

A LINE ON LIFE

8/25/88

Islands of Genius *

David A. Gershaw, Ph.D.

Leslie Lemke — born mentally retarded, blind, and suffering from cerebral palsy — sat down at the piano for the first time and played an almost perfect rendition of Tchaikovsky's First Piano Concerto!

Bob, now in his sixties is a "*calendar calculator*" — he can name the day of the week for any given date since 1947. He gives most of his answers in less than 8 seconds! Yet Bob is mentally retarded. He lives in a foster home, because he cannot even manage simple daily living skills.

Although these people would perform below normal on any conventional measure of intelligence, they have fantastic abilities in very limited areas. In the past, psychologists have referred to such people as **idiot savants** — a term that literally means "*learned idiots*."

However, this term is not really correct. First, although they are mentally retarded, they are not idiots — those at the lowest level of intelligence. Also they are not savants — people with great knowledge. Their amazing talents — most often in the areas of music, art, mathematics, calendar calculation or memory for obscure facts — are in sharp contrast to their low levels of general functioning. Psychologists estimate that less than one percent of mentally retarded people have some sort of "*savant*" talents.

In addition, an estimated 10% of **autistic** people have these "*savant*" abilities. Autism is a disorder that affects communication, learning and emotions — and sometimes includes mental retardation. Autistic people shun human relationships but may become completely absorbed with mechanical objects.

Researchers still cannot explain the rare abilities of these retarded and autistic people. Some claim that savant abilities are based on photographic memories — or similar "*phonographic memories*" for music. For example, after Leslie Lemke hears any piece of music *just once*, he can reproduce that piece on the piano.

Others have speculated that savants' talents are based on a remarkable ability to concentrate without getting distracted, tired or bored. As one psychologist concluded:

"I think retarded savants tune out everything else in the world but the one thing that is of interest to them."

Researchers have also noted that the special abilities of the savants are of the type that most people process on the *right hemisphere* of the brain. Language, logic and abstract

thought are typically processed in the left hemisphere of the brain. Intelligence (IQ) tests emphasize these left hemisphere functions. In contrast to these functions, music, art and spatial skills are processed primarily in the right hemisphere of the brain. For example, the method used by calendar calculators like Bob may involve some sort of visual or spatial images of calendar-like configurations. This would involve the right hemisphere of the brain.

Many types of retardation affect both hemispheres. However, it is possible that some types of retardation affect the left hemisphere of the brain while permitting development of the right hemisphere. The potential for development of right-hemisphere skills is possible, and they may be far out of proportion to the person's linguistic and conceptual abilities. Thus it may lead to the development of a single, very special skill — while the ability to get along in the everyday world is relatively restricted. Essentially what you have is an island of genius in a sea of retardation.

* Adapted from Zick Ruben & Elton McNeil's *Psychology: Being Human*, Harper & Row Publishers, 1987, page 193.