

people

Human Resources
In North Carolina



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MENTAL HEALTH

The Web of Man's Behavior

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What do the webs that spiders build have to tell us about man's behavior?

Why were spiders chosen for a trip aboard Skylab, America's first manned space station?

The answers to these and other questions about spiders and their uniqueness as subjects of research studies lies with Dr. Peter Witt, a pharmacologist originally from Switzerland and an internationally-known researcher whose laboratories are housed at Dorothea Dix Hospital in Raleigh, one of North Carolina's four state psychiatric hospitals.

Here, Dr. Witt, who is also director of the Department of Mental Health's research division, is watching his spiders weave a new web of knowledge about the complex nature of man.

The field of research has long been a subject of considerable interest and intrigue. This is particularly true in the field of mental health where authorities believe that research holds the key to preventing or curing the causes of mental illness. And so, researchers believe this dramatically underscores the need for uncovering preventive measures as soon as possible.

Thus far, Dr. Witt's research on spiders has been concentrated on the effects that environment and drugs have on web building. For example, take Ara, a female Orb

spider. Every morning Ara rises early, gets a dose of LSD, and spins her web. She usually sips the drug from the needlepoint of a syringe and then weaves her web for twenty minutes or so inside a glass and aluminum flask that is her makeshift home.

The female Orb spider, or cross spider, was chosen for his experiments, Dr. Witt said, because males are poor weavers and thus they are never used. And the spider was chosen because no other animal provides us with such a predictable and meaningful record of behavior.

Teamed with Dr. Witt and an IBM computer, Ara is helping us learn more about the behavior of man. Why do we behave the way we do? Are we born with our behavior patterns or are they learned after birth? Can these patterns be changed?

After many years of research, Dr. Witt knows the kind of webs that the Orb spider will build and also that web building is the spider's strongest instinct because this is the method used to secure food. Therefore, he knows he can depend upon Ara to build a web practically every day.

Dr. Witt and his research assistant, Mrs. Mabel Scarboro, along with medical and psychology students from UNC-Chapel Hill, Duke and N. C. State universities, administer drugs daily to 100 of

the 150 spiders used in the experiments. A group of fifty spiders comprises the control group and receives no drugs at all. A second group of fifty spiders take one drug while a different drug is administered to the third group.

Many classes of drugs are used in the experiments including tranquilizers, amphetamines, barbiturates and hallucinogens.

In the IBM computer is stored a master web, a composite of many normal webs. The computer compares the webs spun by drugged spiders with the master web and records the numerical differences.

The webs spun by normal spiders are near works of art. Free from dust and wind, they are practically perfect. But webs spun by drugged spiders have incomplete spirals, patchworks of holes and awkward angles.

From his experiments, Dr. Witt is finding subtle differences in the way that drugs affect man's brain and his body. For example, two common hallucinogens—mescaline, derived from a cactus, and psilocybin which comes from a mushroom, produce similar results when given to man: they both affect the mind and muscle. The drugs cause hallucinations ranging from visions of monsters to a feeling of oneness with God, and in some cases even produce slow breathing rates, heartbeat and incoordination.