1914. At this period, Jung underwent a period of personal turmoil and, like Freud at a similar juncture in his own life, undertook a thorough self-analysis based on his dreams. Jung also explored myths and symbols, an interest he was to investigate further in the 1920s with trips to Africa and the southwestern United States to study the myths and religions of non-Western cultures.

Jung developed his own system of psychoanalysis, which he called analytical psychology, that reflected his interest in symbolism, mythology, and spirituality. A major premise of analytical psychology is that the individual personality, or psyche, functions on three levels. The ego operates at the conscious level, while the personal unconscious includes experiences that have been repressed, forgotten, or kept from consciousness in some other way. It is also the site of complexes—groups of feelings, thoughts, and memories, usually organized around a significant person (such as a parent) or object (such as money). At the deepest and most powerful level, Jung posited the existence of a racial or collective unconscious, which gathers together the experiences of previous generations and even animal ancestors, preserving traces of humanity’s evolutionary development over time. The collective unconscious is a repository of shared images and symbols, called archetypes, that emerge in dreams, myths, and other forms. These include such common themes as birth, rebirth, death, the hero, the earth mother, and the demon. Certain archetypes form separate systems within the personality, including the persona, or public image; the anima and animus, or gender characteristics; the shadow, or animal instincts; and the self, which strives for unity and wholeness. In Jung’s view, a thorough analysis of both the personal and collective unconscious is necessary to fully understand the individual personality.

Perhaps Jung’s best-known contribution is his theory that individuals can be categorized according to general attitudinal type as either introverted (inward-looking) or extroverted (outward-looking). The psychic wholeness, or individuation, for which human beings strive depends on reconciling these tendencies as well as the four functional aspects of the mind that are split into opposing pairs: sensing versus intuiting as ways of knowing, and thinking versus feeling as ways of evaluating. If any of these personality characteristics is overly dominant in the conscious mind, its opposite will be exaggerated in the unconscious. These pairs of functions have been widely adapted in vocational and other types of testing.

From 1932 to 1942, Jung was a professor at the Federal Polytechnical University of Zurich. Although his health forced him to resign, he continued writing about analytical psychology for the rest of his life and promoting the attainment of psychic wholeness through personal transformation and self-discovery. Jung’s work has been influential in disciplines other than psychology, and his own writing includes works on religion, the arts, literature, and occult topics including alchemy, astrology, yoga, fortune telling, and flying saucers. Jung’s autobiography, Memories, Dreams, Reflections, was published in 1961, the year of his death. Institutes of analytical psychology have been established throughout the world, although its international center remains the C.J. Jung Institute in Zurich, founded in 1948. Jung was a prolific writer; his collected works fill 19 volumes, but many of his writings were not published in English until after 1965. Shortly before his death, Jung completed work on Man and His Symbols, which has served as a popular introduction to his ideas on symbols and dreams.

See also Archetype; Character; Extroversion; Intversion

Further Reading

Just noticeable difference

Scientific calculation of the average detectable difference between two measurable qualities, such as weight, brightness of light, loudness of sound.

When we try to compare two different objects to see if they are the same or different on some dimension (e.g., weight), the difference between the two that is barely big enough to be noticed is called the just noticeable difference (JND). Just noticeable differences have been studied for many dimensions (e.g., brightness of lights, loudness of sounds, weight, line length, and others).

The human sensory system does not respond identically to the same stimuli on different occasions. As a result, if an individual attempted to identify whether two objects were of the same or different weight he or she might detect a difference on one occasion but fail to notice it on another occasion. Psychologists calculate the just noticeable difference as an average detectable difference across a large number of trials. The JND does not stay the same when the magnitude of the stimuli change. In assessing heaviness, for example, the difference between two stimuli of 10 and 11 grams could be detected, but we would not be able to detect the difference between 100 and 101 grams. As the magnitude of the stimuli grow, we need a larger actual difference for detection. The percentage of change remains constant in general. To detect the difference in heaviness, one stimulus would have to
be approximately 2 percent heavier than the other; otherwise, we will not be able to spot the difference.

Psychologists refer to the percentages that describe the JND as Weber fractions, named after Ernst Weber (1795-1878), a German physiologist whose pioneering research on sensation had a great impact on psychological studies. For example, humans require a 4.8% change in loudness to detect a change; a 7.9% change in brightness is necessary. These values will differ from one person to the next, and from one occasion to the next. However, they do represent generally accurate values.

Further Reading

### Juvenile delinquency

Chronic antisocial behavior by persons 18 years of age or younger that is beyond parental control and is often subjected to legal and punitive action.

According to the Federal Bureau of Investigation (FBI) and the Centers for Disease Control (CDC), the arrest rate of American juveniles (persons 18 years of age or younger) committing violent crimes increased from 137 percent in 1965 to 430 percent in 1990. While teenagers are the population most likely to commit crimes, their delinquency is related to the overall incidence of crime in society: teen crime increases as adult crime does. The majority of violent teenage crime is committed by males. While the same delinquency rates are attributed to both whites and nonwhites, nonwhites have a higher arrest rate.

In spite of the emotional turbulence associated with adolescence, most teenagers find legal, nonviolent ways to express feelings of anger and frustration and to establish self-esteem. Nonetheless, some teenagers turn to criminal activity for these purposes and as a reaction to peer pressure. A number of factors have been linked to the rise in teen crime, including family violence. Parents who physically or verbally abuse each other or their children are much more likely to raise children who will commit crimes. In a study conducted in 1989, for example, 80 out of 95 incarcerated juvenile delinquents had witnessed or been victims of severe family violence. A similar incidence of abuse was found in a study of teenage murderers.

The growing poverty rate in the U.S., particularly among children, has also been attributed to juvenile delinquency. In the late 1980s, the National Education Association predicted that 40 percent of secondary school students will live below the poverty line. The anger and frustration of low-income youths excluded from the “good life” depicted in the mass media, coupled with the lack of visible opportunities to carve out productive paths for themselves, lead many to crime, much of it drug-related. A dramatic link has been found between drug use and criminal activity: people who abuse illegal drugs, such as cocaine and heroin, have been found to commit six times as many crimes as non-drug users.

For many poor inner-city youths, juvenile delinquency begins with participation in the drug trade. Children as young as 9 or 10 are paid as much as $100 a day to serve as lookouts while drug deals are taking place. Next, they become runners and may eventually graduate to being dealers. The introduction of crack cocaine, one of the most powerfully addictive drugs in existence, in the mid-1980s, has contributed to drug-related delinquency. The neglected children of crack-addicted parents are especially likely to be pulled into the drug culture themselves.

The wealth gained from the drug trade has further escalated levels of juvenile delinquency by fueling the rise of violent street gangs. Many gangs are highly organized operations with formal hierarchies and strict codes of dress and behavior. With millions of dollars in drug money behind them, they are expanding from major urban areas to smaller communities. Teens, both poor and middle-class, join gangs for status, respect, and a feeling of belonging denied them in other areas of their lives. Some are pressured into joining to avoid harassment from gang members. Once in a gang, teens are much more likely to be involved in violent acts.

The juvenile justice system has been criticized as outdated and ineffective in dealing with the volume and nature of today’s teen crime. A teenager must be either 16 or 18 years of age (depending on the state) to be tried as an adult in criminal court, regardless of the crime committed. Child offenders under the age of 13 are considered juvenile delinquents and can only be tried in family court, no matter what type of crime they have committed. Unless the offender has already committed two serious crimes, the maximum punishment is 18 months in a youth facility. Teenagers between the ages of 13 and 16 are classified as “juvenile offenders.” They are rarely photographed or fingerprinted, even in cases involving rape or murder, and usually receive lenient sentences. Most are confined for periods of less than four months.

Of approximately 2 million juveniles arrested each year, an estimated 50 percent are released immediately. Those whose cases are tried in court are often given suspended sentences or put on probation. Of those who are