which will be discussed throughout the early chapters of the book.

EMOTIONS

When mental activity and ways of relating to others are being considered, fear, aggression, sexual feelings and their related states such as anxiety, anger, and love are often regarded as emotions or affects rather than "drives." It is difficult to isolate emotions in pure form, to separate them from drives, or even to analyze their nature.

Emotions are diffuse combinations of physiological states and mental sets that pervade thinking and influence relationships and individuals' satisfactions with themselves and their sense of well-being. The list of human emotions is almost endless. The study of emotions has ever been highly controversial, and a discussion of emotions must remain unsatisfactory at the present time. Attention here is simply

being directed to the fundamental role of emotions in behavior, to their relationship to the preservation of the individual and the species, and to their diffuse and pervasive character.

Emotions do not simply develop through experience. They have a physiological basis;[26] but what arouses various emotions, how emotions combine, and which are most readily and frequently aroused in individuals depend largely upon their experiences, and to a large extent the childhood experiences with parents and family that color the attitudes persons have and the ways in which they feel about life.

Several other basic emotions or moods aside from the emotional states related to drives require consideration. The quality of a person's feelings ranges between depressed and elated states with euphoria, a feeling of wellbeing balancing between them.[27] Other affects mix with these rather basic moods. Depressive states may be due to loss of love or loss of self-esteem, or to resentment toward a loved person. Such states relate to the feelings of the small child when deprived of the mother. A sense of well-being and even elation may relate to the infant's pleasurable responses to closeness to the mother and proper nurturance. The infant's smile and pleasurable gurgling have a positive evolutionary value because they elicit positive maternal feelings that help assure the infant the necessary nurturant care (see Chapter 5). Elation may also accompany unexpected success which brings a heightened evaluation of the self or of those with whom one identifies—as when a team is victorious or a school is cited for an achievement: it also occurs as part of a pathological effort to deny misfortune or loss that more properly should evoke depressive feelings.

Apathy, which is often related to depression, is a means of withdrawal from stimulation when efforts to reduce tension or, in the child, the need for the mother, are chronically frustrated; it provides a way of conserving bodily resources rather than squandering them in futile, frantic, and repetitive efforts to gain relief.

Among the elementary affects we may include fear, anxiety, anger, rage, elation, depression, apathy, attachment feelings, and sexual erotic feelings. These blend with pleasure and unpleasure feelings, and with pain, a sensation that signals trauma. Other emotions may be combinations of these, as well as admixtures of them with thoughts, memories, and values derived from relationships. An analogy may be drawn to the sense of taste, which rests upon the four basic sensations of sweet, bitter, sour, and

salt which are modified by odors into an infinite variety of tastes. Various emotions, such as anxiety, disgust, shame, guilt, depression, will be discussed in some detail in appropriate places in subsequent chapters.

We have been focusing upon some of the fundamentals of animal organisms that assure the continuity of the germinal cell and its carrier. The need to preserve the constancy of the cell in a changeable environment, the impulsion toward union of the germinal cells for procreation, the automatic preparations to defend against danger, attachment behavior that helps the animal infant secure nurturant care—all these persist to exert compelling influences in the highest mammalian forms. They continue to direct attention to fundamentals amid the extremely complex processes of adaptation that a person carries out while living in a society. A dynamic adaptive approach to human personality development requires recognition of such basic motivating forces underlying behavior.

THE SEQUENCE OF MATURATION AND DECLINE

The organism has a predetermined sequence of development and decline: a period of growth when assimilation prepares for maturity; a period of maturity when metabolic processes primarily subserve maintenance, repair, and procreation; a period of decline when metabolic exchange lags behind the needs for renewal and leads to death. Death, which we tend to consider the negative of life, makes much life and variety of life possible. It permits evolutionary change by the sorting out of mutations. Because of the sequence of development, decline, and death, all living things possess a time factor and a directedness in time as well as in space. Experience is not repeatable, for any experience that may seem a repetition occurs at a different time in the life cycle and affects an organism that has been changed by the earlier experience. The time factor, including the inevitability of death, profoundly influences the behavior and motivations of the human, who alone among animals is ever aware of it (see Chapter 18).

MALE AND FEMALE

The differences in the physical makeup of the two sexes related to their very different procreative functions also gave rise to dissimilarities in their cultural heritages even within the same society and to

divergent though complementary role assignments in all societies. Such physical differences and accompanying divisions of life tasks have led, at least until very recently, to dissimilarities in the personality development and life cycle of men and women. Here the two heritages of humans, the genetic and the cultural, are particularly difficult to untangle because the fundamental division of tasks between males and females antedated the emergence of the human species. The gender-linked roles have become so firmly ingrained that many personality traits accompanying them have been assumed to be innate characteristics of one sex or the other.

The two sexes clearly differ in physical characteristics that cannot but influence personality development. Here, I wish only to call attention to a few such physical attributes, leaving the consideration of others and the elaboration of the topic to subsequent chapters. The differences in primary and secondary sexual characteristics, average size, musculature and pace of physical maturation are obvious. The girl not only has a clear physical demarcation of her change from a child to an adolescent capable of bearing children, but also of when her life will take on a rhythmic periodicity with the menstrual cycle. The adolescent boy and the man may have a greater urgency for release from sexual tensions, and will have only a momentary participation in the conception of a child with no inherent need to nurture his offspring, which permits him a freedom of movement and sexual activity that the woman may envy as well as his erectile penis, symbolic of such prerogatives. The woman has the potential of having a baby develop within her and virtually as a part of her and through her capacity to nurse and nurture to become extremely important to her children, capacities which the man may envy.[28] Children become aware of their sex very early, and then of the future potentialities and expectations that accompany the state of being a boy or girl, and soon are subjected to familial and cultural forces that influence the desirability and even the acceptability of the inevitable or potential consequences of having been born male or female.

The origins of the basic male and female roles are apparent from the observation of some preliterate societies. When women of these societies are pregnant, nursing, or caring for a toddler (frequently all three states are simultaneous), they have a great need for protection and for persons who can move beyond the village to obtain essential supplies. It is the men who must carry out such instrumental tasks if the group is to survive. Many subsidiary roles developed as part of this major division of the tasks essential for the survival of individuals and the social unit.

Only with industrialization, the higher education of women, and, particularly, the development of secure contraceptives that enable women to decide just when, if at all, they will have children, have many of the male and female role dichotomies become unnecessary. However, even though no longer essential, the customary roles may seem desirable to many women as well as men. Deeply rooted traditions provide guidelines for living without which people can become perplexed, insecure, and anxious. Moreover, decisions concerning child rearing and marriage (that are necessary if sex-linked roles are to be markedly altered) must be made without the adequate experience that permits people to gauge the ultimate outcome. As we shall examine later (Chapters 6-10), there are other reasons that derive from both male and female development that interfere with rapid and profound changes in the roles of men and women. There are ample reasons why, at this juncture in history, women's roles should change and perhaps must change; but there are also reasons, rooted both in our physical structure and in our traditions, that lead to controversy about such issues and limit the speed, if not the extent, of the role changes.

THE RACIAL PHYSICAL ENDOWMENT

Within the endowment of characteristics common to the human species, each infant has some racial traits and some still more specific characteristics that depend upon the genes carried by the parents. The influence of biological racial differences upon adaptation and personality development is difficult to assess. The direct influence of racial differences on personality development was formerly overemphasized because of the tendency of even' group to regard outsiders as barbarians as well as to justify its mistreatment of other races while bolstering its own self-esteem. If contemporary man did not develop from a single type of protoman, and divergent types of protoman survived, it seems probable that they were absorbed into the dominant strain that gained supremacy. Groups which were cut off from interbreeding produced separate races, all of which are equally human. Aside from some possible advantage of dark or light skin for living at certain latitudes, no definable advantage of the innate equipment of any race over others has been established. Obviously, differences in the appearance of the races and their skin color persist. However, all races have blended with others, and gradations exist that blur the boundaries of where one race starts and another race leaves off.

In some instances a genetic mutation that was advantageous to the survival of persons living in a

specific environment spread among them. The “sickling trait" of red blood cells found in a small percentage of African blacks provides a concrete example. These cells become deformed, fragile, and may fragment when the oxygen tension in the capillaries is low; persons who have this trait are susceptible to a serious anemia, but it renders them more resistant to malaria, which formed a much greater threat to their survival. A few groups which have remained relatively isolated, such as the African pygmies, maintain distinctive characteristics. However, anyone who has not specifically been interested in human dispersion may have difficulty in appreciating the extent of the migrations that have brought a reblending of divergent strains.[29]

THE FAMILIAL BIOLOGICAL ENDOWMENT

Traits of both parental lines clearly show in the child’s physical structure, often with features of one or the other parent dominating at different phases of the child’s maturation. The genetic endowment of each person is unique, differing from all others except an identical twin. These individual physical characteristics influence children’s reactivity to their environment, including their interaction with others, and thereby the personalities they develop.[30] As the parents usually raise their children as well as conceive them, it is often impossible to differentiate the relative importance of their genes and their interpersonal influence upon the personality traits that their children develop.

The precise physical structure of individuals does not depend upon their genetic makeup alone. The chromosomal structure directs, patterns, and sets limits within which the organism can develop as it grows in an environment. The phenotype of some insects will vary widely according to the locale in which they develop. A relatively constant environment during the critical phases of the unfolding of the fertilized germ cell is assured all mammals, but the newborn has already been influenced to some extent by the specific uterine environment. Disruption of the placental circulation or the occurrence of viral diseases such as German measles in the mother may, for example, produce anomalies. Abnormalities of the mother’s metabolism can affect fetal development, as when a lack of iodine in her serum causes the infant to be a cretin; and her emotional state during pregnancy may influence the infant’s reactivity even before birth. Even identical twins differ at birth, for the uterine environment is not identical for them. The environment continues to exert an influence after birth. Genetic endowments may set limits for the height or intelligence that individuals can attain but their actual height or intelligence also depends

upon how they are raised. The increasing height of the American population over the past several generations reflects the change in nutritional conditions and probably the diminution in childhood illnesses more than a genetic selection.

Whatever the person's specific genetic endowment, it is a human endowment and forms the foundation upon which personality characteristics will develop through interpersonal experience. As with all biological phenomena each physical attribute will vary from person to person, and if graphically represented will be scattered along a bell-shaped distribution curve. Persons have different ranges of tone perception, lengths of arm, sensitivity to touch, rates of metabolizing glucose, pepsin secretion, visual acuity, and so on. 'The range of variance is slight for some attributes, marked for others. Most traits in a person will be close to the median of the distribution curve, perhaps with an occasional attribute falling toward the more extreme ranges of the curve. Many divisions of persons or their attributes into distinct groupings, such as into hyperactive, average and placid babies, or into asthenic, athletic, and pyknic physiques, are simply means of stressing placement along distribution curves. However, some attributes, such as iris color and skin color, have multimodal distribution curves. Little is known about the distribution curves for many human attributes and even less about the importance of the interrelationships of such curves for various attributes within a single individual.

The significance of such differences for personality development is more a matter of conjecture than of knowledge at the present time; but they clearly have importance. One mother will be more at ease mothering a placid baby, whereas another will gain more satisfaction from a lively, active infant. A parent's lifelong fantasies may be shattered by the birth of a brunet child rather than a blond one. A girl who starts to menstruate at nine will have a different early adolescence than a girl whose menarche occurs at sixteen. Such influences can vary with differing cultural settings. In the United States even twenty or thirty years ago, if a boy were shooting upward in adolescence past the six-foot-six-inch mark, his parents would very likely be concerned and might well have taken him to an endocrinologist because of his abnormal growth. His life might have been made miserable by the teasing and jibes of confreres, and girls might have avoided the "freak." Today the parents of such a boy may hope lie will grow another inch or two to be assured of free college tuition, and girls may eagerly eye this high school basketball star. A person's precise shade of color is extremely significant on the island of Jamaica, where it forms a cornerstone of a social class system; whereas in the United States it is not so much the shade of color but

the presumption of black ancestry that has importance. Various life settings may foster or lead to the neglect of certain inborn potentialities. Innate perfect pitch perception will have a different influence upon children depending on whether they are born into a musical or nonmusical family, or into a society devoid of music. The developing personality will depend to a greater or lesser extent, in ways that can only be surmised at present, upon these innate physical differences.

In this chapter we have considered in very general terms the endowments of the newborn infant. Unless we understand that humans are born with a dual endowment, a genetic inheritance and a cultural heritage, we can never grasp correctly their development and maldevelopment. 'The evolution of the human species rested to a great extent upon the selecting out of mutations that improved the capacities for tool bearing and symbolic communication; and then, because of the ability to communicate verbally and think abstractly, humans became capable of modifying the environment to suit the limits of their physiological capacities, and to transmit what they had learned to subsequent generations so that further genetic change was no longer necessary to enable human beings to change their ways of life and to increase their adaptive capacities.

Through their abilities to communicate verbally and to think, humans acquired cultures and minds, and became dependent upon their interpersonal relationships and their social environment for gaining the techniques needed for adaptation and survival. Even though the uniquely human techniques of adaptation rest on the ability to use language, to consciously choose between alternatives, and to utilize foresight, those bodily needs that are critical to survival, and which assure the perpetuation of the species, are not left entirely to conscious decision (and possible neglect), but gain the individual's attention and can unconsciously dominate a person's activities through the force of the basic drives.

Whereas the acquisition of the physical endowment is controlled by the chemical code of the genes, the assimilation of the cultural heritage cannot depend on any such biological mechanism. The cultural techniques that are transmitted cannot be rigidly predetermined, for they must be suited to the society in which the child will live, and yet their transmission cannot be left to chance. The well-being of individuals and the continuity of the culture which is essential to their development depend on their having a satisfactory agency for conveying the mores and instrumentalities of the culture to its new recruits, and to assure that they, in turn, will become adequate carriers of the culture. The major part of

this task of transmitting the culture devolves upon the family in almost all societies. We must now turn to examine the family as the basic agency upon which societies depend for nurturing and enculturating their members. In the family the various elements of the child's genetic and cultural endowments converge.

REFERENCES

Aberle, D. F. (1951). *The Psychosocial Analysis of a Hopi Life History*. Comparative Psychology Monographs, vol. 21, no. 1, Serial No. 107. University of California Press, Berkeley.

Ardrey, R. (1966). *The Territorial Imperative: A Personal Inquiry into the Animal Origins of Property and Nations*. Atheneum, New York.

Bacon, F. (1625). "The Great Instauration," in *Selected Writings of Francis Bacon*. Modern Library, New York, 1955.

Bateson, G., And Mead, M. (1942). *Balinese Character: A Photographic Analysis*. New York Academy of Science. New York.

Benedict. R. (1934). *Patterns of Culture*. Penguin Books, New York, p. 235.

Bettelheim, B. (1954). *Symbolic Wounds*. Free Press, Glencoe, Ill.

Brown, N. (1966). *Love's Body*. Random House, New York.

Carroll, L. (1871). *Through the Looking-Glass*. Macmillan, London, 1963, p. 114.

Carstairs, M. G. (1957). *The Twice Born: A Study of a Community of High-Caste Hindus*. Hogarth Press, London.

Chomsky, N. (1968). *Language and Mind*. Harcourt, Brace & World, New York.

Delgado, J. M. R., Roberts, W., and Miller, N. (1954). "Learning Motivated by Electrical Stimulation of the Brain," *American Journal of Physiology*, 179:587-593.

Dewey, J. (19:5). *Experience and Nature*. Open Court, London.

Engel, G. L. (1962). *Psychological Development in Health and Disease*. W. B. Saunders, Philadelphia, pp. 72-304.

Erikson, E. (1950). *Childhood and Society*. W. W. Norton, New York.

Freud. S. (1930). "Civilization And Its Discontents," in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. 21. Hogarth Press, London, 1961.

Gardner, B. T., and Gardner, R. A. (1971). "Two-Way Communication with an Infant Chimpanzee," in *Behavior of Nonhuman Primates*. A. Schrier and F. Stollnitz, cds. Academic Press, New York.

Gesell, A. (1941). *Wolf Child and Human Child*. Harper & Bros., New York.

Goodall, J. (1963). “My Life Among Wild Chimpanzees,” *National Geographic*, 124:272-308. ^

____ (1965). “New Discoveries Among Wild Chimpanzees,” *National Geographic*, 128:802-831.

Plamsun, K. (1967). *Hunger*. R. Bly, trans. Farrar, Straus & Giroux, New York.

Hartmann, H. (1939). *Ego Psychology and the Problem of Adaptation*. D. Rapaport, trans. International Universities Press, New York, 1958.

Hendrick, I. (1943). “The Discussion of the ‘Instinct to Master’ ” (letter to the editor), *Psychoanalytic Quarterly*, 12:561-565.

Herodotus, *Euterpe*, Book II, chap. 2.

Keller, G. (1918). Der grune Heinrich, in *Gesammelte Werke*. Rascher, Zurich.

Keller, H. (1902). T*he Story of My Life*. Dell, New York, 1964.

Kolata, G. B. (1974). “The Demise of the Neandertals: Was Language A Factor?” *Science*, 186:618-619.

Lidz, R. W., and Linz, T. “Male Menstruation: A Ritual Alternative to the Oedipal Transition.” In press.

Lorenz, K. (1952). *King Solomon’s Ring: New Light on Animal Ways*. M. K. Wilson, trans. Thomas Y. Crowell, New York.

____ (1966). *On Aggression*. M. K. Wilson, trans. Harcourt, Brace & World, New York.

MacLean, P. D. (1955). “The Limbic System (‘Visceral Brain’) in Relation to Central Gray and Reticulum of the Brain Stem,” *Psychosomatic Medicine*, 17:355-366.

Olds, J. (1958). “Self-Stimulation of the Brain,” *Science*, 127:315-324.

Piaget, J. (1971). *Structuralism*. C. Maschler, trans. Harper & Row, New York.

Randall, Jr., J. (1940). *The Making of the Modern Mind*. Houghton Mifflin, Boston. Rey. ed.

Robinson, J. (1921). *The Mind in the Making*. Harper & Bros., New York.

Rumbauch, D. M., Gill, T. V., and von Glaserfeld, E. (1973). “Reading and Sentence Completion by a Chimpanzee,” *Science*, 182:731-733.

Salimbene, cited in J. B. Ross and M. M. McLaughlin, *A Portable Medieval Reader*. Viking Press, New York, 1949. p. 366.

Schiele, B. C., and Brozek, J. (1948). “‘Experimental Neurosis’ Resulting from Semistarvation in Man,” *Psychosomatic Medicine*, 10:33.

Simpson, G. (1950). *The Meaning of Evolution: A Study of the History of Life and of Its Significance for Man*. Yale University Press, New Haven, Conn.

Solomon, P., Kubzansky, P., et al., eds. (1961). *Sensory Deprivation*. Harvard University Press. Cambridge. Mass.

Spitz, R. A. (1945). "Hospitalism: An Inquiry into the Genesis of Psychiatric Conditions in Early Childhood," *The Psychoanalytic Study of the Child*, vol. 1, pp. 53-74. International Universities Press, New York.

Stierlin, H. (1975). *Adolf Hitler*. Suhrkamp Verlag, Frankfurt-am-Main, Germany.

Waelder, R. (1960). *Basic Theory of Psychoanalysis*. International Universities Press, New York, pp. 130-153.

Whiting, B., ed. (1963). *Six Cultures: Studies of Child Rearing*. John Wiley & Sons, New York.

Whorf, B. (1939). "The Relation of Habitual Thought and Behavior to Language," in *Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf*. J. Carroll, ed. MIT Press and John Wiley & Sons, New York, 1956.

____(1956). *Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf*. J. Carroll, ed. MIT Press and John Wiley & Sons, New York.

SUGGESTED READING

Bardwick, J. M. (1971). *Psychology of Women: A Study of Bio-Cultural Conflicts*. Harper & Row, New York.

Benedict, R. (1934). *Patterns of Culture*. Penguin Books, New York.

Brown, R. (1958). *Words and Things*. Free Press, Glencoe, Ill.

Langer, S. K. (1957). *Philosophy in a New Key*. Harvard University Press, Cambridge, Mass.

Lidz, T. (1963). "The Family, Language, and Ego Functions," in *The Family and Human Adaptation: Three Lectures*. International Universities Press, New York.

Piaget, J. (1971). *Structuralism*. C. Maschler, trails. Harper & Row, New York.

Sapir, E. (1949). Selected Writings of Edward Sapir in *Language, Culture and Personality*. University of California Press, Berkeley.

Tax, S., ed. (1960). Evolution After Darwin, vol. 2 of *The Evolution of Man: Mind, Culture and Society*. University of Chicago Press, Chicago.

Vygotsky, L. S. (1962). *Thought and Language*. E. Hanfmann and G. Vakar, eds. and trans. MIT Press and John Wiley & Sons, New York.

Notes

1 The chimpanzee dips a stick into an insect hole and then eats the insects that collect on the stick (Goodall, 1963, 1965). This is a primitive use of a tool, but only for one specific purpose. Anthropoid apes are highly social animals with some capacity for symbolic functioning and teach a great deal to their offspring through example.

2 The Lieberman-Crelin hypothesis concerning the reasons why the Neandertal hominid died out approximately forty-five thousand years ago is of interest, even though it remains the subject of much dispute. Lieberman and Crelin believe that the Neandertals, in contrast to the more direct predecessors of *Homo sapiens*, were limited by a skull structure that prevented the development

of the vowel sounds a, i, and u (as in "not," "see," and "to")—sounds important in all modern languages—and thus had more limited capacities to communicate verbally. (See G. B. Kolata, "The Demise of the Neandertals: Was Language a Factor?")

3 Hartmann's (1939) concept that humans are born "to live in an average expectable environment" has gained wide popularity among psychoanalysts but misses the essence of the adaptive capacities of the human species—namely, the ability of people to adjust the environment to meet their limited inborn physiological capacities.

4 Salimbene, a medieval chronicler, narrates in more detail a similar story about Frederick II, the scientifically curious despot who ruled the Holy Roman Empire in the thirteenth century. Frederick "wanted to find out what kind of speech and manner of speech children would have when they grew up if they spoke to no one beforehand. So he bade foster mothers and nurses to suckle the children, to bathe and wash them, but in no way to prattle with them, or to speak to them for he wanted to learn whether they would speak the Hebrew language, which was the oldest, or Greek, or Latin, or Arabic, or perhaps the language of their parents, of whom they had been born. . . . But he laboured in vain because the children all died. For they could not live without the petting, and joyful faces and loving words of their foster mothers." Although this is very likely a legend repeated about carious kings, we have recently learned that Frederick's findings could have been accurate. Spitz (1945) found that infants raised in an orphanage under good hygienic conditions but impersonally and without stimulation gradually wasted and died, or became irrevocably mentally defective. (See Chapter 5.)

5 *Life*, September 10, 1965, in an article entitled "Control of Life," shows Dr. E. S. E. Hafez of Washington State University holding a set of vials, which he says "could contain 'the barnyard of the future complete with the farmer.'" Hafez believes that his techniques are particularly suited to the space age, as a means of colonizing the planets. "When you consider how much it costs in fuel to lift every pound off the launch pad," he says, "why send fully grown men and women aboard spaceships? Instead why not ship tiny embryos in the care of a competent biologist who would grow them into people, cows, pigs, chickens, horses—anything we wanted—after they got there?" Why not, indeed? Perhaps because we might confuse the resultant humans with the pigs.

6 It is of interest, however, that the measurements of the long bones of the arms and legs of these children did not conform to those of children who walk; the difference would be expected in children who only crawled, as the length of these bones is regulated to some extent by muscular usage. The inclusion of such details requires unusual sophistication from a person perpetrating a fraud.

7 See S. Freud, "Civilization and Its Discontents," and the radical and untenable extension of the thesis in Norman Brown's book, Love's *Body*.

8 "The vast proportion of all individuals who are born in any society always, and whatever the idiosyncrasies of its institutions, assume the behavior dictated by the society. Most people are shaped to the form of their culture, because of the enormous malleability of their original endowment"—Ruth Benedict (1934).

9 Such ideas and behavior may seem ridiculous to us, and yet they involve insights and wisdom usually absent from our medical practice and concepts of the etiology of illness. Many psychologically minded medical researchers now appreciate how depressive feelings, wishes to die, and states of helplessness and hopelessness contribute to the onset and the worsening of disease. (See G. Engel, 1962, and Chapter 20.)

10 The reader is referred to E. Erikson (1950), B. Whiting (1963), D. Aberle (1951), and M. Carstairs (1957), and R. Lidz and T. Lidz (1976).

11 After a month of intensive work Miss Sullivan had taught her seven-year-old deaf-blind pupil to spell some twenty words. Still, these spelled-out words had not attained the status of symbols. Miss Sullivan was seeking desperately to convey that these finger signs represented a category of things. Like a very young child, Helen Keller confused "mug" and "water" and could not learn that "doll" stood for a new doll as well as for an old one. Miss Keller wrote of the critical day in her childhood when she passed across the barrier: "Miss Sullivan had tried to impress it upon me that 'm-u-g' is mug and that 'w-a-t-e-r' is water, but I

persisted in confounding the two. In despair she had dropped the subject for the time, only to renew it at the first opportunity. I became impatient at her repeated attempts and, seizing the new doll, I dashed it upon the floor. I was keenly delighted when I felt the fragments of the broken doll at my feet. Neither sorrow nor regret followed my passionate outburst. I had not loved the doll. In the still, dark world in which I lived there was no strong sentiment or tenderness. . . . She brought me my hat, and I knew I was going out into the warm sunshine. This thought, if a wordless sensation may be called a thought, made me hop and skip with pleasure. . . . Someone was drawing water and my teacher placed my hand under the spout. As the cool stream gushed over one hand she spelled into the other the word water, first slowly and then rapidly. I stood still, my whole attention fixed upon the motions of her fingers. Suddenly I felt a misty consciousness of something forgotten— a thrill of a returning thought: and somehow the mystery of language was revealed to me. I knew then that 'w-a-t-e-r' meant the wonderful cool something that was flowing over my hand. That living word awakened my soul, gave it light, hope, joy, set it free! There were barriers still, it is true, but barriers that could in time be swept away. . . . Everything had a name, and each name gave birth to a new thought. As we returned to the house every object which I touched seemed to quiver with life. That was because I saw everything with the strange new sight that had come to me. ... It would have been difficult to find a happier child than I was as I lay in my crib at the close of that eventful day and lived over the joys it had brought me, and for the first time longed for a new day to come" (Keller, 1902).

The account is not a retrospective idealization. From that moment Helen Keller learned with avidity, her disposition changed profoundly, and her teacher's task changed from an ordeal of striving to break through a wall to one of teaching the words and supplying a picture of the world around Helen so that she could readily learn what the words meant. It may be important to note that "water" was one of the two words Miss Keller had retained of what she had learned before meningitis left her blind and deaf at the age of twenty months.

12 The matter is now in dispute, as some evidence indicates that verbal facility is not essential to abstract thinking but that visual symbols can suffice. The current studies of teaching chimpanzees to communicate through sign language is pertinent to the problem, but chimpanzee use of language for communication and problem solving is still at a very limited level (Gardner and Gardner, 1971; Rumbaugh et al., 1973)

13 As Freud noted, the sway of instinctual drives and unconscious memories upon the determination of behavior is great, and individuals are not as "free" as they believe when making decisions on the basis of remembered experiences. However, such considerations do not settle the problem of determinism versus free will, and in no way prove that all human behavior is "determined" by the past. The complexity of the neuronal switching systems and the memories "programmed" therein is so great that perhaps little more is meant by free will than that all factors involved in a decision can never be traced and numerous contingencies may be involved. In essence it is a theological problem that does not concern us here.

14 The point is debatable, depending on what is meant by learning. Computers can be programmed to base solutions or responses on cumulative input—one might say to base responses on past experiences.

15 Chomsky (1968) and other structural linguists argue that basic syntactic structure is set by brain structure, a view which stands in opposition to Whorf's (1956) papers concerning basic structural differences in languages such as Shawnee. Piaget (1971), in his book on structuralism, argues convincingly that linguistic syntactic structures are not inherent but develop—a constructivist approach.

16 People cannot pay attention to everything that transpires about them but must be able to focus their attention. Each culture directs its members to what that particular ethnic branch of mankind considers important, what pertinent, and what can be neglected and what must be ignored. One important method by which such filtering and sorting is carried out is through language. The flow of experience must be divided into categories to be thought about, talked about, and even to be perceived. Each culture categorizes experience somewhat differently, and very divergent cultures categorize experience very differently. However, because all humans have the same basic structure and needs and all environments contain fundamental similarities, all languages must have a number of almost identical categorizations. The vocabulary of a language is, in essence, a catalogue of the culture's categories—which children learn as they learn to speak. This topic is considered further in the next chapter.

There are other filtering devices and techniques. A neurophysiological system, the *reticular activating system*, has much to do with helping an individual maintain focal attention. Individuals also acquire filtering techniques in accord with their own experiences and emotional needs. As will be examined in some detail in later chapters, they learn not to perceive, to alter perception, to repress feelings and drives and memories in order to avoid anxiety; that is, they develop "mechanisms of defense." The topic leads into the consideration of cultural taboos and unconscious mentation.

17 Special systems evolved for respiration, assimilation and digestion of food, and for excretion; a circulatory system for the internal transport of chemicals; sensory organs and systems for gaining information about the environment; metabolic organs for the breakdown and manufacture of essential chemical compounds and for the transformation of food, water, and oxygen into a variety of forms of energy—for example, heat, kinetic, bioelectric. To gain information as well as to integrate the bodily functioning, chemical messengers transported in the body fluids were abetted by nerve fibers that transmitted messages with great rapidity. The development of an integrative executive organ in the form of a brain permitted unity of action of the complex organism. This fragmentary sketch seeks only to remind the reader of the inordinately involved integration of any higher form of life.

18 Actually an increase in carbon dioxide which is usually synonymous with a need for oxygen.

19 Schiele and Brozek (1948), in a study of nutrition, placed a group of university student volunteers on a twelve-hundred calorie diet. After a few weeks they quarreled over the number of peas they received and became very irritable. Some broke the diet in minor ways and suffered severe guilt feelings, and several had to be withdrawn from the experiment because they had become emotionally disturbed, probably because they hungered in a setting where the major barriers to eating were their own pledges to maintain the diet. Soldiers starving to death in Japanese prisoner-of-war camps were likely to lose their usual ethical standards, and a man needed a buddy to guard his food when he was too ill to feed himself. Knut Hamsun's *Hunger* and Gottfried Keller's *Der grune Heinrich* present excellent portrayals of the emotions and motives of a starving man.

However, chronic gradual starvation may elude the drive as apathy intervenes. Persons suffering from the psychogenic emaciation termed "anorexia nervosa" may not experience hunger and refuse to eat even when reduced to living skeletons.

20 The theory that pleasure could be equated with tension release was accepted by Freud and has played a critical role in psychoanalytic theory'. Although "parsimonious" it does not fit the facts, and the investigations of Olds (1958) and Delgado et al. (1954) practically force us to accept the concept that evolutionary selection set a premium on reward through pleasure as a separate factor from release from tensions. Stimulation of certain areas in the brain evokes positive responses, and an animal will learn to press a lever or carry out an action in order to have the area stimulated.

21 The author, who studied survivors immediately after their release from three years of starvation in a Japanese prisoner-of-war camp in the Philippines, gained a lasting impression of the force of hunger and starvation as a drive. It was somewhat surprising, however, to observe that soldiers on isolated islands who were deprived of sexual partners for two or three years and lived on a monotonous but adequate diet regularly reported that gradually their "bull sessions" shifted from talk of women and sex to long discussions of the meals they would eat after returning home, and that dreams of food became more common than overt sexual dreams.

22 An essential part of the indoctrination of United States soldiers prior to their entering jungle combat during World War II consisted of impressing them that being fearful did not mean they were cowards and that even the most heroic men were likely to experience fear but managed to surmount the fear and its often very distressing physiological accompaniments. They also had to learn not to break the tension by becoming aggressive and giving away their positions by firing their weapons or dashing out of their foxholes. The "banzai" charges of the Japanese that were often so disastrous to them may well have been related to an inability on their part to withstand the need to do something to alleviate anxiety in the face of continuing danger.

23 Hitler, for example, was brutally beaten by his father almost daily, according to his sister Paula (Stierlin, 1975). I am specifically emphasizing that aggression is not a genetic characteristic that makes murder and warfare an expected characteristic of mankind and therefore to some an acceptable state of affairs because it is inevitable. Two books that express such views, Konrad Lorenz's On Aggression, which considers aggression a human instinct, and Robert Ardrey's The Territorial Imperative, have gained widespread acceptance even though their conclusions are unwarranted. Lorenz's work on "imprinting" phenomena in ground nesting birds (1952) has rightly won him a position as one of the world's leading scientists, but much of the material in On Aggression is outside his field of special competence, and he has chosen to omit an enormous amount of data and evidence that controverts his thesis. Ardrey's book concerning territoriality in animals and the idea that humans defend their national territory instinctively also omits much evidence that many mammals and anthropoids behave very differently; and, in addition, misses the point that peoples defend their culture, their way of life, and right to live it rather than primarily their territories.

I lived for a time among the Fijians, who with their taboo against ambition, self advancement, and individual possessions were among the friendliest persons I have ever encountered. They could easily live off their bountiful volcanic soil and the fish that teemed in the ocean. These friendly and happy people—for I became convinced that as a people they were unusually happy—had not always been such. Just about one hundred years ago they lived in terror and were terrifying and treacherous. They were known among sailors as the most bloodthirsty, flesh-craving cannibals in the world, their islands to be avoided. The people themselves feared to venture alone into the bush, lest they be clubbed by members of a neighboring village and end up at a feast. They were savage and cruel in their constant internecine warfare. To the missionary the Fijis were no paradise, but rather a brief stopover en route to paradise via the cooking pot—a much sought-after assignment by the zealous as a certain route to martyrdom and heaven. Eventually, however, the Fijians were converted to Western medicine and the Christianity the medical missionaries taught. An enlightened British government, to whom the Fijian chief ceded his authority, put an end to interisland warfare and soon induced the Fijians to abolish cannibalism. Then, for the first time, the natives could enjoy their blessed islands. No longer fearing their neighbors, they could live in peace and became men of peace. If the accounts of the early missionaries and travelers can be trusted, a remarkable change in the Fijian personality occurred over the past few generations. They are now fully trustworthy rather than treacherous; they show no suspiciousness of others; they live and let live as only people of dignity and pride can; and they are sure of their enormous strength, enjoying both work and play—and perhaps not clearly differentiating between them. Their ferocity—easy to regard as the untamed ways of the savage-disappeared within two or three generations.

If the fearsome cannibals could change rapidly, once they no longer needed to fear their fellow man, when in fact their dictum was no longer eat or be eaten, there is a chance, at least, that we too may learn to enjoy the bounty available to us—not that from a teeming ocean or a productive volcanic soil, but from our teeming and productive minds.

24 Aggression and hostility are so clearly defensive and protective drives or affects that it is difficult to understand how psychoanalytic theory has, at times, connected them with an inborn "death instinct" or self destructive instinct. However, in humans hostility can readily turn against the self and become self-destructive, even as it can fuse with sexual impulses to become sadism. These theoretic problems need not be discussed at this juncture. The reader is referred to Robert Waelder's discussion of both sides of the question in *Basic Theory of Psychoanalysis*, pp. 130-153.

25 How far this extends to an impulsion toward gaining mastery over tasks, thereby giving rise to a fundamental "drive for mastery," remains an open question (Hendrick, 1943).

26 Certain diffuse states are organized into physiologic patterns in the limbic system of the brain which MacLean (1955) has termed the "visceral brain." It is the oldest portion of the cortex and the part which may well have directed a primitive animal to partially organized behaviors on the basis of olfaction, olfactory memory, and the arousal of drives. Oral drives (concerned with food and its acquisition), attack and defense, and sexual stimulation have centers of organization in the limbic cortex with connections to the hypothalamus, neocortex, reticular activating system, and other centers. The close neuroanatomical connections between centers concerned with sex, aggression, and orality are worth noting. Continuing studies of the "visceral brain," together with those of the areas that arouse feelings of "pleasure" or "unpleasure" when stimulated, are currently

clarifying some of the fundamental neuroanatomical and physiological problems connected with drives and emotions.

27 *Euphoria* is sometimes improperly used for elation. Euphoria is pathological only when inappropriate; thus persons dying of tuberculosis or of multiple sclerosis sometimes are euphoric, despite their miserable states of health. In the case of multiple sclerosis the euphoria reflects the severe damage to the frontal lobes of the brain.

28 The male envy of various capacities of women has generally been overlooked. Bettelheim (1954) attributes the practice of subincision by Australian Aborigines to such envy and the desire of men to give themselves female sexual attributes. In New Guinea the men would seem to deny how minimal their participation is in procreation by the belief that babies are built up from womb blood and semen, the construction of a fetus thus requiring frequent acts of copulation.

29 It may be useful to cite some examples. The Polynesians left India in the remote past, picked up and left influences in Indochina, Indonesia, and New Guinea; eventually they reached Tahiti and then spread out across the expanse of the Pacific in their double canoes. They fused with the Japanese (who had already mingled with the Ainu and later with the Mongols) in Micronesia; with the Melanesians who had migrated from Africa across the Indian Ocean into the South Pacific; with the Maori (wherever they had come from) in New Zealand; with the Eskimo (who had crossed the Bering Sea from Siberia into Alaska); and probably with the Incas and other Amerindians on the coasts of America and in the islands of the Pacific. We might also note the sweep of the Mongols across all of Siberia into Europe, Asia Minor, China, the periphery of India, and over into Japan; or of the Semite Mohammedans into Spain, Sicily, and Italy, and their further intermingling across the trade routes of the Indian Ocean that lasted from the early centuries of the Christian era until the sixteenth century (with Indians, Chinese and the inhabitants of cities on the east coast of Africa); and eventually into Indonesia and beyond. In recent times, of course, the union of races has gained increasing momentum through improvements in transportation and through global wars.

30 The inheritance of certain mutant genetic traits, such as Amaurotic family idiocy or Huntington's chorea, virtually seals the infant's fate. Others, such as limitations in the ability to metabolize sugar as in the diabetic, can present serious impediments that influence individuals' ways of life and the attitudes they develop. Other hereditary characteristics, such as an unusually short or tall stature, an unusually long nose, an inability to perceive red and green or to recognize the pitch of sounds, may or may not influence personality development, depending on where and how a person is brought up.