



Yale University

**MOA BIRD SKELETON**—Dr. Edward S. Deevey Jr., Yale University biologist, checks the nearly complete 4,000-year-old skeleton of a *Euryapteryx*, an extinct moa bird he discovered during a recent expedition to South Island, New Zealand.

## PSYCHOLOGY

## Mind Thinks in Two Ways

The unusual combinations of ideas and images sometimes created by the dreaming mind are the result of thinking processes unlike those of the waking or sleeping mind.

► **THE HUMAN MIND** is apparently capable of two different kinds of thinking—the thinking of dreams, and the thinking of wakefulness and deep sleep.

Deep sleep thought processes appear to resemble those of normal waking hours, but the process by which the dreaming brain links ideas into new, sometimes unusual, combinations, is quite different.

Dr. Howard Shevrin of the Menninger Foundation in Topeka, Kans., worked with 10 test subjects to verify the strangeness of the dream state, long ago recognized by Sigmund Freud.

The psychologist flashed two pictures, one of a cap and one of the number 10, in front of his subjects before they went to sleep. His intention was to discover whether the subjects, upon awakening from that stage of sleep associated with dreaming, REM or rapid eye movement, would combine these two words into a new concept, "captain."

He expected they would not make such a connection after deep, or non-REM, sleep in which dreams are not usually reported.

To test the hypothesis, Dr. Shevrin studied about 100 awakenings, half from REM, half from non-REM. Each time the subject was asked to describe his experience before awakening, whether a dream or just a thought. Next the subject was asked to free associate, to say whatever words were on his mind.

Neither the words nor their images

turned up in dreams, but they did emerge through free association, said the psychologist.

After REM sleep, which produced dreams in 90% of the cases, subjects named words associated with "captain," such as "sailor," "ship," or "ocean." Evidently they had combined the sounds of the two words "cap" and "ten" while still under the influence of dream-thinking.

But after the subjects woke from non-REM sleep, Dr. Shevrin discovered the opposite effect. They named words related to each picture separately, as they would during waking hours. No transformation had taken place.

Perhaps the kind of thinking dominant during whatever stage of sleep was interrupted carried over briefly to wakefulness, Dr. Shevrin told **SCIENCE SERVICE**.

Some question has arisen lately about non-REM or deep sleep. Formerly considered a quiet, dreamless state, non-REM has reportedly produced some dreams.

In Dr. Shevrin's experiment, subjects did in fact report non-REM experiences 60% of the time. Often the experience was described as thinking rather than dreaming. But once in a while, the subject said he had dreamed.

This could mean there are two kinds of dreams, said the psychologist. It could also mean the non-REM experience is not a true dream.

Possibly true dreaming, with its combina-

tions, disguises and complex levels of meaning, occurs only during active REM sleep. If this is the case, then thoughts occurring in deep sleep, though they take on dream-like images, are actually duplications of real life situations—literal, logical and devoid of hidden meaning.

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## SOCIOLOGY

## Experimental Approach To Mental Health Needed

► **THE HILL PEOPLE** of Appalachia are fully capable of solving their own social and psychological ills, if given the chance, a Government publication reported.

Of immediate necessity is an experimental approach to mental health service. This means using Appalachians themselves in an indigenous, psychiatric program, the National Institute for Mental Health (NIMH) recommended in a booklet "Mental Health in Appalachia."

By training Appalachians as psychiatric aides rather than relying on hospitals and clinics, services could be expanded and unemployment in Appalachia curtailed.

Psychiatric services are now grossly inadequate. Usually the closest help is the state hospital 150 miles away. Even if the mountain people could get there, they probably would not get the kind of help they need. Poverty funds from the Office of Economic Opportunity are directed toward building roads and bringing in industry. OEO money is not available for mental health programs.

These Appalachians have a strength and resourcefulness which makes them particularly suited to helping themselves, observed the report.

Their strength derives from strong family ties and cultural values emphasizing work and thrift, as well as a long tradition of individual independence. Their attitudes are definite, almost rigid. The hill Appalachians recognize no gray areas between right and wrong, morality and immorality. Such strength of character contrasts with the "pervasive apathy and dependency" of many urban slum dwellers, noted NIMH.

In addition to training psychiatric aides, the program should enlist teachers, clergymen and store owners in a mental health information service, the report recommended. Thus, those closest to Appalachian families would know how and where to get help.

Throughout the hills old people are living alone in nearly total isolation, waiting to die. Younger people have emigrated or are too poor to help. Also isolated are handicapped children—psychotics, epileptics, neurotics, the blind, deaf and retarded. Services for checking hearing and eyesight are inadequate and it is almost impossible to arrange an examination for the child with possible brain damage.

If psychiatric services can be designed with an understanding of Appalachian culture, they will have an excellent chance of success, NIMH believes.

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