

Nature's Thumbprint
Peter B. Neubauer, M.D.
Alexander Neubauer

This book is based on Dr. Peter Neubauer's fifty years of clinical practice as a psychoanalyst and researcher and on studies of identical twins. It explores the wide range of inborn inclinations upon which personality is later built. Why are some children more vulnerable to environmental obstacles than others? Why are some parents stymied by children who do not match their expectations, while others respond in positive ways? These are some of the questions tackled in this book.

Herman Hess: "To find for each person his true character, to differentiate him from all the others, means to know him."

Part I: Background

The authors use plenty of fascinating case studies that tell us much about the relationship between heredity and environment and the forces that shape human characteristics and coordinate human growth.

The case studies also explore parents' expectations of their children and how these can either help or interfere with children's development. Children often contradict the fantasies parents have about them and create fear when they do not act in ways that satisfy parents' needs. The case is made that the child is outside our own way of experiencing. The "stranger in our midst" describes that difference despite all the parental love and attachment we may have for the child. The common concept of tradition is also reframed from a pure repetition of the old ways to a living force that is carried forward in order to produce something new.

The authors claim that many human characteristics previously taken for granted as products of childhood rearing and environment are rooted in genetics. Much of what we call personality has an underlying genetic foundation. Even infants can exhibit Type A behavior. Studies show some qualities appear immutable over time, such as shyness, curiosity and flexibility. How are we to see personality traits not as we imagine them in adult terms, but rather as they really exist in early life? Adult traits that only mention parental influences omit the crucial tendencies from infancy that shape how we meet the world. Identical twins may be predisposed to similar illnesses but may have a characteristic mood with which they treat that illness and which is transferred from their parents.

These researchers question whether a most human of traits, empathy, is conditioned by the environment after birth. They say there are basic, genetically coded features of human personality that emerge at birth and influence the way a child orients himself in the world. But not all adult traits have this genetic source. Conditions in the womb, the position of the fetus, access to blood supply, and nutrition can also contribute to these traits.

Maturation

We have been taught that major changes in our lives are determined by our life experiences, including decisions, traumas, strange encounters, powerful teachers, etc. But modern research suggests now that this

notion is quite wrong. “We are not equal to the sum of our experience. Rather our inherited makeup (our endowment) converses steadily with experience and learning, not merely at birth but through the whole of life.”

The book clarifies the distinction between maturation and development. To mature means “to be brought by natural process to completeness of growth.” This differs from development, which is defined as “to unfold; to evolve the possibilities of.”

Many diseases, as well as longevity, tend to run in families. Studies of twins reared apart show markedly similar health issues in each of the twins. Genes may create a *tendency* to pathology rather than any one disorder itself.

In a general sense the individual matures at a pace that is genetically his own, echoing his own emerging individuality. The genetic timetable is more of a rough guideline rather than a train schedule; it is a plan with a specific range of flexibility built into it, flexibility that awaits signals from the outside (environment).

Physical maturation may precede emotional development, or, conversely, a child may understand words and the emotions that go along with them long before she is able to communicate her response in physical speech. The task is to recognize the individual’s rates and modes of growth and give sustenance to them.

Development

The image of the rolling snowball is a poor representation of learning. People do not go out each day acquiring more and more bits of information until they have accumulated enough data that conclusions and decisions naturally appear. What we see is shaped by how we see, and how we see is influenced by our genes.

Life did not treat Ebenezer Scrooge in the kindest way. The miserly, disagreeable fellow we remember was once in love and then his tragedies in life put a crust of hardness on him. The terror-filled confrontation with the past, present and future did not so much change him as it returned him to himself.

The leash between genes and the maturation process is short and tight compared to the much longer and looser links to human development. Identical twins reared apart share *the same timing* of their developmental phases. But what of the role of parental nurturing of a child?

It is an error to assume that everything we do takes its toll on a child and fear that every line will indelibly survive – as though any mistake will always point to our ability or inability as parents, teachers or health professionals. Children are also driven by their own individual make-ups. Nature leaves its thumbprint in a way that inclines us to embrace, tolerate, or reject the situations in which we find ourselves.

There are also deviations to the developmental path – predisposed influences for neurotic conflict. Freud saw that each phase of development and maturation has its own set of corresponding conflicts – which, when resolved, lead to a new phase and new conflicts. He defined health as a condition that allows for the resolution of childhood and adult conflicts – the ability to love and work in spite of these conflicts.

An important point here is that the interaction between parent and child is not the only cause of every emotional difficulty. Our ability to handle some of the hardships of life and to make use of the special love and attention that become available depends upon who we are – on our internal plans for growing and being and on our varied experiences.

Part II: Bridges to the World

Adaptation in general comprises all the psychological adjustments we make to the environment for the purpose of maintaining our ability to function in it. The authors claim that both maturation and development do not follow straight lines from birth to death – they describe changes. We are very adaptable creatures and have developed a range of flexibility that is built-in; through it we can see how our adaptation is genetically grounded.

Suppose each child were genetically programmed to only drink from his own mother's breast. If his mother got ill or died the child would then refuse all wet nurses and bottles and, unless force-fed, would die. Fortunately, evolution did not produce infants who must drink from the mother alone; otherwise, we would not have survived as prosperously as we have.

Some children and adults are more adaptable at birth than others and some are more adaptable in certain areas or at certain times than others. Some may even be too adaptable, with serious consequences in the formation of their identity.

According to Jean Piaget, the child interacts with the world in two ways; by assimilation, she incorporates an understanding of objects from the environment into her mental world, and by accommodation, she modifies her mental world to fit those objects.

Most of us have built-in ranges of flexibility shared by other members of our species. The range for comfort, however, is not the same for every person, nor is it necessarily the same in one person throughout his life. Ranges change, flexibility increases or decreases, and our ability to adapt may prove more or less successful over time. Each stage of growth is defined by its period of special adaptability.

A child of three months may get something out of our trying to teach her to read, perhaps only the happy sensation of interacting with caring adults. But when the child is five years old the same reading lesson may create visibly exciting results, forming sounds from words on a page, from the sound of words, and from words, sentences and suddenly reading whole books by herself.

From infancy to maturity to aging, each phase of growth, to quote Erikson, “has its special time of ascendancy,” and we can say the same for adaptability.

The authors claim that some children may have *too great a capacity* to respond to their environmental offerings. With no developed inner sense of identity or firm sense of self, such children flow too freely in every direction and are molded to “become” anyone they are near.

The Vulnerable and the Invulnerable

Vulnerability and invulnerability are also known as susceptibility and resilience and are characterizations of general patterns of behavior. These are patterns by which people are able or unable to draw the comfort and nourishment they need from the world around them.

One image is described by the psychiatrist E. James Anthony as “the dolls of Jacques May.” One doll is made of glass, another of plastic, the third of steel. When struck by a hammer, the first disintegrates, the second permanently scared, and the last remains unscathed. The first and third dolls are the extremely vulnerable and the invulnerable.

Yale researcher Donald J. Cohen discovered that some infants begin life with an ability to cope with displeasure better than other infants, so these persistent early adaptations shape the child’s style of approach to new developmental tasks. Leave the invulnerable child to his own resources and he may steer himself clear of difficulties; but as often as not, the vulnerable one suffers, unable to fight free, and frequently blames the outside world for his discomfort.

In a case study of identical twins reared apart, the first appeared irritable soon after birth, first diagnosed as colic, but the infant remained in a state of discomfort and restless, unable to be calmed for long. His twin brother was raised by more caring parents but exhibited similar symptoms. Despite all the things his parents tried to do to repair, comfort and soothe, their efforts were thwarted. But if parents take the extra care that is needed for the vulnerable child, that effort can be rewarded both to help foster his self-esteem and reduce our sense of guilt, confusion, and helplessness as parents.

By contrast, some children seem to need relatively little from the world in order to develop, and what they do need they can obtain from even limited resources. The child we may call invulnerable can function in both normally stressful and abnormally difficult conditions of life.

A teenage girl had to flee her town in Germany; she watched her parents – and then her brother – die; and, although spared her life, she was subject to violent sexual abuse over a period of weeks. When she was rescued by Allied forces and then adopted by relatives after the war, she returned with rather unexpected speed to her previous interests and expressed more gratitude toward her adoptive parents than anger at her situation.

This girl’s curiosity for both everything new and the meaning of her past suggests an enduring sense of survival, even though she was deeply burdened, but in spite of her tragedies she proceeded to take from her new life what was offered and what she needed.

How could she feel this way; how could she find the resources within herself for survival, even benevolence? One explanation is that children who have had important or varied early attachments become less prone to stress and trauma later in life. But the authors question carrying this too far to the “blank slate” view of children – as *tabula rasa* organisms onto which only experience draws its signature. It does not completely explain why at birth onward some children are so much more able to have these satisfying early attachments than others are. We need to learn more about the healthy child, especially why some children are more resilient than others, to broaden our view of the interplay between predisposition and environment – coping with stress and trauma.

The Individual “at Risk” in the Environment

The environment can put our development at serious risk – even for the heartiest children. Fredrick II in the twelfth century is renowned as a patron of the arts and sciences, and also for a disastrous experiment with children. Assuming there must be a basic, ancestral tongue all people shared, he ordered parents of children too young to talk to care for them physically but not to talk to them. He assumed that the children would begin to speak all by themselves in this true, original language. But Fredrick never found out its name and, lacking stimulation and emotional nurturing, the children soon died.

History is brewing with examples of neglect – the humanist Jean-Jacques Rousseau placed all five of his illegitimate children in orphanages, which, like the workhouses of Dickensian England, were far from a nurturing environment.

What is often missing in the many child rearing how-to books is awareness that care must also be tailored to fit each child’s disposition. There are some general observations about how to provide for these individual needs. For instance, the timed emergence of two human faculties is especially important to the parent: affect (emotion) and cognition (thought/memory/language). Just as each child has her own sensory and motor apparatus, each expresses her unique affective and cognitive faculties and mode of behaving.

The regard for the child’s development must also be reliable and continuous. Very early on we can recognize signs of children at risk. Their landmarks of development – such as early eye-to-eye contact, the social smile at two months, their exploration of the environment, and the stranger-reaction at seven months – may be delayed or even absent.

If fundamental emotional contact is withheld, a child who is otherwise cognitively stimulated may still feel deprived. Conversely, if cognitive stimulation is withheld but emotional contact is given, a quite different set of difficulties will arise. When parents don’t provide toys, speak to a child, or spark motor activity, they run the risk of reducing brain function – they impede the natural timetables of growth.

But, interestingly, the overstimulated child may develop signs of disorders to those produced by insufficient care. He may appear in need of continual attention from parents and others, want to be center stage at all times, or appear shy, wanting to withdraw from the activity that tends to overload him. Inappropriate care can have severe consequences.

Part III: Nature and Nurture Writ Large

Despite the United States’ history of slavery and continued racism, we struggle with a national mythology whereby no one shall ever be bound by the conditions of his birth. Many immigrants who have come here harbored the hope they could work hard, establish homes, and raise children better off than they were. As a result we have a strange relationship with the concept of the gene.

On one hand, we have anxiety over genetics that have deep and painful roots – among the worst, a shared memory of the Nazi policy of eugenics in the 1930s and 1940s. Heredity has been used as an excuse for prejudice to keep entire groups subordinate to others. One effect is that the genes have taken on the negative role of determining life even before we have had the chance to live it.

On the other hand, the science of genetics excites us; we see headlines of a new science: “Major Personality Study Finds that Traits Are Mostly Inherited”; “Genetic Engineers Prepare to Create Brand-

New Protein.” The conquest of disease amazes us in the same way as does hearing of Mars landings and superconductors.

We have a tradition of reducing units into elements, and elements into subparticles, never to be rejoined as part of the whole from which they came. Western writers, philosophers, politicians, and scientists have decided for themselves how and where to separate the units. But there is a danger with so much splitting – i.e., that it is done too hastily and with bad aim.

We have reached a moment in our history when scientific research can take new steps. Genetic biotechnology will tell us much in the next few years if we listen. Politics must be left out and in the end a fresh and fair approach to understanding both our heredity and the environment that cradles it must be forged.

What has evolution bestowed on our species – incredible order or unflagging flexibility? The cells in the human body each have a nucleus and within each nucleus are twenty-three pairs of chromosomes. Each chromosome comprises thousands of genes, which are proteins. Some genes send signals in the form of new proteins to other genes that turn them on and off. The signals are vital instructions by which our bodies live and breathe.

The same is true for smaller bodies. One of the interesting things about *C. elegans* worm is that during its embryonic stages it can be mashed up quite drastically and will order itself into proper shape again. No matter how the cells are positioned, up or down, the proper wormlike shape will ultimately appear.

But when the worm becomes an adult, it is no longer an amorphous mass, and its cells will not regenerate as they did in the embryonic stage. There is a point in the worm’s development when, if you smash it up, you will kill it. It is at this point in the embryonic development that the cells, which were once flexible, become differentiated by function. The genes of each cell are responsible for differentiation and specificity, coded to turn off and on at set times and by communication with other cells.

Knowing that even bodies of great complexity are ordered by genes allows us to answer many questions about such bodies. However, when we consider minds, personalities, behaviors, cultures, and societies, we move into a larger sphere of questions. The solid information about bodies cannot be directly applied to dimensions such as social behavior with hesitation; what may be a good answer at one level, such as the gene, may be inappropriate, or deadly inaccurate, at another. Genetic determinism – the idea that all aspects of life, not just bodily structure but all behavior and culture, are prearranged by nature – makes this leap too freely.

One reason this leap is suspect is that the neat evolutionary pathway has problems; the point is that not every physical feature has a history of natural selection behind it, nor do all the features of personality and behavior. Some exist independently of the body’s selection and replicate simply because they can, in just enough quantity not to interfere with anything genetically important. Not everything in the body, theoretically at least, can be shown to exist by the grace of a long evolutionary process.

Another reason is the power of environment, which mediates, manages, and alters what genes predispose. Newborn rats revealed a poorer network of nerve cells in the visual parts of their brains when locked alone in dark cages. Experience changes biological structure just as good or bad nutrition changes bodies for better or worse every day.

What about very complex social behaviors such as altruism and religion – what role do genes play in this development, if any? Sociobiologists like Harvard’s Edward O. Wilson have claimed that people are altruistic because genes for altruism benefit the group’s survival and are selected in the course of mankind’s evolution. Sociobiology does not rationalize racism, but it does shorten the leash between genes and behavior more than some believe. But we must be careful to heed warnings of assigning an adaptive behavior to every bodily feature. We have some traits that do not correspond to genes, like kite flying, which is not instinctive. But we may say that human sexual response ultimately is based on a preset genetic order. Each person brings to the world a particular endowment, and each responds to the endowment he selects in his own way.

Nature, Nurture, and Implications for Psychotherapy

The controversy over nature versus nurture has often been at the root of discussions about psychology where theories and insights are often in competition with each other. Thus the nature/nurture controversy is at the heart of the history of psychotherapy, where a tension has existed between heredity and environment. Freud’s legacy is a theory that links both experience and biological demands on psychic life. Some of the misunderstandings of Freud’s ideas can be traced to the fact that he evaluated and revised his theories right up to his death.

Alfred Adler and some other contemporaries of Freud were heavily influenced by the prevailing theory at the time that man’s function is mainly the result of social forces, denying heredity any important role in human development. But the authors argue that was not Freud’s position; rather, Adler said Freud “. . . is an undoubtedly very interesting and worthy man, but . . . he is a fanatic . . . He denies all heredity.” They say that Freud believed that by gaining insight into conflicts and alleviating symptoms, the patient could proceed to be who he is, relatively undisturbed by internal or external conflict. Only then could disposition assert itself, revealing the patient’s individual temperament.

Freud claimed, “Our possibilities of happiness are already restricted by our constitution.” The therapist’s goal is to bring internal biological demands into harmony with external influences. This book shows that external forces mold, encourage, or interfere with the expression of endowment, and endowment responds selectively to the influences of the environment. The authors contend that Freud himself never abandoned his belief in a span of forces, although he is often depicted in caricature either on the side of biology – but most often on the side of early childhood experience.

Still, today constitutional forces are often neglected. They are hard to recognize for one thing, and we tend to shy away from areas we feel we have little influence, such as heredity. Whether the topic is depression or divorce, conflicts are often described only in terms of our psychic dynamics. We often forget that we can encounter limits in the environment as in our bodies: poor nourishment and clothing, missing parents, bad teachers, limited choices of jobs, or an unloving mate.

Part IV: Living without Grandparents: The Loss of Intergenerational Transmission

The structure of today’s family has been reduced from an extended unit of many living branches and generations to a nuclear constellation of mother, father, and children, not to mention further reduction by divorce. In 1960, nine percent of all children grew up in single-parent homes; by 1986, that number rose to 24 percent – 50 percent in families below the poverty line. Grandparents once played a pivotal role in the process of transmission of knowledge and family tradition. Grandparents had the knowledge of what

helped or hindered life's development, and they had the perspective of at least five generations – that of their own parents and grandparents and their children and grandchildren. They also had the knowledge of inherited disease, which could prove to be a crucial database in family health issues.

In Scandinavia, people have begun compiling a computer database of family health issues where a grandparent's diary could help trace the cause of family traits. This can identify a theme of cancer, stroke, alcoholism, or depression that could be followed. Not only diseases, but also a host of other family characteristics, can be traced through our oral history. The process of hearing what life was like for other members of the family is crucial for the child, for it marks a first step toward individualism.

But the developing road to selfhood through individualization is not as easy as it sounds. It can be filled with rivalry, envy and jealousy, or it may stumble from lack of care or a lack of suitable role models. But the child of a larger family has the advantage of temporarily escaping his mother's angry mood or undue expectations by allying himself with a grandparent or uncle or cousin. A baby girl may not be able to be soothed by her mother, but when a grandparent holds her, she will stop crying.

The current reduction in family size may limit or even eliminate the knowledge of intergenerational family history. But in its absence we can create new families among friends and strangers. Yet the anchor that a real family provides is not easily replaced by liaisons with even good and intimate friends. With or without the help of grandparents, our most basic obligation as parents is to be flexible enough to recognize each child's individuality and to provide him with whatever he needs to become who he truly is.

Individuality and Groups

Erik Erikson's dictum that "life does not make any sense without interdependence" rests on the recognition of the individual both alone and within the context of relationships. We as human beings often have difficulty understanding our lives both separately from those around us as well as in coordination with them. We are so adaptable as a species that mankind has never had any single right answer for the structure of our cultures, whether it be nomads, solitary seekers, villagers or mass city dwellers. But we do depend on our parents for many years, much longer than the days or weeks of other animals. So, in some ways, many of us never outgrow that need.

For much of the book the authors have highlighted the importance of the power of genetics, but here we are taken away from a purely genetic view of man. A child must be able not only to assert her own needs, but also to orchestrate her needs with those of others. A group is meant as any number of people who exert pressure and bind the person to them for any number of reasons. Masses of people may submerge their individual needs in a group and accept unquestioningly its ideals.

Extreme social pressures, which are as common today as in the past, may exact a price on individuality. Group ideology may take us away from ourselves for a time, but as total submersion in a group is not ultimately natural, neither is rigid independence. People need others to shape themselves.

The authors of this book do not stand on either the side of nature or nurture controversy, but look past these overly simplistic labels and into the core of their interrelationship. This relationship is unique for each individual. Each of us is literally a brand-new experiment of nature – to recognize who we are in order to plan where we might go.