

GARNER RICHARD LYNCH

THE SPEECH OF
MONKEYS

Richard Garner

The Speech of Monkeys

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R. L. Garner

The Speech of Monkeys

To

MY DEVOTED WIFE

Whose zeal for my success is the light which guides me along the highway of my labours, and to those earnest friends, Mr. Walter S. Logan, Judge Charles P. Daly, Mr. James Muhlenberg Bailey, Mr. Samuel S. McClure, Hon. O. B. Potter, Dr. Alexander Melville Bell, Hon. John Hay, Professor S. E. Tillman, Mrs. Henry Draper, Mr. J. V. V. Booream, Mr. G. Hilton Scribner, and Mr. B. Schlesinger, who have opened their purse as they opened their hearts, and afforded me that aid which made it possible for me to continue my researches. With them I shall gladly share the glory of all that my efforts may achieve, and to them, with profound and affectionate gratitude, this first contribution to Science on this subject is justly dedicated by

THE AUTHOR.

PREFACE

I desire here to express my gratitude to *The New Review*, *The North American Review*, *The Cosmopolitan*, *The Forum*, and many of the leading journals of America, for the use of their valuable and popular pages through which my work has been given to the public. To the press, English and American, I gladly pay my tribute of thanks for the liberal discussion, candid criticism, and kind consideration which they have bestowed upon my efforts to solve the great problem of speech.

In contributing to Science this mite, I do not mean to intimate that my task has been completed, for I am aware that I have only begun to explore the field through which we may hope to pass beyond the confines of our own realm and invade the lower spheres of life.

This volume is intended as a record of my work, and a voluntary report of my progress, to let the world know with what results my labours have been rewarded, and with the hope that it may be the means of inducing others to pursue like investigations.

In prosecuting my studies I have had no precedents to guide me, no literature to consult, and no landmarks by which to steer my course. I have, therefore, been compelled to find my own means, suggest my own experiments, and solve my own problems. Not a line on this subject is to be found in all the literature of the world, and yet the results which I have obtained have far surpassed my highest hopes. Considering the difficulties under which I have been compelled to work, I have been rewarded with results for which I dared not hope, and this inspires me to believe that my success will meet my highest wishes when I am placed in touch with such subjects as I expect to find in the forests of Tropical Africa.

Only a few of my experiments are recorded in this volume, but as they illustrate my methods and set forth the results, they will serve to show, in a measure, the scope of my work.

In the latter part of this work will be found a definition of the word Speech as I have used it, and the deductions which I have made from my experiments. I have not ventured into any extreme theories, either to confirm or controvert the opinions of others, but simply commit to the world these initial facts, and the working hypotheses upon which I have proceeded to obtain them.

In Chapter XXI. I have mentioned the particular characteristics which mark the sound of monkeys as speech, and distinguish them from mere automatic sounds.

With all the gravity of sincere conviction I commit this volume to the friends of Science as the first contribution upon this subject.

R. L. GARNER.

New York, *June 1, 1892.*

CHAPTER I

Early Impressions – First Observations of Monkeys – First Efforts to Learn their Speech – Barriers – The Phonograph Used – A Visit to Jokes – My Efforts to Speak to Him – The Sound of Alarm inspires Terror.

From childhood, I have believed that all kinds of animals have some mode of speech by which they could talk among their own kind, and have often wondered why man had never tried to learn it. I often wondered how it occurred to man to whistle to a horse or dog instead of using some sound more like their own; and even yet I am at a loss to know how such a sound has ever become a fixed means of calling these animals. I was not alone in my belief that all animals had some way to make known to others some certain things; but to my mind the means had never been well defined.

FIRST OBSERVATIONS OF MONKEYS

About eight years ago, in the Cincinnati Zoological Garden, I was deeply impressed by the conduct of a number of monkeys occupying a cage with a huge, savage mandril, which they seemed very much to fear and dislike. By means of a wall, the cage was divided into two compartments, through which was a small doorway, just large enough to allow the occupants of the cage to pass from one room to the other. The inner compartment of the cage was used for their winter quarters and sleeping apartments; the outer, consisting simply of a well-constructed iron cage, was intended for exercise and summer occupancy. Every movement of this mandril seemed to be closely watched by the monkeys that were in a position to see him, and instantly reported to the others in the adjoining compartment. I watched them for hours, and felt assured that they had a form of speech by means of which they communicated with each other. During the time I remained, I discovered that a certain sound would invariably cause them to act in a certain way, and, in the course of my visit, I discovered that I could myself tell, by the sounds the monkeys would make, just what the mandril was doing – that is, I could tell whether he was asleep or whether he was moving about in his cage. Having interpreted one or two of these sounds, I felt inspired with the belief that I could learn them, and felt that the "key to the secret chamber" was within my grasp.

I regarded the task of learning the speech of a monkey as very much the same as learning that of some strange race of mankind, more difficult in the degree of its inferiority, but less in volume.

Year by year, as new ideas were revealed to me, new barriers arose, and I began to realise how great a task was mine. One difficulty was to utter the sounds I heard, another was to recall them, and yet another to translate them. But impelled by an inordinate hope and not discouraged by poor success, I continued my studies, as best I could, in the Gardens of New York, Philadelphia, Cincinnati and Chicago, and with such specimens as I could find from time to time with travelling shows, hand-organs, aboard some ship, or kept as a family pet. I must acknowledge my debt of gratitude to all these little creatures who have aided me in the study of their native tongue.

ACTING AS INTERPRETER

Having contended for some years with the difficulties mentioned, a new idea dawned upon me, and, after maturely considering it, I felt assured of ultimate success. I went to Washington, and proposed the novel experiment of acting as interpreter between two monkeys. Of course this first evoked from the great fathers of science a smile of incredulity; but when I explained the means by which I expected to accomplish this, a shadow of seriousness came over the faces of those dignitaries to whom I first proposed the novel feat. I procured a phonograph upon which to record the sounds of the monkeys. I separated two monkeys which had occupied the same cage together for some time, and placed them in separate rooms of the building where they could not see or hear each other. I then arranged the phonograph near the cage of the female, and by various means induced her to utter a few

sounds, which were recorded on the cylinder of the phonograph. The machine was then placed near the cage containing the male, and the record repeated to him and his conduct closely studied. He gave evident signs of recognising the sounds, and at once began a search for the mysterious monkey doing the talking. His perplexity at this strange affair cannot well be described. The familiar voice of his mate would induce him to approach, but that squeaking, chattering horn was a feature which he could not comprehend. He traced the sounds, however, to the horn from which they came, and, failing to find his mate, thrust his arm into the horn quite up to his shoulder, then withdrew it, and peeped into it again and again. The expressions of his face were indeed a study. I then secured a few sounds of his voice and delivered them to the female, who showed some signs of interest, but the record was very imperfect and her manner seemed quite indifferent. In this experiment, for the first time in the history of language, was the Simian speech reduced to record; and while the results were not fully up to my hopes, they served to inspire me to further efforts to find the fountain-head from which flows out the great river of human speech. Having satisfied myself that each one recognised the sound made by the other when delivered through the phonograph, I felt rewarded for my labour and assured of the possibility of learning the language of monkeys. The faith of others was strengthened also, and while this experiment was very crude and imperfect, it served to convince me that my opinions were correct as to the speech of these animals.

RECORDS OF SOUNDS

In this case I noticed the defects which occurred in my work and provided against them, as well as I could, for the future. Soon after this I went to Chicago and Cincinnati, where I made a number of records of the sounds of a great number of monkeys, and among others I secured a splendid record of the two chimpanzees contained in the Cincinnati collection, which I brought home with me for study. The records that I made of various specimens of the Simian race I repeated to myself over and over, until I became familiar with them, and learned to imitate a few of them, mostly by the use of mechanical devices. After having accomplished this I returned to Chicago, and went at once to visit a small Capuchin monkey whose record had been my chief study. Standing near his cage, I imitated a sound which I had translated "milk," but from many tests I concluded it meant "food," which opinion has been somewhat modified by many later experiments which led me to believe that he uses it in a still wider sense. It is difficult to find any formula of human speech equivalent to it. While the Capuchin uses it relating to food and sometimes to drink, I was unable to detect any difference in the sounds. He also seemed to connect the same sound to every kindly office done him, and to use it as a kind of "Shibboleth." More recently, however, I have detected in the sound slight changes of inflection under different conditions, until I am now led to believe that the meaning of the word depends somewhat, if not wholly, on its modulation. The phonetic effect is rich and rather flute-like, and the word resembles somewhat the word "who." Its dominant is a pure vocal "u," sounded like "oo" in "too," which has a faint initial "wh," both elements of which are sounded, and the word ends with a vanishing "w." The literal formula by which I would represent it is "wh-oo-w." The word which I have translated "drink" begins with a faint guttural "ch," and glides through a sound resembling the French diphthong "eu," and ends with a slight "y" sound as in "ye."

So far I have found no trace of the English vowels "a," "i," or "o," unless it be in the sound emitted under stress of great alarm or in case of assault, in which I find a close resemblance to the vowel "i," short as in "it."

FIELD OF OPERATIONS EXTENDED

After having acquired a sound or two, I extended my field of operations and began to try my skill as a Simian linguist on every specimen with which I came in contact.

In Charleston, a gentleman owns a fine specimen of the brown Cebus whose name is Jokes. He is naturally shy of strangers, but on my first visit to him I addressed him in his native tongue, and he really seemed to regard me very kindly; he would eat from my hand and allow me to caress

him through the bars of his cage. He eyed me with evident curiosity, but invariably responded to the word which I uttered in his own language. On my third visit to him I determined to try the effect of the peculiar sound of "alarm" or "assault" which I had learned from one of this species; but I cannot very well represent it in letters. While he was eating from my hand, I gave this peculiar piercing note, and he instantly sprang to a perch in the top of his cage, thence in and out of his sleeping apartment with great speed, and almost wild with fear.

HARSH MEANS RESORTED TO

As I repeated the sound his fears seemed to increase, until from a mere sense of compassion I desisted. No amount of coaxing would induce him to return to me or to accept any offer of peace which I could make. I retired to a distance of about twenty feet from his cage, and his master induced him to descend from the perch, which he did, with the greatest reluctance and suspicion. I gave the sound again from where I stood, and it produced almost the same results as before. The monkey gave out a singular sound in response to my efforts to appease him, but refused to become reconciled. After the lapse of eight or ten days, I had not been able to reinstate myself in his good graces, or to induce him to accept anything whatever from me. At this juncture I resorted to harsher means of bringing him to terms, and began to threaten him with a rod. At first he resented this, but soon yielded and came down merely from fear. He would place the side of his head on the floor, put out his tongue, and utter a very plaintive sound having a slight interrogative inflection. At first this act quite defied interpretation; but during the same period I was visiting a little monkey called Jack. For strangers, we were quite good friends, and Jack allowed me many liberties which the family assured me he had uniformly refused to others. On one of my visits he displayed his temper, and made an attack upon me because I refused to let go of a saucer from which I was feeding him with some milk. I jerked him up by the chain and slapped him sharply, whereupon he instantly laid the side of his head on the floor, put out his tongue, and made just such a sound as Jokes had made a number of times before. It occurred to me that it was a sign of surrender, and many subsequent tests have confirmed this opinion. Mrs. M. French Sheldon, in her journey through East Africa, shot a small monkey in a forest near Lake Charla. She described to me how the little fellow stood high up in a tree and chattered to her in his sharp, musical voice, until at the crack of her gun he fell mortally wounded. When he was laid dying at her feet, he turned his bright little eyes pleadingly upon her as if to ask for pity. Touched by his appeal, she took the little creature in her arms to try to soothe him. Again and again he would touch his tongue to her hand as if kissing it, and seemed to wish in the hour of death to be caressed, even by the hand that slew him, and which had taken from him without reward that life which could be of no value except to spend in the wild forest where his kindred monkeys live.

MODE OF EXPRESSING SUBMISSION

This peculiar mode of expressing submission seems to be very widely used, and from her description of the actions of that monkey, his conduct must have been identical with that of the Cebus; and to my mind may justly be interpreted to mean, "Pity me, I will not harm you." I have recently learned that a Scotch naturalist, commenting on my description of this act and its meaning, quite agrees with me, and states that he has observed the same thing in other species of monkeys.

CHAPTER II

The Reconciliation – The Acquaintance of Jennie – The Salutation – The Words for Food and Drink – Little Banquo, Dago, McGinty, and others.

ACQUAINTANCE OF JENNIE

During a period of many weeks I visited Jokes almost daily, but after the lapse of more than two months I had not won him back nor quieted his suspicions against me. On my approach, he would manifest great fear and go through the act of humiliation described above. I observed that he entertained an intense hatred for a negro boy on the place, who teased and vexed him on all occasions. I had the boy come near the cage, and Jokes fairly raved with anger. I took a stick and pretended to beat the boy, and this delighted Jokes very greatly. I held the boy near enough to the cage to allow the monkey to scratch and pull his clothes, and this would fill his little Simian soul with joy. I would then release the boy, and to the evident pleasure of Jokes I would drive him away by throwing wads of paper at him. I repeated this a number of times, and by such means we again became the best of friends. After each encounter with the boy, he would come up to the bars, touch my hand with his tongue, chatter and play with my fingers, and show every sign of confidence and friendship. He always warned me of the approach of any one, and his conduct towards them was largely governed by my own. He never failed, after this, to salute me with the sound described in the first chapter. About the same time I paid a few visits to another little monkey of the same species, named "Jennie." Her master had warned me in advance that she was not well disposed towards strangers. At my request, he had her chained in a small side yard which he forbade any of the family entering. When I approached the little lady for the first time, I gave her the usual salutation, which she responded to, and seemed to understand. I unceremoniously sat down by her side and fed her from my hands. She eyed me with evident interest and curiosity, while I studied her every act and expression. During the process of this mutual investigation, a negro girl who lived with the family, overcome by curiosity, stealthily came into the yard and came up within a few feet of us. I determined to sacrifice this girl upon the altar of science, so I arose and placed her between the monkey and myself, and vigorously sounded the alarm or menace. "Jennie" flew into a fury, while I continued to sound the alarm and at the same time pretended to attack the girl with a club and some paper wads, thus causing the monkey to believe that the girl had uttered the alarm and made the assault. I then drove the girl from the yard with a great show of violence, and for days afterwards she could not feed or approach the little Simian. This confirmed my opinion of the meaning of the sound, which can be fairly imitated by placing the back of the hand gently on the mouth and kissing it with great force, prolonging the sound for some seconds. This imitation, however, is indifferent, and its quality is especially noticeable when analysed on the phonograph. The pitch corresponds to the highest "F" sharp on the piano, while the word "food" is four octaves lower and the word "drink" three.

THE GARDEN IN CINCINNATI

On one occasion I visited the Garden in Cincinnati, and found in a cage a small Capuchin, to whom I gave the name of Banquo. It was near night and the visitors had left the house, and the little monkey, worried out by the day's annoyance from visitors, sat quietly in the back of his cage as though he was glad another day was done. I approached the cage and uttered the sound which I have described and translated "drink." My first effort caught his attention and caused him to turn and look at me. He then arose and answered me with the same word, and came at once to the front of the cage. He looked at me as if in doubt, and I repeated the word. He responded with the same and turned to a small pan in his cage, which he took up and placed near the door through which the keeper usually passed his food, returned to me, and uttered the word again. I asked the keeper for some milk, which

he did not have, but brought me some water instead. The efforts of my little Simian friend to secure the glass were very earnest, and his pleading manner and tone assured me of his extreme thirst. I allowed him to dip his hand into the glass, and he would then lick the water from his fingers and reach again. I kept the glass out of reach of his hand, and he would repeat the sound earnestly and look at me beseechingly, as if to say, "Please give me some more." I was thus convinced that the word which I had translated "milk" must also mean "water," and from this and other tests I at last determined that it meant "drink" in its broad sense, and possibly "thirst." It evidently expressed his desire for something with which to allay his thirst. The sound is very difficult to imitate, and quite impossible to write exactly.

IMITATING SOUNDS

On one of my visits to the Chicago Garden, I stood with my side to a cage containing a small Capuchin and gave the sound which I had translated "milk." It caused him to turn and look at me, and on repeating the sound a few times, he answered me very distinctly with the same, picking up the pan from which he usually drank; and as I repeated the word, he brought the pan to the front of the cage, set it down, and came up to the bars and uttered the word distinctly. I had not shown him any milk or any kind of food, but the man in charge, at my request, brought me some milk, which I gave to him. He drank it with great delight, then looked at me and held up his pan, repeating the sound. I am quite sure that he used the same sound each time that he wanted milk. During this same visit, I tried many experiments with the word which I am now convinced means "food" or "hunger." And I was led to the belief that he used the same word for apple, carrot, bread and banana; but a few later experiments have led me to modify this view in a measure, since the phonograph shows me slight variations of the sound, and I now think it probable that these faint inflections may possibly indicate a difference in the kinds of food he has in mind. However, they usually recognise this sound, even when poorly imitated. I am impressed with the firm belief that in this word I have found the clue to the great secret of speech; and while I have taken only one short step in the direction of its solution, I have pointed out the way which leads to it.

BROWN CAPUCHINS

In the fall of 1891, I visited New York for the purpose of experimenting with the monkeys in Central Park. Early one morning I repaired to the monkey-house, and for the first time approached a cage containing five brown Capuchins, whom I saluted with the word which I have translated "food," and which seems to be an "open-sesame" to the hearts of all monkeys of this species. On delivering this word, one of them responded promptly and came to the front of the cage. I repeated it two or three times and the remaining four came to the front, and as I thrust my fingers through the bars of the cage, they took hold of them and began playing with great familiarity and apparent pleasure. They seemed to recognise the sound, and to realise that it had been delivered to them by myself. Whether they regarded me as a great ape, monkey, or some other kind of animal speaking their tongue, I do not know. But they evidently understood the sound, though up to this time I had shown them no food or water. A little later I secured some apples and carrots, and gave them in small bits in response to their continual requests for food, and this further confirmed my belief that I had translated the word correctly. This was gratifying to me in view of the fact that I was accompanied by two gentlemen who had been permitted to witness the experiment, and it was evident to them that the monkeys understood the sound. I placed the phonograph in order and made a record of the sound, which I preserved for study. After an absence of some days, I returned to the Park and went to the monkey-house. They recognised me as I entered the door, notwithstanding there were many visitors present. They began begging me to come to their cage, which I did, and gave them my hand to play with. One of them in particular, whose name is "McGinty," showed every sign of pleasure at my visit; he would play with my fingers, hug them, and caress them in the most affectionate manner. Another occupant of the same cage had shown a disposition to become friendly with me, and on this occasion

came bravely to the bars of the cage and showed a desire to share the pleasure of my visit with his little Simian brother. But this was denied him on any terms by "McGinty," who pounced upon him and drove him away, as he also did the other monkeys in the cage in order to monopolise my entire society himself. He refused to allow any other inmate of the cage to receive my caresses or any part of the food that I had brought them. I spent the past winter in Washington and New York, much of the time in company with these little creatures, and have made many novel and curious experiments, some of which have resulted in surprises to myself. **MONKEYS CAN COUNT** Among the facts which I have obtained, I may state that certain monkeys can count three; that they discern values by quantity and by number; that they have favourite colours, and are pleased with some musical sounds. And I shall explain how I arrived at some of these conclusions, in order that I may not be supposed to have merely guessed at them.

CHAPTER III

Monkeys have favourite Colours – Can distinguish Numbers and Quantity –
Music and Art very limited.

MONKEYS HAVE FAVOURITE COLOURS

In order to ascertain whether monkeys have any choice of colours or not, I selected some bright candies, balls, marbles, bits of ribbon, &c. I took a piece of pasteboard, and on it placed a few bright-coloured bits of candy, which I offered to a monkey and watched to see whether he would select a certain colour or not. In this experiment I generally used two colours at a time, and changed their places from time to time in order to determine whether he selected the colour by design or accident. After having determined which of two colours he preferred, I substituted a third colour for the one which he cared least for, and continued thus until I exhausted the list of bright colours. By changing the arrangement of the objects a great number of times, it could be ascertained with comparative certainty whether the colour was his preference or not. I find that all monkeys do not select the same colour, nor does the same monkey invariably select the same colour at different times; but I think, as a rule, that bright green is a favourite colour with the Capuchin, and their second choice is white. In a few cases, white seemed to be their preference. I have sometimes used paper wads of various colours, or bits of candy of the same flavour rolled in various coloured papers. They seemed to choose the same colours in selecting their toys. I have sometimes used artificial flowers, and find, as a rule, that they will select a flower having many green leaves about it. It may be that they associate this colour with some green food which they are fond of, and consequently that they are influenced by this in selecting other things. I kept a cup for a monkey to drink milk from, on the sides of which were some brilliant flowers and green leaves, and she would frequently quit drinking the milk to play with the flowers on the cup, and seemed never able to understand why she could not get hold of them. In one test I had a board about two feet long, and laid a few pieces of white and pink candies in four places on it. The monkey took the white from each pile before touching the pink, except in one instance it took the pink piece from one pile. I repeated this test many times. In another test I took a white paper ball in one hand and a pink one in the other, and held out my hands to the monkey, who selected the white one nearly every time, although I changed hands with the balls from time to time. These experiments were mostly confined to the Cebus monkeys, but a few of them were made with Macaques. They seem to be attracted generally by all brilliant colours, but when reduced to a choice between two, such seems to be their tastes.

CAN DISTINGUISH NUMBERS

In my efforts to ascertain their mathematical skill, I would take in one hand a little platter containing one nut, or one small bit of something to eat, such as a piece of apple or carrot cut into a small cube. In the other hand I held a small platter, with two or three such articles of the same size and colour, and holding them just out of reach of the monkey and changing them from hand to hand, I observed that the monkey would try to reach the one containing the greater number. He readily discerned which platter contained one and which contained two or three pieces. I was long in doubt whether he distinguished by number or by quantity, and my belief was that it was by quantity only. I first determined that he could tell singular from plural, by making the one piece larger and sometimes of a different shape, and from his choice of these I quite satisfied my own mind that he could distinguish by number. THE TEST WITH MARBLES I next set out to find how far in numerals his acquirements reached, and after a great number of indecisive trials I fell upon this simple plan: I took a little square wooden box and made a hole in one side just large enough for the monkey to withdraw his hand with a marble in it. I took three marbles of the same size and colour, and gave

them to the monkey to play with. After a time I put the marbles in a box and allowed him to take them out, which he could do by taking out only one at a time. I repeated this several times, so as to impress his mind with the number of marbles in the box. I then concealed one of the marbles and returned two to the box. On taking them out, he evidently missed the absent one, felt in the box, arose, and looked around where he had been sitting. Then he would put his hand into the box again and look at me; but failing to find it, he became reconciled, and began to play with the two. When he had become content with the two, I abstracted one of them, and when he failed to find it he began to search for it, and seemed quite unwilling to proceed without it. He would put the one back into the box and take it out again, as if in hope that it might find the other. I helped him to look for the missing marbles, and, of course, soon found them. When he learned that I could find the lost marbles, he would appeal to me as soon as he missed them, and in several instances he would take his little black fingers and open my lips to see if I had concealed them in my mouth, the place where all monkeys conceal what they wish to keep in safety from other monkeys, who never venture to put their fingers into one another's mouth, and when any article is once lodged in a monkey's mouth it is safe from the reach of all the tribe. I repeated this until I felt quite sure of the ability of my subject to count three, and I then increased the number of marbles to four. When I would abstract one of them, sometimes he seemed to miss it, or at least to be in doubt, but would soon proceed with his play and not worry himself about it; yet he rarely failed to show that he was aware that something was wrong. Whether he missed one from four, or only acted on general principles, I do not know; but that he missed one from three was quite evident.

I may here add that there is a great difference in different specimens, and their tastes vary like those of human beings. The same idea is much clearer to some monkeys than it is to others, and a choice of colours much more definite; but I think that all of them assign to different numbers a difference of value. Some are talkative and others taciturn. I think I may state with safety that the Cebus is the most intelligent and talkative of all the monkeys I have known; that the Old World monkeys, as a group, are more taciturn and less intelligent than the New World monkeys, but I do not mean to include the anthropoid apes in this remark.

MUSICAL RECORDS ON PHONOGRAPH

As a test of their taste for music or musical sounds, I took three little bells, which I suspended by three strings, one end of which was tied to a button. The bells were all alike, except that from two of them I had removed the clappers. I dropped the bells through the meshes of the cage about a foot apart, and allowed the monkey to play with them. I soon discovered that he was attracted by the one which contained the clapper. He played with it, and soon became quite absorbed in it. I attracted his attention to another part of the cage with some food, and while he was thus diverted I changed the position of the bells by withdrawing and dropping them through other meshes. On his return he would go to the place he had left, and, of course, get a bell with no clapper in it. He would drop this and take another, until he found the one with the clapper, which showed clearly that the sound was a part of the attraction. I have repeated to monkeys many musical records on the phonograph, but frequently they show no sign of concern, while at other times they display some interest. It may be, however, that music, as we understand it, is somewhat too high for them. Musical sounds seem to attract and afford them pleasure, but they do not appreciate melody or rhythm. As monkeys readily discern the larger of two pieces of food from the smaller, and by the aid of concrete things can count a limited number, I feel justified in saying that they have the first principles of mathematics as dealing with numbers and quantity in a concrete form. Their ability to distinguish colours and their selection thereof, would indicate that they possess the first rudiment of art as dealing with colour. And the fact that they are attracted in a slight degree by musical sounds shows that they possess the germ from which music itself is born. I must not be understood to claim that they possess anything more than the mere germ from which such faculties might have been evolved. I do not think that they have any

names for numbers, colours or quantities, nor do I think that they possess an abstract idea of these things, except in the feeblest degree; but as the concrete must have preceded the abstract idea in the development of human reason, it impresses me that these creatures are now in a condition such as man has once passed through in the course of his evolution; and it is not difficult to understand how such feeble faculties may develop into the very highest degree of strength and usefulness by constant use and culture.

RUDIMENTS OF FACULTIES

We find in them the rudiments from which all the faculties possessed by man could easily develop, including thought, reason, speech, and the moral and social traits of man. In brief, they appear to have at least the raw material out of which is made the most exalted attributes of man, and I shall not contest with them the right of such possession.

CHAPTER IV

Pedro's Speech Recorded – Delivered to Puck through the Phonograph –
Little Darwin learns a new Word.

PEDRO THE CAPUCHIN

In the Washington collection there is a little Capuchin by the name of Pedro. When I first visited this bright little monk he occupied a cage in common with several other monkeys of different kinds. All of them seemed to impose upon little Pedro, and a young spider monkey in the cage found special delight in catching him by the tail and dragging him around the floor of the cage. I interfered on behalf of Pedro, and drove the spider monkey away. On account of this, Pedro soon began to look upon me as his benefactor, and when he would see me he would scream and beg for me to come to him. I induced the keeper to place him in a small cage to himself, and this he seemed to appreciate very much. When I would go to record his sounds on the phonograph, I held him in one hand, while he would take the tube in his tiny black hands, hold it close up to his mouth, and talk into it just like a good little boy who knew what to do and how to do it. He would sometimes laugh and always chatter to me as long as he could see me. He would sit on my hand and kiss my cheeks, put his mouth up to my ear and chatter just as though he knew what my ears were for. He was quite fond of the head-keeper and also of the director, but he entertained a great dislike for one of the assistant-keepers, and he has very often told me some very bad things about that man, but I could not understand them. I shall long remember how this dear little monk would cuddle up under my chin, and try so hard to make me understand some sad story which seemed to be the burden of his life. He readily understood the sounds of his own speech which I repeated to him, and I have made some of the best records of his voice that I have ever succeeded in making of any monkey, some of which I have preserved up to this time. They present a wide range of sounds, and I have studied them with special care and pleasure because I knew that they were addressed to me in person; and being aware that the little creature was uttering these sounds to me with the hope that I would understand them, I was more anxious to learn just what he really said to me in this record than if it had contained only some casual remark not addressed to me. This little Simian was born in the Amazon Valley in Brazil, and was named for the late Emperor.

PUCK AND THE PHONOGRAPH

A short time ago I borrowed from a dealer in Washington a little Capuchin called Puck, and had him sent to my apartments, where I kept a phonograph. I placed the cage in front of the machine upon which I had adjusted the horn, and had placed the record of my little friend Pedro. I concealed myself in an adjoining room, where I could watch the conduct of my subject through a small hole in the door. I had a string attached to the lever of the machine and drawn taut through another hole in the door, so that I could start the machine at any desired moment, and at the same time avoid attracting the attention of the monkey, either by my presence or by allowing him to see anything move. After a time, when everything was quiet, I set the machine in motion and treated him to a phonographic recital by little Pedro. This speech was distinctly delivered through the horn to Puck, from whose actions it was evident that he recognised it as the voice of one of his tribe. He looked at the horn in surprise and made a sound or two, glanced around the room and again uttered a couple of sounds as he retired from the horn, apparently somewhat afraid. Again the horn delivered some exclamations in a pure Capuchin dialect, which Puck seemed to regard as sounds of some importance. He cautiously advanced and made a feeble response, but a quick, sharp sound from the horn seemed to startle him, and failing to find any trace of a monkey, except the sound of a voice, he looked at the horn with

evident suspicion, and scarcely ventured to answer any sound it made. When I had delivered to him the contents of the record I entered the room again, and this seemed to afford him some relief.

PUCK'S VOICE AND ACTIONS

A little later I adjusted my apparatus for another trial, and this time I hung a small mirror just above the mouth of the horn. Then retiring again from the room I left him to examine his new surroundings, and he soon discovered the new monkey in the glass and began to caress and chatter to it. After a while I started the phonograph again by means of the string, and when the horn began to deliver its Simian oration it appeared to disconcert and perplex Puck. He would look at the image in the glass, then he would look into the horn; he would retire with a feeble grunt and a kind of inquisitive grin, showing his little white teeth, and acting as though in doubt whether to regard the affair as a joke, or to treat it as a grim and scientific fact. His voice and actions were exactly like those of a child, declaring in words that he was not afraid, but betraying fear in every act, and finally blending his feelings into a genuine cry. Puck did not cry, but the evidence of fear made the grin on his face rather ghostly. Again he would approach the mirror, then listen to the sounds which came from the horn, and it appeared from his conduct that there was a conflict somewhere. It was evident that he did not believe that the monkey which he saw in the glass was making the sounds which came from the horn. He repeatedly put his mouth to the glass, and caressed the image which he saw there, and at the same time showed a grave suspicion and some concern about the one which he heard in the horn, and tried to keep away from it as much as possible. His conduct in this case was a source of surprise to me, as the sounds contained in the record which I had repeated to him were all uttered in a mood of anxious, earnest entreaty, which to me seemed to contain no sound of anger, warning, or alarm, but which, on the contrary, I had interpreted as a kind of love speech, full of music and tenderness. I had not learned the exact meaning of any one of the sounds contained in this cylinder, but had ascribed in a collective and general way such a meaning to this speech. But from Puck's conduct I was led to believe that it was a general complaint of some kind against those monkeys in that other cage who had made life a burden to little Pedro. One thing was clear to my mind, and that is that Puck interpreted the actions of the monkey which he saw in the glass to mean one thing, and the sounds which he heard from the horn to mean quite another.

FORM OF SPEECH USED BY MONKEYS

I do not think that their language is capable of shaping sentences into narrative or giving any detail in a complaint, for I have never seen anything yet among them which would justify one in ascribing to them so high a type of speech; but in terms of general grievance it may have conveyed to Puck the idea of a monkey in distress, and hence his desire to avoid it; while the image in the glass presented to him a picture of his own mood, and he therefore had no cause to shun it. I do think, however, that the present form of speech used by monkeys is developed far above a mere series of grunts and groans, and that some species among them have a much more copious and expressive form of speech than others. From many experiments with the phonograph, I am prepared to say with certainty that some have much higher phonetic types than others. I have traced some slight inflections which I think beyond a doubt modify the values of their sounds. I find that some monkeys do not make some of these inflections at all, although the phonation of a species is generally uniform in other respects. In some cases it seems to me that the inflections differ slightly in the same species, but long and constant association seems to unify these dialects in some degree, very much the same as like causes blend and unify the dialects of human speech. I have found one instance in which a Capuchin had acquired two sounds which strictly belonged to the tongue of the white-faced Cebus. I was surprised when I heard him utter the sounds, and thought at first that they were common to the speech of both varieties; but on inquiry I found that he had been confined in a cage with the white-face for nearly four years, and hence my belief that he acquired them during that time.

The most remarkable case which has come under my observation is one in which a young white-face has acquired the sound which means food in the Capuchin tongue. This event occurred under my own eyes. I regard this matter as so noteworthy and attended by such conditions as to show that the monkey had a motive in learning the sound, that I shall relate the case in detail.

THE WHITE-FACED CEBUS

In the room where the monkeys were kept by a dealer in Washington, there was a cage which contained a young white-faced Cebus of rather more than average intelligence. He was a quiet, sedate, and thoughtful little monk, whose grey hair and beard gave him quite a venerable aspect, and for this reason I called him Darwin. From some cause unknown to me he was afraid of me, and I showed him but little attention. On the same shelf and in an adjacent cage lived the little Capuchin, Puck. The cages were only separated by an open wire partition, through which they could easily see and hear each other. For some weeks I visited Puck almost daily, and in response to his sound for food I always supplied him with some nuts, banana, or other food. I never gave him any of these things to eat unless he would ask me for them in his own speech. On one of my visits my attention was attracted by little Darwin, who was uttering a strange sound which I had never before heard one of his species utter. I did not recognise the sound at first, but very soon discovered that it was intended to imitate the sound of the Capuchin, in response to which I always gave Puck some nice morsel of food. Darwin had undoubtedly observed that this sound made by Puck was always rewarded with something good to eat, and his evident motive was to secure a like reward. After this I always gave him some food in acknowledgment of his efforts, and I observed from day to day that he improved in making this sound, until at last it could scarcely be detected from the sound made by Puck. This was accomplished within a period of less than six weeks from my first visit. In this case, at least, I have seen one step taken by a monkey in learning the tongue of another. This was most interesting to me in view of the fact that I had long believed, and had announced as my belief, that no monkey ever acquired the sounds made by another species, or, indeed, ever tried to do so. I admit, however, that this one instance alone is sufficient to cause me to recede from a conclusion thus rendered untenable, and the short time in which this one feat was accomplished would indicate that the difficulty was not so great as I had regarded it. SPEECH USUALLY LIMITED I still regard it as a rule, however, that monkeys do not learn each other's speech, but the rule is not without exceptions. I have observed, and called attention to the fact, that when two monkeys of different species are caged together, that each one will learn to understand the speech of the other, but does not try to speak it as a rule. When he replies at all, it is always in his own vernacular. I wish to impress the fact, that monkeys do not generally carry on a connected conversation. Their speech is usually limited to a single sound or remark, which is replied to in the same manner; and to suppose that their conversations are elaborate or of a highly social character, is to go beyond the bounds of reason. This is the respect in which the masses fail to understand the real nature of the speech of monkeys or other animals.

CHAPTER V

Five little Brown Cousins: Mickie, Nemo, Dodo, Nigger, and McGinty –
Nemo apologises to Dodo.

During the past winter there lived in Central Park a bright, fine, little monkey by the name of Mickie. He did not belong to the Park, but was merely kept as a guest of the city during the absence of his master in Europe. Mickie is a well-built, robust, good-natured monkey of the Capuchin variety. He does not talk much except when he wants food or drink, but he and I are the best of friends, and I frequently go into his cage to have a romp with him and his four little cousins.

When I first began to visit the Park in the fall of 1891, Mickie showed a disposition to cultivate my acquaintance, and as it ripened into a friendship day by day, we found great pleasure in each other's society. As the monkey-house was open to the public at nine o'clock in the morning, I had to make my calls at sunrise or thereabouts, in order to avoid the visitors who daily throng this building.

NEMO AND MICKIE

In this cage was kept another little boarder of the same species, which belonged to Mr. G. Hilton Scribner, of Yonkers. The keeper did not know the name or anything of the past history of this little stranger, and for want of some identity and a name I called him Nemo. He was a timid, taciturn little fellow, quite intelligent, and possessed of an amount of diplomacy equal to that of some human beings. He was the smallest monkey in the cage, on which account he was somewhat shy of the others. He was thoughtful, peaceable, but full of "guile." He sought on all occasions to keep on the best terms with Mickie, to whom he would toady like a sycophant. He would put his little arms about Mickie's neck and hang on to him in the most affectionate manner. He would follow him like a shadow, and stay by him like a last hope. If anything ever aroused the temper of Mickie it was sure to make Nemo mad too; if Mickie was diverted and would laugh, Nemo would laugh also if he was suffering with a toothache. He was as completely under the control of Mickie as the curl in Mickie's tail. When I first began to visit them Nemo would see Mickie bite my fingers while we were playing, and he supposed it was done in anger. Nemo never lost a chance to bite my fingers, which he would always do with all his might, but his little teeth were not strong enough to hurt me very much. He would only do this after seeing Mickie bite me, and he did not evince any anger in the act, but appeared to do so merely as a duty. He would sneak up to my hands and bite me unawares; then he would run to Mickie and put his arm about his neck just as you have seen some boys do when trying to curry favour with a larger boy. On one occasion while in the cage with them he slipped up to me and bit my finger, for which I kindly boxed his little ears. I would then give Mickie my finger and allow him to bite it, after doing which I slapped him gently and then give it to him again. I would then allow Nemo to bite my finger, and if he bit it too hard I would slap him again, and in this manner soon taught him to understand that Mickie only bit me in fun, and he evidently learned that this was a fact. He did not appear, however, to catch the point clearly or see any reason therefor, but on all occasions thereafter he would take my finger in his mouth and hold it in his teeth, which were scarcely closed upon it. This he would do for a minute at a time without having the least apparent motive except that he had seen Mickie do so. MICKIE'S ATTACHMENT Often while holding my finger in this manner, with a look of seriousness worthy of a supreme judge, he would roll his little eyes at me in the most inquiring manner, as if to say "how is that"? When he once realised that Mickie was so much attached to me, Nemo always showed a desire to be on friendly terms with me; and when I would go into the cage to play with Mickie and McGinty, he always wanted to be counted in the game. When I had anything for them to eat he always wanted a seat of honour at the table, and he would at times want to fight for me when the other monkeys got too friendly. Poor little fellow, he is now dead, but

the image of his cute little face and original character are deeply imprinted on my mind. I was never able to secure a record of the sounds of his little voice, though I have often heard him talk. He had a soft musical voice, and great power of facial expression.

APOLOGY TO DODO

One of the most remarkable things I have ever observed among monkeys was done by this little fellow. On two separate occasions I have seen him apologise to Dodo in the most humble manner for something he had done, and I tried very hard to secure a record of this particular speech, in which I totally failed, as I could not foreknow when such an act would be done, and therefore could not have my phonograph in place to obtain such a record. I called the attention of Mr. F. S. Church, the eminent artist, to this act, with the hope that he might be able to make a sketch of Nemo while in this attitude. I do not know what the offence was, but the pose and expression as well as the speech were very impressive. He sat in a crouching position, with the left hand clasping the right wrist, and delivered his speech in a most energetic but humble manner. The expression on his face could not be misunderstood. After a few moments he paused briefly, and then seemed to repeat the same thing some two or three times. The manner of his delivery was very suggestive, and his demeanour was conciliatory. When he had quite finished his speech, Dodo, to whom the apology was being made, and who had listened to it in perfect silence, delivered a sound blow with her right hand on the left side of the face of the little penitent, to which he responded with a soft cry, while Dodo turned and left him without further debate. I also called the attention of the keeper to this act, and he assured me that he had repeatedly witnessed the same. What the subject of his speech was or the cause which brought it about I am not able to say, nor can I say with certainty to what extent he explained, but that it was an apology, or explanation of some kind at least, I have not the slightest doubt. I do not believe, of course, that his speech contained any details concerning the offence, but that it expressed regret, penitence, or submission does not to my mind admit of a doubt. I have seen a few other cases somewhat similar to this, but none of them comparing in point of polish and pathos to that of Nemo in his unique little speech.

Nigger was of this same species: he was in poor health most of the winter, being afflicted with some spinal trouble. But, notwithstanding his affliction, he was a good talker. His infirmity, however, placed him at the mercy of the other inmates of the cage, and as monkeys are naturally cruel and entirely destitute of sympathy, the daily life of Nigger could not be expected to be a very happy one. From this state of facts Nigger usually kept to himself, and was not intimate with any other monkey in the cage. I have frequently given Nigger some choice bits of food while I was in the cage, and protected him from the other monkeys while he was eating it. This he seemed to fully appreciate, and always located himself at a certain point in the cage where his defence could be effected with the least difficulty. Nigger frequently indulged in the most pathetic and touching appeals to his keeper, and went through many of the gestures, sounds, and contortions which will be described in the next chapter, as a part of the speech and conduct of Dodo, some of whose remarkable poses and expressions have been faithfully portrayed by Mr. Church.

McGINTY AT CENTRAL PARK

Among my personal friends of the Simian race, there is none more devoted to me than little McGinty, another winter boarder at Central Park. From the first of my acquaintance with McGinty we had been staunch friends, and when I go to visit him he expresses the most unbounded delight. He will reach his little arms through the bars of the cage, and put his hands on my cheeks, hold his mouth up to the wires, and talk to me at great length. When I go into the cage he will place himself on a perch in the cage, where he will sit with his arms around my neck, lick my cheeks affectionately, pull my ears, and chatter to me in a sweet but plaintive tone. When Mickie joins the play, which he invariably does, by climbing or jumping on to my shoulders, and interrupting the *tête-à-tête* between McGinty and myself, poor little McGinty's jealousy, which is his supreme passion, causes him to

retire in disgust, and he will sometimes pout for several minutes without even accepting food from me. After he has pouted for a while, however, he will sometimes make overtures of reconciliation and seek by various means to divert my attention. One of his favourite means of renewing favour with me, was to whip poor little Nigger. He would look at me and laugh, grin and make grimaces, and then dash off at Nigger and want to eat him up. He did not seem to understand why I objected to this whipping Nigger. Monkeys do not regard it as a breach of honour to whip the helpless and feeble members of their tribe. They are not unlike a large percentage of mankind. They always hunt for easy prey, and want to fight something that is easily whipped. They are not great cowards, but when once whipped they rarely attempt the second time to contest matters with their victors.

CAGE OF CAPUCHIN MONKEYS In this cage, containing five brown Capuchin monkeys, it was not difficult to see that Mickie ran things to suit himself. McGinty was the only one of the four in the cage with him that ever contested any right with Mickie, and for a long time it was a question in my mind who was to win in the end. The next to them in authority was Dodo, who never attempted to control Mickie or McGinty, but always made Nemo and Nigger stand about. Fourth in line of authority was Nemo, who always resented any offence from others by making Nigger take a corner; and the only victims that Nigger had were the little white-faces, which never fight anything and are always on the run. When it was finally decided between Mickie and McGinty that Mickie should be captain, McGinty readily accepted the place of first lieutenant, which rank he has continued to hold without challenge. When once the question is settled among the cage of Simians, the debate does not appear to be renewed at any future time. They never go to court with their grievances, and rarely appeal a second time to force when the question has once been decided against them. Some human beings might profit by studying this trait of monkeys.

CHAPTER VI

Dago Talks about the Weather – Tells me of his Troubles – Dodo in the "Balcony Scene" – Her Portrait by a great Artist.

On one of my visits to Chicago, in the autumn of 1890, I went to pay my respects to Dago, the little brown monkey in Lincoln Park. He had been sick for a while, and had not fully recovered, although he was able to receive visitors, and his appetite for pea-nuts was fairly well restored. On the morning of which I speak, it was dark and stormy. A fierce wind and terrible rain prevailed from the north-west. I went to the building just after daylight, in order to be alone with the monkey, and when I entered the house, Frenchie, the head-keeper, told me how very sick little Dago had been since I had left him on the day before. I approached the cage and began to caress him, to which he replied in low whimpering tones, as though he understood the nature of what I was saying to him. Presently he raised himself erect upon his hind feet, and placing his hands on his side, pressed and rubbed it as though he was in great pain, and uttered some sounds in a low, piping voice. The sound itself was pathetic, and when accented by his gestures, it was really very touching. DAGO AND THE WEATHER At this juncture, a hard gust of wind and rain dashed against the window near his cage, whereupon the little monk turned away from me, ran to the window and looked out, and uttered a sound quite different from the ones he had just been delivering to me. Still standing erect, he appeared deeply interested, and stood for a few moments at the window, during which time he would turn his head towards me and utter this sound. That the sound he uttered was addressed to me could not be doubted, and his manner in doing so was very human-like. Then returning to me, still standing erect, he would renew this plaintive speech in the most earnest manner, and continue it until another gust would call him to the window. I observed that each time he went to the window he uttered the same sound, as well as I could detect by ear, and would stand for some time watching out of the window, and occasionally turn his head and repeat this sound to me. When returning to me again, he would resume his sad story, whatever it was. I secured a good record of that part of his speech which was made when near me at the front of the cage, but the remarks made while at the window were not so well recorded, yet they were audible, and I reproduced them on the phonograph at a subsequent visit. My opinion was that the sound he uttered while at the window must allude in some way to the state of the weather, and this opinion was confirmed by the fact that on a later occasion, when I repeated the record to him, the weather was fair; but when the machine repeated those sounds which he had uttered at the window on the day of the storm, it would cause him to turn away and look out of the window; while at the other part of the record he evinced but little interest, and, in fact, seemed rather to avoid the phonograph as though the sounds suggested something which he disliked. I am quite sure that the remarks which he made to me at the front of the cage were a complaint of some kind, and, from its intonation and the manner in which it was delivered, I believed that it was an expression of pain. It occurred to me that the state of the weather might have something to do with his feelings, and that he was conscious of this fact, and desired to inform me of it.

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