

PSYCHOLOGY

XXXI. A BOY'S VOCABULARY AT EIGHTEEN MONTHS

Geo. F. Miller, Margaret D. Miller and Margaret M. Nice*
Norman, Oklahoma

In any study of natural phenomena it is important to have instances of the limits of variation. In the matter of speech development careful studies should be made of children who are slow in beginning to speak and also of some who are markedly precocious, besides of the more normal cases. It is for the purpose of augmenting our knowledge as to the possibilities with a young child in the way of large vocabularies that we are offering the present record.

Duncan Miller is the oldest son of two college teachers, his father being a psychologist and his mother a specialist in languages. As to physical development, he is large for his age, having weighed $8\frac{1}{2}$ pounds at birth, 25 pounds at one year and 27 pounds at 18 months. Except for severe colic during the first two months of his life, he has enjoyed excellent health. He walked at the early age of 11 months.

On his second birthday he was given the Binet test by his father and scored an I.Q. of 166. He passed all the three year tests but that of knowing his sex; he repeated the digits and passed the comprehension test of four years, while for the fifth year he gave the definitions.

A chronological list of the words used by Duncan was kept by his mother through his thirteenth month, but the dates of new acquisitions were not always recorded. At this time both parents began to keep track of the rapidly increasing vocabulary in a very systematic manner, i. e., each new word was written on a card with the date, all the cards being filed alphabetically.

The first word "tick-tick" was spoken at the age of eight and a half months. The first sentence "Man scold" was used at 15 months and the first complex sentence at 20 months—"Broke the cup that had the flowers on it." The order of appearance of the parts of speech was as follows: nouns, 8 months; interjections, 12; verbs and adjectives, 13; adverbs, 14; pronouns, 16; prepositions, 17 and conjunctions 20 or 21 months.

The vocabulary follows, the words being arranged chronologically under each part of speech. The pronunciation is not indicated after the 13th month. N. W. means new words; T. W. means total words.

*The vocabulary was collected by the first two authors and the material prepared for publication by the third.

Eight months—T. W. 1. Noun: Tick-tick.

Nine, ten and eleven months—N. W., 8; T. W., 9.

Nouns: Kee (kitty), moo (cow), bye-bye (outdoor clothes), kee-la (kiddy-kar), bow-wow, ma-a (cat), cock-a doodle, gobble.

Twelve and thirteen months—N. W., 22; T. W. 31.

Nouns: da-da (dolly), kacker (cracker and then all food), ee-ee (sound of his toy bunny), ma-a-a (sheep), a-choo (for sneezing and coughing, associated with romping), da-da (daddy), ball, book, bat (bath), 'at (hat), bok (box), buuh (brush), egg, app (apple), b'ock (block), cake.

Verb: B'oke (broke).

Adjective: 'Ot (hot, also cold).

Interjections: Oh-oh, ah-ah (meaning he must be careful), ma-ma-ma (protest), ee (three, exclamation for one, two, three).

Fourteen months—N. W., 39; T. W., 70.

Nouns: Cook, baby, bottle, butter, eye, tea, ice, tub, flower, bowl, pot, ear, bad-boy, dish, cut-cut-ca-dah-cut, park, scissors, knife, c'lock, car, cheese, bucket, spectacles, thermometer, stocking, shoe, broom, orange, house, key, walk.

Verbs: tickle, caught.

Adjectives: tight, black.

Adverbs: Ek (meaning "there" in answer to questions, "Where is Mother?, etc.).

Interjections: hello, ouch, how-do-you-do.

Fifteen months—N. W., 70; T. W., 141.

Nouns: duck, Joe, fly, Katy, stick, bubble, garter, grandma, man, school, spool, cup, diaper, basket, coal, cat, junket, Duncan, teenth, chicken, kodak, pocket, barrel, hubby, sky, cow, mamma, pump, piggie, hammer, peaches, piece, toast, kitchen, mud, drink, picture, bag, porch, potato, spider, Clyde, drawer, door, bib, bed, tool, light, bone, g'ove, mop.

Verbs: take-me, shut, kiss, scratch, cry, bump, wind-it, rock scold, ride.

Adjectives: two, cold, more, dry.

Adverbs: up, down, yes, please, now.

Sixteen months—N. W., 82; T. W., 222.

Nouns: wagon, patch, pin, moon, ice-pick, paper, pliers, candle, bird, night, money, lid, coffee, girl, knee, garden, beads, buggy, radish, coat, head, fish, plate, dining room, ice-cream, George, Margaret, razor, nut, mother, handkerchief, grease, nose, Patty Paro, juice, misance, tail, B, brick, parsley, bean, bicycle, body, comb, fire, horse, minute, porridge, pool, berry, stove, room, plow, dress, A

Verbs: cut, pull, bite, taste, bounce-it, catch, forgot, hurt, blow, eat, go, hide, rain.

Pronoun: me.

Adjectives: sick, big, dark, pretty, open.

Adverbs: no, all, back.

Interjections: thank you, Pete, peek-boo, no sir, phew.

Seventeen months—N. W., 161; T. W., 378.

Nouns: custard, daisy, hand, mulberry, dinner, trousers, sugar, ba'loon, bacon, Clarence, prune, Junior, day, pen, pencil, toe, morn-ing, chair, town, turtle, cream, string, shirt, feet, tongue, bug, home, Minnie, Gerould, stack, duster, stone, bunny, ceiling, suit, screen, calf, fruit, spinach, umbrella, cucumber, thing, cone, sister, arm, glass, water, sink, turkey, Bessie, feather, pillow, top, cushion, blanket, cicada, typewriter, elephant, barbed wire, sleep, thimble, bath-room, cinnamon bun, Toberman, sand, telephone, corn, soup, auto-mobile, bathing suit, Miller, hop-toad, bossie, clothes, cork, fork, hair, Indian, Listerine, leg, noise, papoose, pan, pound, watch, piano, rug, soap, table, toilet, joke, hook, swing, button, vacuum cleaner, step.

Verbs: going, grin, shake, doing, excuse-me, help, run, tear, play, spin, bring, swat, shave, drop, don't, peeling, have-it, giggle, sit, point, stand, sharpen, weigh, swim, gone, scare, see, shoo, trip-it, turn, dust, cough

Adjectives: little, ready, nice, high, sour, long, heavy, short, sweet, thirsty, hungry, dead, six, ten, careful, sleepy, green, clean, dirty, good, one, that, cross.

Adverbs: off, again, out, how many.

Prepositions: on, under.

Interjections: oh dear, bang, bang.

Eighteen months—N. W., 144; T. W., 523.

Nouns: catalog, pocket-book, C, Cable, horn, salt, carriage, geese, Bo-peep, Auntie Marion, coal oil, gasoline, lemon, rubber, Teddy, sun, bulletin, curtain, Mrs. Forbes, Martha Ellen, music, scone, O, medicine dropper, chin, ink, hoop, cookie, soda, sonny, straw-stack, breakfast, pop-corn, slipper, fan, Jack, clippers, loaf, wheel-barrow, abacus, flag, towel, hog, closet, mouth, pussy cat, neck, ant, thumb, weeds, ribbon, soda-pop, safety pin, tomato, tiger, grocer, grape juice, office, pen (pig), Mr. Frick, barn, sherbert, shade, collar, breeze, needle, well, root beer, pitcher, screw driver, S, coffee mill, colt, fence, kiddie koop, saucer, finger, star, hill, pipe, frog, sewing machine, water me'on, strainer, brother, clothes line, bottom, ear ring, face, gelatine, milk, rope, tummy, toaster, way, Francis, house critter, cot, ring, can, whistle.

Verbs: pick up, hang, write, carry, sew, listen, flop, wake up, salute, wink, look, get, creep, slip, touch, pinch, punch, wait, dive, find, fix it, hold, put, show, wade, wind.

Pronouns: I, it.

Adjectives: shiny, new, baked, tiny, funny, afraid, other.

Adverb: away.

Prepositions: with, at, behind, in.

Interjections: whoa, my goodness, gee, good morning.

The table gives a summary of the numbers of words of each months vocabulary.

Number of Words Learned at the Different Ages.

	8-13	14	15	16	17	18	Total	Per Cent
Nouns -----	25	31	51	55	95	101	360	68.6
Verbs -----	1	2	10	13	32	26	84	16.0
Pronouns -----	0	0	0	1	0	2	3	0.6
Adjectives -----	1	2	4	5	23	7	42	8.0
Adverbs -----	0	1	5	3	4	1	13	2.5
Prepositions -----	0	0	0	0	2	4	6	1.2
Interjections -----	4	3	0	5	3	4	16	3.1
Total New Words----	31	39	70	82	160	144	523	100
Total Vocabulary ----	31	70	140	222	378*	523		

*Three interjections and one adverb were dropped at about this time.

This child has the largest vocabulary that have yet been published for the following ages: 14, 15, 17 and 18 months. At 13 months Mrs. Hall's son used 7 more words than Duncan did, and at 16 months Mrs. Langenbeck's daughter is credited with 7 more. The vocabularies next in size to those of Duncan's are as follows: at 14 and 15 months Mrs. Hall's son attained 58 and 105 words respectively; at 17 months Miss Shinn's niece had mastered 348 words and at 18 months Mrs. Martindell's daughter (cited by Gales) had a vocabulary of 233 words. This is less than half the size of Duncan's vocabulary at this age, although it is the largest of 39 vocabularies that had previously been collected (Oatman-Blachiy). The largest published vocabularies for 19 and 20 months are those of Bohn's daughter and contains 294 and 383 words respectively. At 21 months there first appear vocabularies that surpass in size Duncan's at 18 months, viz., Mrs. Martindell's daughter with 579 words and Miss Shinn's niece with 758.

Literature

Bohn, Wm. E., 1914. First Steps in Verbal Expression. Ped. Sem. XXI, 578-595.

Gale, M. C., and H., 1900. The Vocabularies of Three Children of One Family to Two and a Half Years of Age. *Psych. Studies*, No. 1, 70-117.

Hall, Mrs. W. S., 1897. First Five Hundred Days of a Child's Life. *Child Study Mo.* II, 586-608.

Langenbeck, Mildred, 1915. A Study of a Five-Year-Old Child. *Ped. Sem.* XXII, 65-88.

Oatman-Blachly, Miriam E., 1922. Further Notes on Eighteen-months Vocabularies. *Proc. Okla. Acad. Sci.*, II, 106-108.

Shinn, Millicent, 1901. Vocabularies. *Child Study Mo.* VI, 398-401.

XXXII. AN EXPERIMENT IN AUTOMATIC SPELLING

Herbert Patterson

Oklahoma Agricultural and Mechanical College.

On October 5, 1922, an experiment was made in the Stillwater Public Schools, Stillwater, Oklahoma, to determine the relative accuracy of automatic spelling and rational spelling.

The experiment was conducted by advanced students in the School of Education of Oklahoma A. and M. college, the work being done in connection with a course in Educational Measurements. A total of 286 children in grades 4, 5, and 6, were given two types of spelling exercises, the one exercise being in rational or deliberate spelling and the other exercise being in automatic or subconscious spelling.

In order to make the experiment as scientific as possible, it was attempted to keep constant all factors entering into the situation, with the single exception of the variable being measured, namely, the method of spelling. The same person gave both exercises. The same fifty words were used in both exercises. The exercises were given at approximately the same time, one following the other almost immediately, a brief rest period of five minutes intervening. In order to cancel the influence of fatigue, and that of increasing familiarity with the situation, the exercise in automatic spelling preceded that in rational spelling in five of the rooms where the experiment was being conducted and in the other five rooms the exercise in rational spelling preceded that in automatic spelling. While the same fifty words were spelled in the second exercise as in the first, no opportunity was allowed for learning to spell words during the five minute intermission between the two exercises.

Not only were the exercises given with the greatest of care,