IS THE ABILITY TO USE LANGUAGE UNIQUELY HUMAN?

JOHN W. KLOTZ*

Received July 7, 1980

More and more evidence is appearing to show that the claims to have taught apes a language, which were heard so commonly a few years ago, are at least premature, and most likely unfounded. It still appears that language is an exclusively human ability.

There is no doubt that there are many similarities between man and other animals and that the number of similarities is largest when man is compared with the anthropoids. Evolutionists have had a field day in listing the similarities and in challenging creationists to deny that they are evidence of descent from a common ancestor. Actually, though, there is no reason why God should not have used the same general plan in creating many, if not most, of His creatures. Why be so arrogant and dictatorial as to demand a separate plan and design for each kind? A common general plan with the same DNA and the same metabolic processes is not evidence of a common origin but rather of a skillful and wise Creator.

What critics conveniently forget, moreover, is that there are also many differences between man and the anthropoids, most of which are probably of little significance but some of which are important. For instance, man has relatively short arms but a relatively long thumb. He has a bridge on his nose and a prominent nasal tip. His head is hinged to the top of his spinal column, not on the side. He lacks thumbs on his feet. All three of his molars are of approximately the same size and his canine teeth project little if at all below the level of the molars.

Perhaps the most significant difference between man and the anthropoids is man's ability to use language and to develop a culture. He can communicate in abstract terms and can convey concepts. It is true that many animals communicate. They warn, they call attention to food, they use sounds to teach their young. However, until recently it was believed that only man could really use language and that this fact accounted for the culture which he has developed and for his ability to learn vicariously from the past. Because of this ability to use language only man has a history which he can pass on to his children and descendents.

Of course, there is a long history of attempts and claims to communicate with animals.

Early efforts to teach animals to communicate in the fullest sense of the word were unsuccessful. From time to time there were animals that were supposed to be able to think, to reason and to communicate. By 1937 there were more than seventy so-called "thinking" animals: dogs, cats, and horses. In the 1950's a number of such claims were made for dolphins. Of late, however, most of the claims have been made for chimpanzees and gorillas. One chimpanzee eventually learned to make and to recognize 125 signs. Psychologists from the University of Nevada taught a chimp named Washoe to use 132 signs. A female gorilla named Koko is reported to have learned more than 400 signs.

Originally efforts to teach primates, particularly chimpanzees and gorillas, to communicate were unsuccessful. These early efforts failed, it was suggested, because the animals are physiologically incapable of producing the sounds needed for vocal speech. Then came the idea of teaching communication by other than sounds. In the 60's there was a wave of attempts to teach American sign language, and other types of language which do not require vocalization, to what were believed to be man's closest relatives.

But are these anthropoids able to use language as man does? Part of the problem is the philosophical one revolving around the question of the nature of language. There is still no general agreement about what does or does not constitute language. Are these apes communicating? Are they using words or symbols? Can we determine what an ape is thinking when he does use a sign or some other symbol? Do apes have the same interests and concepts we have? Do they understand such things as work and play, love and hate, life and death? Or are they responding to conditioned reflexes —probably the most common current explanation.

While there is still a lack of agreement as to what constitutes language, most linguists agree that two elements are necessary: first, the words or signs must be symbols for something and recognized as such by the user, and second, the words must be combined with one another to form novel phrases or sentences that are understandable by others. The second criterion requires that there be at least rudimentary grammatical rules and that these be followed.

Two general ways for studying the problem of animal language have developed. Some investigators use American sign language with their animals. They raise gorillas or chimpanzees in a highly social, family-like environment in which the animals are exposed to sign language in much the same way as human infants who are deaf are exposed to sign language. These investigators assume that language is a social behavior developing out of the parent-infant bond. Later the apes' linguistic capacities are assessed by comparing their language development with that of human children.

Other investigators have developed artificial languages for testing the communicative abilities of chimpanzees. One of these has used a set of plastic chips of various sizes, shapes and colors to represent words. Another team has developed a system of geometric symbols which they call lexigrams and which are displayed on the keyboard of a computer. The computer records every use of the lexigrams by the chimpanzees. Their

*John W. Klotz, Ph.D., is Director of the School for Graduate Studies, Concordia Seminary, 801 De Mun Avenue, St. Louis, Missouri 63105.

results have not been as successful as those of investigators who use sign language.

Proponents of these two approaches have regularily criticized the methods of the other as flawed, because they are subject to cuing of the animal's responses by the investigators. This criticism is especially interesting in the light of the general criticisms which have emerged lately, for the latest research suggests that these anthropoids are not learning to use language at all; but rather that what have been interpreted as instances of language usage are actually responses to conditioned reflexes. One investigator suggested that all of these are really instances in which *Homo sapiens* was made the servant of the apes. The animals have learned that the use of certain signs or symbols are ways of securing a reward, and it is this reward that they seek rather than the communication of a thought or concept. Through these signs or symbols the crafty ape obliges man to supply what he wants.

Much has been made of the development by anthropoids of sentences or word combinations. One is said to have designated a watermelon as a "drink fruit," a swan as a "water bird" and a zebra as a "white tiger." It is possible, though, that these are not instances of sentences or word combinations. The ape may have seen the swan swimming in the water and have been moved first to sign the symbol for "water" and then the symbol for "bird."

One complication has been the subjectivity of researchers in selecting their evidence. For instance, one anthropoid was asked to give the sign for "drink" and made the proper gesture except that he touched his ear instead of his mouth. One psychologist explained this deviation by assuming not that the animal was making a mistake but that he was joking. If the animal smiles while asked to frown he may be said to be displaying a "grasp of opposites." Obviously if mistakes can be explained in this way, a wide variety of what appeared to be mistakes at first glance can actually be used to support the individual's thesis and to demonstrate that apes do show insight and can use symbols;[1] indeed, such arguments could purport to prove anything.

Perhaps some of the most significant studies are those which have been carried on with a young chimpanzee named "Nim." His full name was "Nim Chimpsky", a play on the name of Professor Noam Chomsky of Massachusetts Institute of Technology, a staunch proponent of the idea that language ability is biologically unique to humans. The researcher, Herbert Terrace, expected to be able to prove Chomsky wrong and to show that creatures other than man could indeed conquer syntax and link words together into sentences.

Nim was put through forty-four months of intensive sign language drill and treated as a child. While the initial results seemed favorable, Terrace reports that Nim never mastered even the rudiments of grammar or sentence construction and that his speech did not grow in complexity. Phrases spoken by children increase both in length and complexity as they grow older; the average length of Nim's utterances remain stuck at around 1.5 signs during the last two of the four years he underwent training. Moreover 88% of the time he talked only in response to specific questions from his teacher.

As a result of these findings Terrace began to review the reports and video tapes of other experimenters and reached the conclusion that there were rarely any "spontaneous" utterances. What seemed at first glance to be original sentences emerged largely as imitations of signs made by the teacher or responses that the anthropoid had learned to associate with reward. Indeed, Nim himself in as many as 40% of the cases merely repeated the signs made by the trainer without adding new ones of his own. Even when he expanded on the signs used by his trainer, he tended to use signs that did not add any new information.[2]

Terrace's work has been criticized because he used some sixty trainers, many poorly trained in American sign language. His opponents charged that communication is the binder of a relationship such as that between Nim and his trainers. By having so many changes critics have charged that the relationship necessary for a language to develop was disturbed and de-emphasized. Terrace, however, has pointed out that in spite of the changes there was a core group of about six persons who did most of the training and of whom Nim became quite fond. This was approximately the same size as the groups that have worked in training other apes.

Many of these developments with anthropoids are now believed to be instances of the "Clever Hans" effect. Around the turn of the century a retired school teacher by the name of Wilhelm Von Osten exhibited a German horse which could apparently count by tapping out numbers with his hoof. There is little doubt that Von Osten sincerely believed he had taught Hans to solve arithmetical problems and to add and subtract. What he didn't know was that he was involuntarily providing the horse with cues as to when he should stop his hoof taps. Apparently in most cases Von Osten gave an unconscious cue by moving his head ever so slightly; and Hans was able to detect head movements as slight as $^1/_5$ of a millimeter. In other cases there were changes in facial expression, breathing patterns, or even eye pupil size, so that Hans learned when he needed to stop stomping.

Man has great difficulty in being objective. He often finds what he is looking for. The dolphin communication studies of the 50's have now been discredited. It is believed that the dolphins' behavior can be influenced by the use of positive conditioning and that the investigators were using this method without being aware of it. Similarily some believe that police dogs are not the excellent trackers they are purported to be but that they respond to unwitting clues provided by their handlers. Thus reported instances of apes learning the sign language may be due to "the age-old burning desire of mankind to take up language contact with animals."

So the purported ability of apes to learn language and to communicate in sentences seems to be another instance of wishful thinking, and the gap between anthropoids and man remains the same chasm that it was before these experiments were begun.

(Continued on page 226)