

## HOW TALK BEGAN

SIR RICHARD PAGET

**T**HERE is probably no single accomplishment in which man excels the rest of the animal kingdom more than in that of "putting it across", that is, in communicating his thoughts by speech and writing. All the higher animals have, no doubt, the power of making themselves understood, more or less, by their fellows. They make great use of emotional cries, — for example, of warning, challenge, fear, joy, anger, pain, or love. They also use bodily gestures for the same purpose, — as when a dog wags his tail or shows his teeth or licks his master's hand. The higher animals also explain themselves by gestures, — as when a dog pulls at his mistress's skirt to "ask" her to take him out for a walk, or goes to call for help in the case of an accident to his master and personally leads the rescue party to the spot.

It is clear, however, that the "language" of the animals is a very imperfect instrument of communication, and that only the most rough and ready messages can be "put across" by such sounds or gestures as animals use among themselves. Further than this, the animals have (so far as I know) no method of recording their ideas. It follows from this that the knowledge and experience acquired by the individual animal can not be made available to his fellows or successors.

The nearest approach, in my recollection, to a method of recording ideas is the device in use among the bees for indicating the presence of good honey (nectar) or good pollen. According to the observations of a German scientist published about two years ago, the bee who found good honey deposited near the spot a drop of scent to advertise the find and returned to the hive, where she performed a ceremonial "honey" dance. Whereupon, all the other workers who required honey went out and searched for the scent mark. If, on the other hand, the original worker bee found good pollen, she scented the spot as before, but, on returning to the hive, performed a different kind of dance which signified finding pollen. Here then, is a combination of a gesture or sign language with a method of recording by marking the site of the objects referred to by the signs.

According to Professor H. F. Osborn of the American Museum of Natural History, — and there is no better living authority, — man has led a separate existence on this planet for something like two million years. The beginnings of his invention of the art of speech are, therefore, almost unimaginably remote. Yet it is possible, by the study of speech, even as we have it to-day, to form some idea of how it began. By experiment as to the actual nature of the various speech sounds and by comparing the sounds with the “posture” or “gestures” of the tongue, lips, and other vocal organs, a rather surprising conclusion is reached.

It appears that in listening to human speech we are not really interested in the *sounds* of the speaker's voice. What we are actually listening for are indications of the movements, — postures or gestures, — the speaker is making with his organs of articulation, that is to say, his lips, tongue, soft palate (which opens and closes the passage to his nose), and the other movable parts of his throat. In other words, it appears that when we talk, we are symbolizing our thoughts (or such of them as we intend for publication) by making a kind of sign language, and that when we listen to another person talking we are reading his sign language “by ear”. Our method of understanding speech is, therefore, exactly the same as that of a deaf person who has been taught “lip-reading”, only he lip-reads by eye, while we do the same thing by an unconscious process of decoding the sounds of speech back into the sign language of tongue and lips which produced them.

The method by which the sign language of articulation was originally developed can, of course, only be guessed at, — and by a big guess at that, seeing that we have to guess across a million years or two. But the case is not hopeless. Let us imagine that man, in his most primitive state of civilization, behaved not unlike the higher animals now, and that he expressed his emotions by emotional cries and explained himself by gestures of his face and limbs generally. As he became more and more engrossed in the arts and crafts, — chipping flints for knives, axes, and arrows; pursuing the chase; making bone needles; piercing shells for the use and ornament of his lady friends, and so on, — his hands would obviously become more and more occupied. It became inconvenient to be always using his hands to “explain” himself;

he tended to make his sign language more with his face and finally with his mouth and throat.

Then he made a great discovery! He found that if he produced his sign language *entirely* with his tongue, lips, and throat, and made an emotional cry at the same time, the emotional cry acted as a "carrier wave" for the gesture of the mouth and throat, so that the gesture itself could be recognized by ear, — even in the dark or when his correspondent was far away or even out of sight.

So far so good. But how did our primitive ancestor decide on the appropriate gestures to make with his mouth and throat? Such an entirely new art could hardly be "invented" in the popular sense of the word; it must have grown up by a gradual and natural process out of something which existed before. The answer, I believe, is that man started to speak by imitating with his tongue and other vocal organs the gestures which he had previously made with his hands, or rather with his hands and face together.

Let us see how such a plan would work out in practice. His old, original gesture for "little" would be to represent something small with his hands. His corresponding speech gesture would therefore be to make a small mouth, bringing his tongue forward near his lips and partly closing his lips so as to make a small cavity. His hand gesture for "big" would be one which represented something big; so his speech-gesture would be to make a big mouth, with large opening of the jaws and tongue far back.

It is not necessary to run through his whole vocabulary; but two other instances may be cited for the sake of the sequel. To represent the idea of "dig" or "digging", our primitive friend would no doubt try to dig with his tongue, unless he preferred to represent the idea by imitating the action of a badger, — which is what the Red Indians actually did in their sign language. Let us take the first alternative and try to dig with our tongue. I imagine that we start with the tongue as high as possible, touching the roof of the mouth just behind the teeth, and then drive it down vigorously till the tip of the tongue is behind the lower teeth; then for the upthrow, we jerk the tongue up and slightly backward till it just touches the roof of the mouth again. This series of movements makes a fairly good imitation of a digging gesture.

Lastly we will take the idea of shaking, like shaking a mat. That is simple: the tongue is just shaken up and down inside the mouth so as lightly to touch the roof of the mouth and the floor of the mouth behind the upper and lower teeth alternately.

Now let the reader try these "signs" for himself and see what kind of spoken word results when the gesture is accompanied by a humming sound made by his vocal chords to act as the "carrier wave". The little mouth now makes a "word" like *ee-ee* or *ii-ii* (as in French), according to the extent to which we close our lips. The big mouth makes a word like *aw-aw* or *ob-ob*, in the same way. The digging gesture sounds like *tab-dee* or *tab-ree*; while the shaking gesture makes *olly-olly* or *orry-orry*.

The interesting fact was brought to my notice by Dr. Neville Whyman, — an expert on the Polynesian, Japanese, and Chinese languages, — that in certain early forms of those languages the word for little is *i-i* (pronounced *ee-ee*); big, *o-bo*; dig, *tadi* (pronounced *tah-dee*); shake, *ore-ore* (pronounced *orry-orry*).

It can hardly be supposed that these four words have all lasted for a million years or more and really represent the first human efforts at mouth pantomime as a means of expressing human thought. The more probable explanation is that the method of making symbolic or pantomimic gestures with the human mouth and throat is as natural to *bearing* man as the making of corresponding gestures with the hands is to those who are born deaf. If that is so, the same sort of gestures would tend to be invented in succeeding ages. I lately came across a case which gives definite support to this idea. It was that of a boy who, up to the age of three and a half or four years, had not learned to speak his mother tongue (English) but used a language of his own. In that language little was called "ee-ee", big was called "oh-oh"; a dog was called "ba", probably made by imitating the action of a dog in barking; and so a big dog was "oh-oh ba" and a little dog was "ee-ee ba".

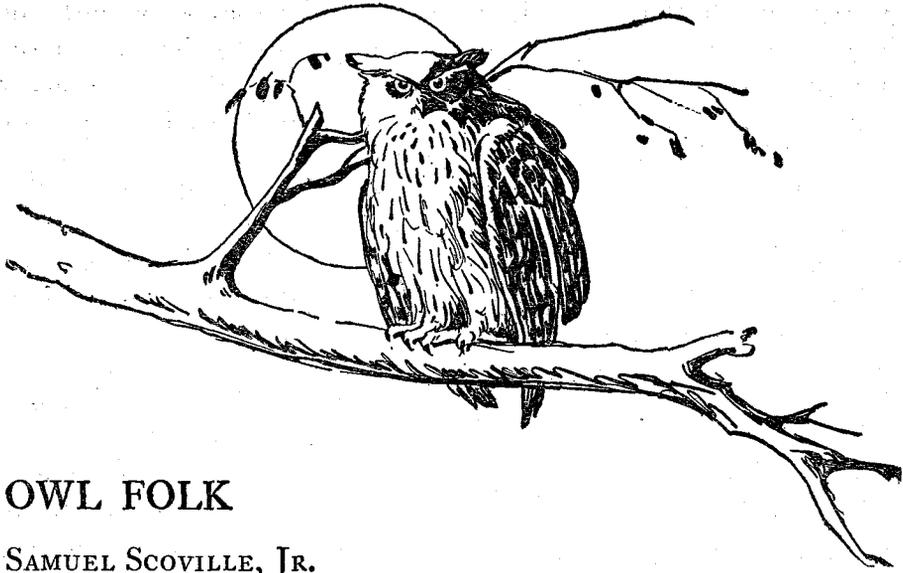
Many others of the invented words used by children, which have been recorded by such students of language as Professor Otto Jespersen, of Copenhagen, one of the leading authorities on the English language, appear to me to have been formed in this way. The widely used child word "ta-ta" for good-bye is especially interesting in this connection, for it results from a

gesture which can be made either with the tongue or with the hand. To say "ta-ta", we lift our tongue up to the roof of the mouth and drop it down rapidly twice in succession; to signal "ta-ta" we lift our hand up as high as it will go (without moving our wrist) and drop it down rapidly twice or more in succession. The two methods of hand sign and mouth sign still live on side by side!

It is not necessary to limit ourselves to Polynesian or baby language. Our own English of to-day still bears evidence of the same method of word formation by means of pantomime gestures of the "organs of articulation". A very large number of our English words can be traced back to what is known as the Aryan or Indo-Germanic family of languages, from which Sanskrit, Greek, Latin, and most of the European languages are derived. Thus the English words anger and anguish come from the Aryan root *agh* or *angh*, meaning to choke or strangle. Let the reader try for himself the gesture of the tongue which produces the sound *agh* or *angh*. Is it not a choking or strangling made by the back of the tongue against the back of the throat?

Or take the words "apt" or "adapt", which are derived from the Aryan root *ap*; meaning seize. What is this but a seizing gesture, a sort of snapping, made with the lips and jaw? Our word "car" comes from the Aryan root *kar* or *kal* (R and L are caused by very similar tongue gestures), meaning to move, speed, run. Another root of the same sound means to curve or to roll, whence our words "circus", "circle," etc. In these and many other words the consonant L, which is produced by a rapid flick of the tongue, denotes movement of some sort; while R, which is a similar gesture but with a certain amount of bending back of the tongue, denotes bending, binding, or enclosing.

About one in every seven or eight of the Aryan roots listed by Dr. Walter W. Skeat in his well-known Etymological Dictionary of the English Language, will be found to bear traces of this same method of formation. The tongue and lips performed the appropriate symbolic gesture, and a "call", made by the vibration of the vocal chords inside man's Adam's apple, converted the gesture into the spoken word.



## OWL FOLK

SAMUEL SCOVILLE, JR.

*Drawings by Herman Palmer*

**T**WO of the fiercest and least known of our birds of prey are the barred and the horned owls. My acquaintance with the first named of those deaths-in-the-dark goes back to a day many years ago when I traveled down to Maryland with the Banker on a search for the nest of the prothonotary warbler, that bird of burnished gold, who builds a home of green moss in a deserted woodpecker's hole.

All day we had poled a leaky boat over a mill-pond and a flooded marsh, while prothonotary warblers with golden throats, heads, and breasts and blue-gray wings flew here and there through the curling mist and gave their loud, ringing notes which sounded something like that of the Kentucky warbler. I found the first nest in a hole in a little red birch stub sticking up in a corner of the pond. It had just been built of fresh green moss with brilliant yellow feathers imbedded in the green. The Banker found the second nest with four young prothonotaries in it, and we sat for a long time watching the parent birds feed them May-flies.

I had just learned the squawking note of the blue-gray gnat-catcher, "like a mouse with a toothache," as Chapman describes it, and had caught a glimpse of the little gray birds in the