

## D. SOCIAL SCIENCES

### LIII. A CHILD'S VOCABULARIES FROM FIFTEEN MONTHS TO THREE YEARS.

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As examples of the speech development of children accumulate, one becomes more and more impressed with the diversity shown. Every child is a law unto himself in the way in which he learns to talk.

Nevertheless it is possible to formulate some general rules for the majority of cases, always remembering that some children are quite atypical. In a recent paper (6) I have suggested four divisions of the course of speech development: "single words; early sentences; the short sentence of three to four words and the complete sentence of six to eight words."

Now I wish to subdivide the stage of single words into a period of slow growth of vocabulary and a later one of rapid acquisition of words. Nearly every child at the beginning achieves only a few words each month; then rather suddenly some sort of an inhibition seems to be overcome and the child's vocabulary increases fast—averaging a new word every day or oftener.

A precocious child is apt to be well in the second period before words are combined but with those who are slow in learning to talk the first sentences appear in the inhibited stage. One would expect a child who was neither precocious nor retarded to make both these advance steps at about the same time and this was exactly what happened in the case of our fourth daughter.

H exhibited a normal yet somewhat slow course of speech development. Her period of slow acquisition of words lasted from the 15th through the 19th month; her 20th month marked the transition to rapid growth of the vocabulary as well as the use of the first sentence; at two years she was in the early sentence stage with a vocabulary of 155 words; during the the short sentence stage which lasted about a year; at three she had a vocabulary of 805 words, while by the age of three and a half she had attained the complete sentence stage.

*Physical Factors.* H has been the most uniformly sturdy of all our children. She crept at 11 months and took her first step alone at 14 months. At this time I noted: "She is the most strenuous and disconcerting little climber imaginable—every chair is merely

an object to be mounted." As to the use of her hands, observations on 42 different days from her third to her twenty-eighth month showed that she was ambidextrous until 20 months old; at 21 months she became predominantly right handed although not fully so until her 28th month.

*Her Environments.* Our fourth daughter staid in Oklahoma from the age of four months until after her third birthday; her environment was therefore that of a small town with much opportunity for outdoor play. Besides the companionship of her sisters, who ranged from two and three-fourths to eight years older than she, she had considerable opportunity to play with other children.

A month after her second birthday she accompanied her family on a month's camping trip which was full of new and exciting experiences for the child. Two visits to the zoo at Oklahoma City between her second and third birthdays added vividness to her conceptions of many animals that had previously been known only from pictures and stories.

### BEGINNINGS OF SPEECH.

*Period of Slow Growth.* When H. was 13 months old she had begun to wave goodbye; a month later, she uttered her first word "ba" as an accompaniment to this gesture. She was in the midst of learning to walk at this time and two weeks later she gave up creeping altogether. At the end of her 14th month she exclaimed "ho" as she came into the kitchen and saw the lighted oil stove. During the next four months she added words very slowly, 1, 2, 5, and 8 a month respectively; moreover she seldom used the few she could say. Near the close of this period I recorded "About the only word she uses commonly is *doggie*."

The eighteen first words will be given as they appeared. (N. W. means New Words; T. W. means Total Words.)

15 months: T. W. = 2.

Ba = goodbye, ho' = hot.

16 months: N. W. = 1, T. W. = 3.

Bir = bird (the pet mourning doves; this word was dropped after two weeks.)

17 months: N. W. = 2; T. W. = 4.

Mm, (in answer to "What does the cow say?" and upon seeing pictures of cows or the real animal; this soon changed to "moo"), oh-oh-oh what the dog says, used upon seeing the animal, or picture of it or upon hearing it mentioned.)

18 months: N. W. = 5; T. W. = 9.

Umph, umph (what the pig says, used for the real animal and

pictures.) o-o-o (rooster, the real fowl and pictures), Mama (used sometimes to me when she wanted something), da = duck (known only in pictures; baa (sheep, known only from rhymes and pictures).

19 months: N. W. = 8; T. W. = 17.

Da-da (what the hen says, used in referenc to the real fowl and to pictures), bur' = burn (said over and over again about a lighted candle), bir' = bird (the pet doves), ap = apple or pear, ee-ee (what little chickens say), dog or doggie, hoo-hoo (owl in pictures and a toy).

*Period of Rapid Increase.* The 20th month was notable in three ways: the beginning of the rapid addition of words, the appearance of the first sentence—"Ere (there) doggie", and the adoption of what seems to have been an original word—"mu" for crackers.

The acquisitions from the 20th through the 23rd month were as follows:

20 months: N. W. = 30; T. W. = 46.

Ho' = horse (the real animal and pictures), ha' = hat, r'r = bear, ma or mu = crackers (see below), Milk, 'ere = there (mostly used in connection with other words as "Ere doggee"); no' or nonyi = nose, didy, me-me = meat, book, tock (what the clock says), ball, Dadda = her father (and for a short time other men too, being applied to a picture and passerby\*), eye 'ink = drink, b'ock = block, ear, dee = deer (in pictures), ba' = bath, tat = cat, muner' = monkey (in pictures) mit = mitten, hair, ong-ong-ong (what the frog says), o' = ox (a toy), oa'mea = oatmeal, mou' = mouth, taught = caught, ha = here, oh.

21 months: N. W. = 21; T. W. = 67.

Toe, button, Barbar, p'e = please, doll, moon, 'ight = light, pin, bee' = peek, toadie (in a picture), egg, back (adverb—"Here back", said when she wanted something put back), hor-hor-hor (what doncey says), piddy = pretty, Bobbu (her doll), pupper = puppy, 'an' = hand, way-way = away, Tonto = Constance, bot = bottle, 'ead = bread.

22 months: N. W. = 25; T. W. = 92.

Neck, boy, docki = stocking, a-u = thank you, Marnie = Mar-orie, 'tuck = stuck, 'ower = forehead, dook = look, tair = chair, lown, rubber, waddie = rabbit, huwo = hello, wagi = wagon, rockie = rock (verb), ma = man, hocky = fox, houey = shoe, Pober = 'lower (the pet dove), bire = fire, 'night = goodnight, wat = watch verb), do' = dove, diddie = lizard, pockie = pocket.

\*H was the only one of our children to use "Daddy" indiscriminately.

23 months: N. W. = 33; T. W. = 124.

Nut, hingie = finger, door, hee = see, hoggie = frog, 'Eddy = Frederick, turtle, bump (verb), powder, c'eam = cream, hoap = soup, out, no auhey = automobile, walk (verb), do = go, tie (verb), pull, tacker = cracker, hower = flower, choo-choo, o' = o'f, t'ee = tree, high, dump = jump, me, turner = turn (verb), inny = in, rain (noun), b'owy = blow, tow = crow, tow = cow.

In this whole list there is only one word that has even a suspicion of originality about it—namely "mu" or "ma" for "cracker". I noted it first in her 20th month when it seemed to mean crackers or water; three days later she said "ma" when she wanted her sisters' beads. Apparently it expressed desire. Six days later it definitely meant crackers and nothing else. Although I often tried to get her to say "crackers", she kept the "ma" for nearly four months; she then said "tacker" or occasionally "mack". I have three theories as to its possible origin: one is that it may have started as "more" although it was not used in that sense; it may have been an attempt to say "cracker" substituting m for cr (her regular substitute for k was t, this appeared for the first time two weeks later in 'tat' for "cat"). or it may have been a baby "desire word" like the oft-quoted "mum" for food of Darwin's son.

He was very fond of adding "ie" to a one-syllabled word, as *hocky* for fox, *hogy* for fog, *inny* for in and many others. Her animal sounds were ephemeral; 9 of the 11 that appeared from the 17th to the 21st month had been replaced by the name of the beast before she was two; with her they represented distinctly a baby stage.

On the last week of her 20th month we recorded her all day's conversation; it consisted of 38 different words (i. e. 81 per cent of her total vocabulary) and 388 in all. Fifty-six of these were in sentences of two words, the rest being used separately. All of these sentences were nouns connected with "there" as "'Ere birdie", "'Ere eye," except one—"Here mitten." The words most used were: doggie and mu, 40 times; 'ere, 29; birdie, 24; Mamma, 22; book, 18; hair, tock (clock), muner (monkey), 16; milk, 13; Dadda, 12.

One week before she was two we again recorded her all day conversation, this time obtaining 80 different words (51 per cent of her vocabulary) and 1408 in all. Nearly half of these words were used separately—633; there were 352 sentences of two words and 7 of three; this gives an average sentence length of 1.35 words. The most used words were: waddie (rabbit), 303 times; Daddy, 104; Barbar, 81; Mamma, here, 71; back, 57; doggie, 52; no, 39. During

the first 5½ hours of her day (7:30 to 1:00) she uttered 1104 words, while during the last 5¼ hours (3 to 8:15) only 304 were used.

The following sample will give an idea of the nature of her conversation.

Eye hurt. Eye hurt. P'etty fire. P'etty fire. P'etty fire. Dirty. Dirty. Dirty. Dirty. Hooey (shoe). Bobby. Here hooey. 'Erc hooey. Bobby here. Wadie. Wadie. P'etty. P'etty. P'etty. P'etty. Hello. Me Daddy. Mamma. Turtey (turtle).

Interjections and adjectives were first used in her 15th month; nouns in her 16th; verbs in her 19th; adverbs in her 20th; pronouns and prepositions in her 23rd and the first conjunction "and" in her 29th month.

Her first pronoun "me" appeared in her 23rd month; "my" was added two months later, while by her 27th month she was using "I", "it", and "that". She never called herself by any name until she was 28 months old; then, curiously enough she took up the expression "Hitter" to design at herself although the month before she had been using "I" as "I don't want dinner; want hupper." "Hitter" meant "Sister"; she was almost never spoken of by this term although the three older children often called themselves "Sister". She would say, "Hitter want d'ink water. Hitter want my bib on. Hugar (sugar) make Hitter happy. Hitter button my delt up. Hitter get dum some) apple-daut."

"No" appeared at 23 months "yes" at 29 months.

From the age of 20 to 23 months she was in the habit of "making conversation" without talking English, coming to us and speechifying earnestly, mostly in nonsense, although occasionally a "doggie" or "mamma" would be distinguishable. This did not seem to be motivated by any particular desire to communicate, but appeared to be an imitation of the actions of her associates, in much the same way as some babies will jabber when looking at a printed page or a letter.

#### The Vocabularies at Two and Three Years.

The two year vocabulary was obtained by first recording a whole days conversation a week before her birthday and then by noting all the new words heard from this date until a week after her birthday. All of her animal sounds and twelve other words that reappeared in her three year vocabulary were not used during these two weeks, and hence were counted as forgotten. If she were credited with all these as well as her six proper nouns she would have had a total of 184 words rather than 155.

For the three year vocabulary, an hour's conversation was

taken one month before her birthday: words were then recorded from this time until she was three.

Each word in the two year vocabulary was repeated in the three year except five: papa, ox, bang, oh-ho and rocky-bye; these are placed in parentheses.

### Nouns.

2: 106; 3: 431.

#### 1. *Personal Experiences.*

2: 65; 3: 181.

##### 1. Body.

2: T. W. = 13.

Cheek, chin, ear, eye, finger, forehead, hair, hand, lap, mouth, neck, nose, tummy.

3: N. W. = 15; T. W. = 28.

Arm, blood, bone, breast, face, foot, heel, knee, leg, lip, shoulder, thumb, toe, tongue, tooth.

##### 1a. Health.

3: T. W. = 6.

Cut, enema, pill, sore, tummy-ache, vaseline.

##### 2. Clothes.

2: T. W. = 15.

Button, coat, didy, dress, handkerchief, hat, mitten, pin, pocket, rubber, shoe, sock, stocking, wrapper. Hole.

3: N. W. = 23; T. W. = 38.

Apron, belt, bloomer, bonnet, boot, cap, clothes, drawers, garter, muff, nightgown, overalls, petticoat, ribbon romper, sandals, sleeves, slippers, sunbonnet, suit, sweater underclothes, waist.

##### 2a. Toilet.

2: T. W. = 3.

Bath, powder, soap.

3: N. W. = 5; T. W. = 8.

Brush, comb, cotton, tooth-brush, towel.

##### 3. Food.

2: T. W. = 18.

Apple-sauce, bread, butter, cheese, cracker, cream, drink, egg, juice, meat, milk, oatmeal, potato, salt, shuck, soup, sugar, water.

3: N. W. = 32; T. W. = 50.

Apple, asparagus, berries, cabbage, cake, candy, chocolate, cocoa, cookie, crust, desert, doughnut, frosting, graham cracker, honey, ice, jelly, junket, lollipop, nut, onion, orange, peanut, peanut butter, peppermint, pie, popcorn, raisin, rice, strawberry, toast, wheat-nuts.

## 3a. Eating.

2: T. W. = 5.

Bib, dinner, knife, spoon, supper.

3: N. W. = 11; T. W. = 16.

Bite, bowl, breakfast, cup, dishes, fork, glass, lunch, napkin, saucer, table-cloth.

## 4. Play and Occupations.

2: T. W. = 10.

Ball, bear\*, block, book, dolly, flag, (ox), paper, pencil, wagon.

3: N. W. = 18; T. W. = 26.

Boat, bead, candles, card, catalog, diving board, marble, pen, penny, picture, playhouse, postcard, rattle, scissors, slide, spool, tower, toy.

## 4a. Experiences.

2: T. W. = 1.

Nap.

3: N. W. = 8; T. W. = 9.

Crack, mark, noise, party, picnic, rest, ride, trip.

2. *Indoor Environment.*

2: 8; 3: 60.

## 1. House.

2: T. W. = 8.

Bed, bottle, chair, clock, door, fire, house, window.

3: N. W. = 46; T. W. = 54.

Bag, bax, basket, bathroom, bookcase, can, cedar chest, cellar, chamber, coal, couch, cover, crib, desk, fireplace, furnace, glue, high chair, home, key, kitchen, light, match, pan, pillow, porch, record, refrigerator, roof, room, rope, rug, shade, shelf, sideboard, sleeping porch, stairs, step, stove, strainer, string, study, table, telephone, victrola, wall.

## 2. Other's Belongings.

3: T. W. = 6.

Check, glove, letter, mail, purse, ring.

III. *Outdoor Environment.*

2: 25; 3: 131.

## 1. Civilization.

2: T. W. = 2.

Automobile, train.

3: N. W. = 23; T. W. = 25.

Air-plane, baby carriage, barn, bridge, car, carriage, engine, garage, gate, hammer, kiddie-car, laboratory, ladder, nail, road.

\*This had been learned from real life by the next year.

school, sidewalk, street, tent, trolley-car, university, wheel, whistle.

2. Sky and Landscape.

2: T. W. = 2.

Moon, rain.

3: N. W. = 13; T. W. = 15.

Air, clouds, dirt, ground, hill, mountain, mud, sand, rock, sky.  
stone, sun, wind.

3. Plants.

2: T. W. = 3.

Flower, rose, tree.

3: N. W. = 8; T. W. = 11.

Blue-eyed grass, garden, grass, hollihock, lily, poppy-mallow.  
seed, woods.

4. Animals.\*

2:18; 3:80.

a. Insects.

2: T. W. = 2.

Bee, butterfly.

3: N. W. = 6; T. W. = 8.

Ant, beetle, cockroach, fly, grasshopper, moth.

b. Other Invertebrates.

3: T. W. = 2.

Spider, worm.

c. Fish, amphibia, reptiles.

2: T. W. = 3.

Frog, toad, turtle.

3: N. W. = 6; T. W. = 9.

Fish, horned toad, lizard, polly-wog, snake, tadpole.

d. Birds.

2: T. W. = 5.

Bird, chicken, duck, hen, owl.

3: N. W. = 20; T. W. = 25.

Bluebird, blue jay, bobwhite, cardinal, chickadee, crow, dove, flicker,  
geese, mockingbird, parrot, peacock, robin, rooster, sparrow, turkey.  
wren. Bill, nest, wing.

e. Mammals.

2: T. W. = 8.

Bunny, cat, cow, dog, horse, pig, rabbit, sheep.

3: N. W. = 28; T. W. = 36.

Animals, bear, billy-goat, buffalo, calf, colt, coyote, deer, ele-  
phant, elk, fox, guinea-pig, jack rabbit, kitty, lamb, lion, monkey.

\*Other animal names are listed under "Words from Pictures and Stories."



mouse, puppy-dog, pussy-cat, prairie dog, rat, squirrel, white mouse, wolf. Horn, pet. tail.

IV. *People.*

2: 6; 3: 22.

2: T. W. = 6.

Baby, boy, daddy, mamma, man, (papa).

3: N. W. = 17; T. W. = 22.

Brother, child, father, girl, grandma, lady, mother, sister.  
Friends, people, person, visitors. Mailman, soldier, teacher. Lazy-  
bones, sweetheart.

V. *Words from Pictures and Stories.*

2: 2: 3: 6.

2: T. W. = 2.

Monkey\*, squirrel.\*

3 N. W. = 6; T. W. = 6.

Bulldog, catbird, donkey, queen, shell, skunk.

VI. *Abstract, Time, Positions, etc.*

2: 0; 3: 29.

## 1. Time.

3: T. W. = 8.

Afternoon, birthday, day, morning, night, time, while, yesterday

## 2. Position.

3: T. W. = 6.

Back, bottom, front, place, side, top.

## 3. Quantity.

3: T. W. = 5.

Bit, enough, lot, much, piece.

## 4. Indefinite.

3: T. W. = 5.

Anthing, everybody, everything, somebody, something.

## 5. Abstract.

3: T. W. = 5.

Fun, kind, self, thing, way.

**Verbs.**

2: 22; 3: 181.

2: T. W. = 22.

(Bang), blow, break, bump, burning, come, cry, hurt, jump, look,  
open, peek, pull, ride, rock, stuck, tie, tumble, turn, walk, want,  
watch.

3: N. W. = 160; T. W. = 181.

Am, are, ask, be, beat, bellow, bending, bite, black, bleed, boost.

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\*These words had been learned from real life by the next year.

bother, bring, button, camping, can, can't, care, carried, catch, chase, choke, climb, cough, couldn't, count, cover, crack, crumpled, cut, dancing, died, dig, diving, do, don't, dress, drink, drive, drop, eat, fall, feel, find, fit, fix, fly, get, give, go, grinding, grow, hang, happen, have, hear, help, hide, hit, hold, hop, hug, is, isn't, keep, killed, kiss, know, laugh, lean, leave, let, lie, lift, like, live, locked, love, made, mean, mend, might, move, muss, need, paddle, paste, pat, pick, pin, pinch, plant, play, pour, prick, push, put, rain, reach, read, run, rolled, save, say, scratch, see, sew, shake, shoot, show, shut, singing, sit, skip, sleep, slipped, smells, snap, spank, spill, squeak, stand, start, stay, step, suck, sweep, swing, take, talk, tap, taste, tear, tease, tell, thank, think, throw, tickle, touch, trying, tuck, unbutton, undone, unpin, untie, wade, waiting, was, wash, wear, went, wet, whistle, will, wipe, won't would, wouldn't.

#### Pronouns.

2: 1; 3: 23.

##### I. Personal.

2: T. W. = 1.

Me.

3: N. W. = 14; T. W. = 15.

He, her, him, I, it, mine, my, myself, our, them, they, us, you, your.

##### II. Interrogative.

3: T. W. = 1.

What.

##### III. Demonstrative.

3: T. W. = 3.

That, this, these.

##### IV. Adjective.

3: T. W. = 4.

Any, either, one, some.

#### Adjectives.

2: 7; 3: 95.

##### I. Article.

3: T. W. = 2.

A, the.

##### II. Demonstrative.

3: T. W. = 6.

Another, other, some, that, this, those.

##### III. Quantitative.

2: T. W. = 1.

More.

3: N. W. = 9; T. W. = 10.

All, any, both, first, next, no. One, two, three.

#### IV. *Qualitative.*

2: 6: 3: 77.

##### a. Color.

3: T. W. = 12.

Black, blue, brown, gold, green, grey, pink, orange, purple, red, white, yellow.

##### b. Spacial.

2: T. W. = 1.

High.

3: N. W. = 13; T. W. = 14.

Big, deep, far, fat, great, heavy, little, long, short, tall, tight, tiny, wide.

##### c. Sense.

2: T. W. = 2.

Cold, hot.

3: N. W. = 7; T. W. = 9.

Cool, hard, sharp, sour, sweet, warm, wet.

##### d. General.

2: T. W. = 3.

Bad, dirty, pretty.

3: N. W. = 39; T. W. = 42.

Asleep, awake, bare, best, busy, careful, clean, cunning, dead, dusty, fast, funny, glad, good, happy, hungry, loose, lovely, mad, muddy, naked, new, nice, old, own, poor, quiet, ready, real, roly, safe, scared, sick, silly, sleepy, sorry, still, tired, well.

#### Adverbs.

2: 12; 3: 50.

##### I. *Time.*

3: T. W. = 7.

Afterwards, again, now, sometimes, soon, then, when.

##### II. *Place.*

2: T. W. = 10.

Away, back, down, here, in, off, out, there, up, where.

3: N. W. = 12; T. W. = 22.

Ahead, along, around, backwards, downstairs, farther, over, outdoors, outside, sideways, through, upside down.

##### III. *Manner.*

3: T. W. = 9.

Barefoot, better, carefully, horseback, like, really, right, so, why.

IV. *Degrees.*

3: T. W. = 8.

All, else, just, nearly, pretty, too, very, way.

V. *Modal.*

2: T. W. = 2.

No, please.

3: N. W. = 2; T. W. = 4.

Not, yes.

## Prepositions.

2: 0; 3: 13.

3: T. W. = 13.

About, across, around, behind, by, for, in, inside, of, to, under, up, with.

## Conjunctions.

2: 0; 3: 5.

3: T. W. = 5.

And, because, but, than, when.

## Interjections.

2; 7; 3: 9.

2: T. W. = 7.

Good-by, good-morning, good-night, hello, oh, (oh-ho), (rocky-bye).

3: N. W. = 4; T. W. = 9.

Coop, goody, teeter-totter, why.

*Size of the Vocabulary.* One hundred and fifty-five words is a small quota for a two year old (although I have fourteen examples of even smaller vocabularies); it is perhaps at the lower limit of what can be called "normal". The three year vocabulary of 805 words is about the same size as those of three other girls of this age; it would thus seem to be fairly representative of the smaller vocabularies at three years.

H exhibited a rather slow rate of learning; from her 20th to 24th month she acquired nearly one word a day; between two and three she learned at the rate of 1.9 words a day.

At 46 months H defined 8 words in the Stanford vocabulary test and at 50 months 12 words; this would give her an understood vocabulary of 1440 and 2160 words at the two ages. When nearly 7 she defined 25.5 words; this is supposed to correspond to an understood vocabulary of 4590 words—the 9 year level.

*Proportion of the Parts of Speech.* The numbers and percentages of the parts of speech in the two and three year vocabularies are shown in Table I.

TABLE I  
Parts of Speech of Vocabularies.

	Numbers		Percentages.	
	2	3	2	3
Age in years				
Nouns -----	106	429	68.3	53.5
Verbs -----	22	181	14.1	22.4
Pronouns -----	1	23	0.7	2.6
Adjectives -----	7	95	4.4	11.7
Adverbs -----	12	50	7.7	6.4
Prepositions -----	0	13	0	1.5
Conjunctions -----	0	5	0	0.6
Interjections -----	7	9	4.6	1.1
Total -----	155	805	100	100

At two H still had a "baby vocabulary" with nouns and interjections too prominent, with verbs, pronouns and adjectives in too small proportions and prepositions and conjunctions entirely lacking. At three her proportions are those of the typical "child vocabulary". (6).

*Pronunciation.* The most striking mispronunciations of this child were inability to say k, g, s and f. H was a favorite substitute for these unpronounceable sounds; it was used instead of f, s, sh, sn, and th (soft). D was substituted for initial g, j and th (hard) and for z, while t took the place of initial ch and k. Initial v was w, final v was b. She could pronounce medial or final k, as "tacker" and also final s. Th (hard) later became y as "yat" and "yey". She could say s by itself but not as the initial sound of a word: when we tried to get her to imitate "ss—soap", she would say—"ss—hoap".

F, s and sh were attained by three years and k and g by three and a half. Her pronunciation was practically perfected at this time; she could say everything if she tried to, but she often did say "fing" and "free" for "thing" and "three". Thus, although until she was nearly three her pronunciation was decidedly infantile, by three and a half she talked more distinctly than any of her sisters at the same age.

*Mistakes and Omissions.* At three she often omitted the verb "to be". Of auxilliary verbs she used "can", "couldn't", "might", "will" and "would". She used no relative pronoun until she was three and a half; then she employed "what", as, "The lady what washes our dishes, taked me up." She did not use "if" until she was 53 months old, either omitting it or substituting "or", despite our corrections. When she finally did master it, for a short time

she employed it consistently instead of "or", even when "or" was the proper term. (E (3) used "if" at three, D (4) at 4, but R (5) did not attain it until later.)

*Sources of Her Nouns.* The sources of this child's nouns are shown both in numbers and percentages in Table II.

TABLE II.  
Sources of Her Nouns.

Age in years	Numbers		Percentages.	
	2	3	2	3
Body .....	13	28	12.3	6.5
Health .....	0	6	0	1.5
Clothes .....	18	46	17.0	10.7
Food .....	23	66	21.6	15.3
Play, .....	11	35	10.4	8.1
I. Personal Experiences ----	65	181	61.3	42.1
II. Indoor Environment ----	8	60	7.6	14.0
Civilization .....	2	25	1.9	5.6
Sky and Landscape .....	2	15	1.9	3.5
Plants .....	3	11	2.8	2.5
Animals .....	18	80	16.9	18.7
III. Outdoor Environment...	25	131	23.5	30.5
IV. People .....	6	22	5.7	5.2
V. Pictures and Stories....	2	6	1.9	1.5
Time .....	0	8	0	1.9
Position .....	0	6	0	1.5
Quantity .....	0	5	0	1.1
Indefinite .....	0	5	0	1.1
Abstract .....	0	5	0	1.1
I. Abstract, time, etc. ....	0	29	0	6.7
Total .....	106	429	100	100

We now have five children (all girls)\* whose nouns have been thus divided at the age of three. H has the largest proportion from personal experiences of any; hers being 42.1 per cent while the others range from 33.9 to 39.7 per cent. She also has the largest proportion from outdoor environment; hers being 30.5 while the others range from 17.5 to 28.8. The explanation of this would seem to lie—at any rate in comparison to her sisters—not in an extraordinary interest in nature but in the fact of her visits to the zoo where she learned many animals from real life that her sisters had only

\*Brandenburg's daughter (1); Boyd's daughter, (3) and E (3), D (4), and H.

seen in pictures at this age, her numbers of words from pictures and stories being correspondingly small. She has the smallest proportion of abstract terms of any of the children, hers being 6.7 per cent while theirs range from 8.4 to 14.7 per cent.

Her vocabulary is the smallest of these children, and apparently seems to be the least mature, from the fact of having the largest proportion from personal experiences and the smallest proportion of abstract terms.

*Adjectives.* The numbers and percentages of H's adjectives at two and three years are shown in Table III.

TABLE III  
The Adjectives.

Age in years	Numbers		Percentages.	
	2	3	2	3
Article -----	0	2	0	2.2
Demonstrative -----	0	6	0	6.3
Quantitative -----	1	10	14.3	10.5
Qualitative -----	6	77	85.7	81.0
Color -----	0	12	0	12.6
Spacial -----	1	14	14.3	14.8
Sense -----	2	9	28.6	9.4
General -----	3	42	42.8	44.2
Total -----	7	95	100	100

H and D had practically the same number of adjectives at the age of three, H having just one more qualitative adjective than her sister.

As to color names I heard R testing the 30 month old H as to the colors of crayons: "black" was named correctly but yellow was called "b'own", then "g'een". Red was "p'etty." At 33 months H knew red and pink, but not blue, yellow, green, orange, or purple. A week later I tested her and found she knew black, white, red and pink, and sometimes brown and blue, but never green. Two days later I noted: "As I've long suspected she uses 'red' and 'pretty' as synonyms. She said to me, 'My night down pink.' I asked, 'Is it pretty?' 'No', said she, 'pink id pink. Wed pwetty'".

When 34 months old she knew yellow and orange. By three years she had added blue, brown, gold, green, grey and purple—12 colors in all.

*Adverbs.* The numbers and percentages of the different classes of adverbs are shown in Table IV.

TABLE IV.  
The Adverbs.

Age in years	Numbers		Percentages.	
	2	3	2	3
Time -----	0	7	0	14.0
Place -----	10	22	83.3	44.0
Manner -----	0	9	0	18.0
Degree -----	0	8	0	16.0
Modal -----	2	4	16.7	8.0
Total -----	12	50	100	100

H's first four adverbs denoted place—"away", "down", "there" and "out", while her fifth was modal—"no". Adverbs of place account for three fourths of her adverbs at two and more than four-tenths at three.

#### The Short Sentence.

Sometime between the ages of two and two and a half years H attained the short sentence—i. e. her sentences averaged from 3.5 to 4.5 words in length. This stage seems to have lasted about a year.

Sample conversations at two and a half and three will be given.

2½ years. Want look 'ner (another) book. Tow (cow) in yis book. Tow. Yis my tow. Yis a horhy (horse). Two horhy here. Yis my tow. Yat tiger. Tow dib Barbar milk. An' Daddy milk too. An' Mamma milk too. Bunt me. Bunt Barbar. Bunt Daddy. Bunt Mamma. Hitter (Sister, i. e. herself) hind (find) 'ner moon. (Average of 43 sentences: 3.7 words).

3 years. Yere a deer, Mamma. Hee (see), he tan't det him. Yat hing (thing) tan't det him. Yes. He up higher. He hafe (safe). He hafe. He hafe. He on a tower. He on a tower. He on a tower. Mamma yes'day I did hee yat kind. Har (far) away it was. Har away it was. Har away. Har away. No. Yes. An' people tum along and hoot (shoot) it And Mamma, hum (some) people tum along and 'tepped on it. Yat rabbit were running ho (so) hast (fast). (Average of 455 sentences; 4.4 words.)

In the sample at 30 months the copula and auxilliary were uniformly omitted; while pronouns, articles and prepositions were sometimes left out. Much greater skill in speech was evident at three years, yet the copula was still usually omitted. At neither time did she inflect her verbs, mistakes in person as well as tense being made. Of the 43 sentences at 30 months 54 per cent were incomplete: while at three this was the case with only 27 per cent of 455 sentences.



**The Complete Sentence.**

The following example at the age of 3½ years shows that the complete sentence averaging 6 to 7 words had been attained and also that inflections had been mastered. (Telling about a "Jager" a strange creature she had drawn.)

Eats bad birds and lions too and eats polar bears too. It's very friendly with people. It never eats field sparrows; not any days it does. It eats ink and pockets and heads. It eats bad people's heads.

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