

XXX. THE SPEECH DEVELOPMENT OF A
LITTLE GIRL
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The speech development of our second daughter has been of special interest because of its late beginning and subsequent rapid progress. Not until she was twenty months old did she say her first word. Soon after she was two, however, she acquired words so fast that by the age of three she had a larger vocabulary than her sister H who started talking at fifteen months, and even larger than those of two children (Pelsma's and Bateman's daughters) who had begun at ten months.*

Physical Factors. D has always been a large and healthy child; she has had no adenoids or any defects of hearing nor of her vocal apparatus. She crept at ten months and walked at fifteen. She was ambidextrous to some extent till after she was two years old; at 25 months I noted, "When she draws on the blackboard or on a paper she is as apt to use her left hand as her right." She outgrew this ambidextrous tendency rapidly; in a month or two she used her right hand exclusively when using chalk or crayon.

Her Environments. D's chief environments have been a small town in Oklahoma throughout the fall, winter and spring, and the country in Massachusetts during the summer. Since her birthday occurs in the middle of November her two, two and a half, three and four year vocabularies were taken in Oklahoma and only the beginnings of her speech in her 20th and 21st months were recorded in Massachusetts. She has always had her sister as a playmate as well as many other children. She has been slower in her development of appreciation of literature than her sister E (Nice, '15; '17), but up to her fourth birthday she had heard much Mother Goose, many fairy stories, Beatrix Potter Tales and various poems. She liked animals and had many to play with but nature has never been as absorbing interest with her.

Beginnings of Speech. When D was 16 months old we thought she was beginning to talk for she said, "Loo ga" which we interpreted as "Look there!" Two weeks later she said, "Look here" and "Look-a-der." However, as these were speedily dropped they seem to have been mere chance imitations with-

*The ages at which our first and third daughters said their first words were as follows: E at 13 months and R at 16. Pelsma's daughter had a vocabulary of 681 words at three years, Bateman's daughter 738 and H 805.

out meaning. It was not until seven months later that "look" really appeared, and "there" was delayed another three months.

When 20 months old she at last began to talk, her first word being "wow-wow-wow," which she uttered when she saw a dog or a picture of one. Soon after this "Mamma" was definitely applied to me, and "ba-ba" was said as she waved goodby. However, she used her repertoire but little.

Her early words follow in chronological order.

(T. W., means Total Words; N. W., means New Words.)

20 months. T. W.—3.

Wow-wow-wow* (dog); Mamma; ba-ba—goodby.

21 months. N. W.—4; T. W.—7. Hello, kiddy—kitty, peek, umph-umph (when asked what the pig says).

22 months. N. W.—9; T. W.—16.

Baby (her baby cousin), be'—bed, bo'—boy (pointing to a picture), moo-moo (when she saw a cow), bi'—pin, qua-qua (what the duck says), bepee (what the phoebe says), na-na (no), too-too—train (whenever she saw or heard one).

23 months. N. W.—16; T. W. 32.

Gickie—chicken, Ga-ga (her sister), oo-oo-oo (what the rooster says), doe—toe, go'—coat, do'—door, bi'—bib, r'r (what the lion says), doo—shoe, gook or 'ook—look, goo'-nigh'—good-night, do'—don't g'ock—clock (also watch and compass), bru'—bread, gink—drink, back, (adverb, first said when she wished the tooth powder put back in its place).

24 months. N. W. 13; T. W. 45.

Ma'—man, ba'—ball, b'ock—block, do'—dog, mor'—good morning, duck (toy), be'—belt, bee—please, mit'—mittens, book, gick—stick, gake—cake, do'—doll.

25 months. N. W.—23; T. W.—68.

Be'—bear, boo'spoon, ear, bu'—button (noun), eye, dirt, more, ga'—glasses (spectacles), gut—cut, mi'k—milk, gow—cow, big—pig, gurk—turkey (seen on a farm), ba' or bu'—bunny, gat—cat, meat, gop—get up, dere, neck, mou'—mouth, dow'—down (when she wanted to get down from her chair), e'—egg, ott—off (when she wanted her bib or sweater off).

Status at Two years. Her vocabulary of 45 words at two years was, of course, very small for this age. It consisted of 33 nouns; 3 verbs; 3 adverbs and 4 interjections. Two days after her second birthday I recorded her whole day's conversation; it went as follows:

*The dog's bark might have been imitated from nature; all the other animal sounds were learned from her parents.

Dirt. Dirt. Dirt. Dirt. Do' (doll). Do'. No. Boo' (spoon). No-no. Do'. Do'. Gook (look). Mamma. Mamma-ma. Do'. Mamma. Bu' (button). Bu'. Bu'.

This totaled 7 different words and 20 in all.

When 24½ months old she first began to put words together, as "more b'ead" and "more meat, p'ea'."

Development from Twenty-five to Twenty-seven Months. In her 25th month D learned 17 nouns, 2 verbs, 1 adjective and 3 adverbs, so that her vocabulary consisted of 68 words distributed as follows: 52 nouns, 5 verbs, 1 adjective, 6 adverbs and 4 interjections. When she was 25 months and 12 days old I again recorded her all day conversation; this time she said 28 different words and 152 in all. All of these were single words except that several "more's" were said in succession. The words with the number of times each was used follow: More (67),* up (13), get up (10), come (7), look (6), neck (4), shoe (4), snake (4), star (4), bed (3), broke (3), no (3), please (3), there (3), hello (3), baby (2), nose (2), and the rest once each: bread, butter, cow, doll, hat, milk, moon, bath, bump, outdoors, oh.

During her 26th month she made a marked advance in language, adding 70 words. Forty of these were nouns, 11 verbs, 9 adverbs, 5 adjectives and one an interjection. Pronouns and prepositions first appeared in this month; they were "me" and "my" and "in" and "on". The next month she began to "practice" her English, something none of her sisters did. She would say: "Dou (you) wake up. Me wake up. Bap (Papa) wake up. Gon wake up. Lolock (Goldilocks, a doll) wake up." Another series ran: "My eye. Dou eye. Gon eye. Donkey eye."

The order of appearance of the parts of speech was: nouns and interjections in the 20th month, verbs in the 21st, adverbs in the 22nd, adjective in the 25th, pronouns and prepositions in the 26th and conjunctions in the 30th month.

The Vocabularies from 26 Months to Four Years

The 26 month vocabulary was obtained by recording all the words heard up to that time. The 30th month and four year vocabularies were taken during the month preceeding each birthday.

Each word in the following list was repeated in each subse-

*Fifty-seven of the times "more" was uttered was in request for rhymes. At this time D had a mania for hearing any kind of a rhyme and demanded this entertainment incessantly saying "more, more, more, more, more." This one word accounted for 44 per cent of the total number of words used during this day.

quent vocabulary except those words in parenthesis which were dropped later; however, those followed by a numeral reappeared at the age shown. Proper nouns and inflections are omitted. The mispronunciations are not indicated.

NOUNS

26, 86; 30, 298; 3, 456; 4, 807.

I. Personal Experiences. 26, 47; 30, 137; 3, 179; 4, 292.

1. Body.

26: T. W.—8.

Ear, eye, cheek, foot, hand, mouth, neck, toe.

30: N. W.—12; T. W.—20.

Arm, back, blood, face, finger, hair, head, lap, leg, teeth, thumb, tummy.

3: N. W.—8; T. W.—28.

Bone, breast, finger-nail, knee, mucous, nose, tip-toes, tongue.

4: N. W.—9; T. W.—37.

Body, chin, forehead, heart, heel, lip, shoulder, skin, throat.

1a. Health.

3: N. W.—5.

Bite, cold, (enema), sliver, (whooping cough).

4: N. W.—10; T. W.—13.

Bacteria, bandage, boracic acid, fever, peroxide, scratch, snuffles, stearate of zinc, vaccination, vaseline.

2. Clothes.

26: T. W.—11.

Belt, button, coat, handkerchief, hat, mittens, pin, pocket, romper, shoe, stocking.

30: N. W.—23; T. W. 34.

Apron, (band), bloomers, (button-hole), clothes, didy, drawers, dress, garter, night gown, (nightie), overalls, ribbon, rubbers, safety-pin, sandals, shirt, (sleeping bag)3, slipper, sock, sweater, wrapper. Hole.

3: N. W.—4; T. W.—35.

Chain, dicky, (jacket), sleeves.

4: N. W.—19; T. W.—53.

Bobbs, bracelet, button-hook, cap, middy, muff, necktie, petticoat, raincoat, ring, stripes, sunbonnet, suit, tassel, under clothes, union, waist. Spot, wrinkle.

2a. Toilet

26: T. W.—6.

Comb, soap. 3

30: N. W.—5; T. W.—7.

Bath, bath, cotton, powder, starch, towel, wash, soap, soap.

4: N. W.—3; T. W.—10.

Tooth brush, tooth powder, wash cloth.

3. Food.

26: T. W.—10.

Apple, bread, cake, cracker, drink, egg, juice, meat, milk, prunes.

30: N. W.—19; T. W.—29.

Apple-sauce, berries, butter, cooky, corn flakes, corn puffs, cream, cream of wheat, custard, honey, muffin, oatmeal, peas, potato, salmon, salt, soup, sugar, water.

3: N. W.—7; T. W.—36.

Banana, (drumstick), (krumbles), loaves, orange, peaches, pie.

4: N. W.—29; T. W.—63.

Baking powder, beans, beef, candy, cauliflower, cheese, cherries, cocoa, coffee, cream of rice, doughnut, flour, food, fudge, graham cracker, hash, ice cream, macaroni, nut, onions, peanut, puffed rice, rice, soda, strawberry, sugar lump, toast, wafers, white sauce.

3a. Eating.

26: T. W.—3.

Bib, cup, spoon.

30: N. W.—9; T. W.—12.

Breakfast, desert, dinner, dish, fork, knife, napkin, plate, supper.

3: N. W.—2; T. W.—14.

Bowl, table-cloth.

4: N. W.—3; T. W.—17.

Dining room, lunch, mouthful.

4. Play and Occupations.

26: T. W.—12.

Ball, bear* 3, block, doll, donkey*30, drum*30, duck*30, stick, swan, tower. Book, pencil.

30: N. W.—19; T. W.—30.

Box, cart, football, (hoop), lamb*3, lion*3, penny, (puppy-dog)3, rake, sandpile, sheep*3, shovel, slide, toy. Catalog, crayon, paper, picture, plasticine.

3: N. W.—21; T. W.—44.

Cord, domino, pail, present, pumpkin, purse, sail, string, tea-kettle, (tea-set), Teddy-bear, wagon, wheel, (wigwam). Advertisement, letter, line, (map), postal card, song.

4: N. W.—41; T. W.—81.

*These words were learned from real life at the dates indicated.

Balloon, bank, beads, bubbles, cent, cradle, game, Jack o' Lantern, marble, play house, procession, rattle, see-saw, snow-ball, somersault, stilts, swing, tent, tricycle, velocipede, wheel-barrow. Blackboard, cardboard, chalk, cylinders, invitation, lesson, magazine, mark, note, pad, pages, paint, paste, pattern, parquetry, puzzle, seal, sewing-card, poem, words.

4a. Experiences.

26: T. W.—1.

Nap.

30: N. W.—4; T. W.—5.

Noise, party, sleep, walk.

3: N. W.—5; T. W.—10.

(Actions), (jump), kiss, picnic, trip.

4: N. W.—10; T. W.—18.

Dream, hold, jingle, journey, reach, ride, run, rustle, sound, squeaks.

II. Indoor Environment.

26, 7; 30, 46; 3, 78; 4, 142.

1. House.

26: T. W.—6.

Bed, broom, clock, door, ink, stamp.

30: N. W.—34; T. W.—41.

Basket, bathroom, bathtub, bedroom, bee room, bottle, cellar, chair, chamber, cover, desk, drawer, dust pan, fireless cooker, floor, hall, high chair, house, key, kitchen, light, needle, newspaper, pillow, playroom, rocking chair, rug, sheet, stove, study, thimble, verandah, wash, window, window-sill.

3: N. W.—29; T. W.—69.

(Bell), blanket, cedar chest, closet, cloth, crib, cupboard, duster, envelope, fire, looking glass, match, rack, room, scissors, side-board, spool, stairs, steps, stopper, suit case, table, telephone, thread, toothpick, trunk, umbrella, wall.

4: N. W.—59; T. W.—126.

Ashes, attic, axe, banister, basin, blotter, book case, bundle, bureau, can, candles, case, ceiling, chimney, clothespins, coal, cork, curtain, dish towel, doorway, electric toaster, furnace, furniture, glue, home, knob, mattress, mirror, mop, oil, oven, package, pan, pane, pen, piano, pillow-case, pipe, plaster, post, record, refrigerator, rope, ruler, screens, screws, sewing machine, shade, shelf, spread, stairway, stool, strainer, typewriter, Victrola, waste basket, weighing machine, wood.

2. Other's Belongings.

26: T. W.—1.

Glasses.

30: N. W.—4; T. W.—5.

(Collar)3, money, tie, watch.

3: N. W.—4; T. W.—9.

Bag, gloves, (hat pin), trousers.

4: N. W.—9; T. W.—16.

Beard, camera, check, check-book, film, gold, nipple, suspenders, sword.

III. Outdoor Environment.

26, 21; 30, 81; 3, 123; 4, 201.

1. Civilization.

26: T. W.—4.

Automobile, (choo-choo), hammer, nail.

30: N. W.—15; T. W.—18.

Barn, bicycle, brick, (brooder), carriage, corn, flag, (incubator), laboratory, mail, sidewalk, train, university, wire, yard.

3: N. W.—27; T. W.—43.

Barrel, boards, boat, bridge, cannon, (freight car), freight train, fence, gate, grain, hay, henhouse, ladder, (mash), path, road, roof, (roosts), skates, smoke, store, ticket, (time table), tracks, trolley, (whistle).

4: N. W.—15; T. W.—53.

Chicken house, church, city, corn cobs, engine, gun, hen coop, hotel, hoe, porch, seat, station, town, trap, water meter.

2. Sky and Landscape.

26: T. W.—3.

Dirt, moon, stars.

30: N. W.—7; T. W.—10.

Air, ice, mud, rain, sun, thunder, wind.

3: N. W.—6; T. W.—16.

Brook, (downpour), mountain, rocks, sand, sky.

4: N. W.—19; T. W.—34.

Clouds, field, ground, icicles, lake, land, lightning, meadow, pond, pool, puddle, river, sea, snow, stones, storm, waterfall, waves, world.

3. Plants.

26: T. W.—1.

Tree.

30: N. W.—10; T. W.—11.

(Blue-eyed grass)4, dandelion, poppy mallow, rose, (shepherd's purse), (spring beauty)4. Flower, grass, leaf, seed.

3: N. W.—4; T. W.—12.

Acorn, garden, prickles, thorn.

4: N. W.—13; T. W.—27.

Blueberries, buttercup, clover, daisy, gourd, jack-in-the-pulpit, poison ivy, steeple bush. Bark, burs, plant, stem.

4. **Animals.***

a. **Insects.**

26: T. W.—1.

Bee.

30: N. W.—6; T. W.—7.

Ant, butterfly, fly, mosquito, wasp. Bee-hive.

3: N. W.—3; T. W.—10.

Beetle, caterpillar, (lady-bug).

4: N. W.—9; T. W.—18.

Bug, crickets, grasshoppers, honeybee, insects, moth, water boatmen, water striders. Wax.

b. **Other Invertebrates.**

30: T. W.—2.

Angeworm, snail.

4: N. W.—3; T. W.—5.

Shell, web, worm.

c. **Fish, Amphibia, Reptiles.**

30: T. W.—8.

Frog, (horned toad)4, (pollywog), (tadpole)4, toad, (tree frog), turtle. (Fish-food.)

3: N. W.—1; T. W.—4.

Fish.

4: N. W.—2; T. W.—8.

Salamander, snake.

d. **Birds.**

26: T. W.—4.

Bird, chicken, turkey. (Cock-a-doodle-doo.)

30: N. W.—8; T. W.—11.

Bluejay, (chickie-bid), duck, hen, rooster, woodpecker, wren

Droppings.

3: N. W.—2; T. W.—12.

Goose, pullet.

4: N. W.—13; T. W.—25.

Blackbird, bluebird, cardinal, English Sparrow, flicker, meadowlark, pigeons, robin, whip-poor-will. Bill, feathers, nest, wing.

e. **Mammals.**

26: T. W.—8.

*For other animal names look under "Words from Pictures and Stories."

Bunny, calf, cat, cow, dog, kitty, mule, pig.

30: N. W.—6; T. W.—14.

Animal, donkey, horse, mouse, rabbit. Tail.

3: N. W.—10; T. W.—24.

Bear, deer, goat, lamb, lion, pony, puppy, sheep, squirrel.

Paws.

4: N. W.—7; T. W.—31.

Cotton-tail, kitten, pussy-cat, rat. Fur, pet, whiskers.

IV. People.

26, 5; 30, 13; 3, 19; 4, 37.

26: T. W.—5.

Baby, boy, mamma, man, papa.

30: N. W.—8; T. W.—13.

Girl, grandma, lady, mother, people, woman. Baker, ice-man.

3: N. W.—6; T. W.—19.

Children, father, grandpa, sister, uncle. Mailman.

4: N. W.—18; T. W.—37.

Aunt, cousins, daughter, family, friend, grandfather, grandmother, neighbors, person, visitors. Breadman, conductor, dentist, grocer, porter. Creeper, slowpoke, sweetheart.

V. Words from Pictures and Stories

26, 6; 30, 10; 3, 13; 4, 41.

26: T. W.—6.

Fox, geese*3, monkey, snake*3, (Phoebe), (r'r, lion).

These words were learned from real life in the years indicated.

30: N. W.—8; T. W.—10.

(Cage), (cobra), elephant, fight, (henny-penny), jack-rabbit, (mongoose), tiger.

3: N. W.—7; T. W.—13.

Camel, ostrich, owl, porcupine, wolf. (Jumping-jack), (porridge).

4: N. W.—30; T. W.—41.

Anteater, beaver, crab, eagles, hummingbird, jackal, lioness, ox, parrot, pheasant, polar bear, quail, rattle snake, raccoon, screech owl, skunk, wood chuck. Angel, devils, enemy, giant, hero, king, queen, soldiers. Aeroplane, castle, hospital, palace, riddles.

VI. Abstract, Time, Position, etc.

26, 0; 30, 11; 3, 44; 4, 94.

1. Time.

30: T. W.—2.

Night, time.

3: N. W.—10; T. W.—12.

Birthday, day, dinnertime, minute, morning, o'clock, summer, today, while, yesterday.

4: N. W.—8; T. W.—20.

Afternoon, age, tomorrow, tonight, wedding, week, winter, year.

2. Position.

30: T. W.—4.

Corner, place, room, top.

3: N. W.—5; T. W.—9.

Bottom, (edge), end, middle, side.

4: N. W.—5; T. W.—13.

Back, front, inside, outside, space.

3. Quantity.

30: T. W.—2.

Bit, enough.

3: N. W.—5; T. W.—7.

(Amount), lot, miles, piece, pile.

4: N. W.—10; T. W.—16.

Deal, drops, half, lump, mass, number, part, rest, snip, speck.

4. Indefinite.

3: T. W.—5.

Anybody, anything, everybody, somebody, something.

4: N. W.—3; T. W.—8.

Everything, nobody, nothing.

5. Abstract.

30: T. W.—4.

Fun, thing, way.

3: N. W.—8; T. W.—11.

Calamity, (feelings), kind, joke, matter, name, plan, (surprise).

4: N. W.—28; T. W.—37.

Attention, business, coldness, color, dirtiness, dryness, foolishness, harm, heat, hurry, life, mischief, mistake, nature, order, plenty, purpose, rule, self, shame, size, smell, sort, strength, trouble, use, weight, work.

VERBS

26, 17; 30, 123; 3, 189; 4, 336.

26: T. W.—17.

Baked, broken, bump, button, carry, come, cut, dance, don't, eat, (get-up), go, look, mark, peek, tore, turn.

30: N. W.—107; T. W.—123.

Am, are, be, bite, blow, bring, brush, build, burnt, called, can, can't, catch, (chop), climb, cook, cover, cry, dig, do, dress,

fall, feel, find, fix, fly, gave, get, hang, have, hear, help, hop, hurt, kiss, knock, know, lay, leave, let, lie, like, lost, love, make, mean, might, mend, need, open, pat, (peep), pick, play, (poke)⁴, (pound)⁴, pour, prick, pull, put, rain, rap, read, ride, run, scratch, see, send, shoo, shut, sing, sit, sleep, slide, slip, smell, spill, splash, (squashed)⁴, stand, sticking, sting, stir, sweep, swing, take, tell, thank, think, throw, tie, tumble, unbutton, (unbuckled), wait, wake, walk, want, wash, wear, (welcome), will, wipe, work, would, wrap, write.

3: N. W.—73; T. W.—189.

(Answer), black, bark, (belong), (cling), cough, could, creep, curl, (entertain), fit, fold, galloping, glue, guess, happen, hide, hit, hurry, (hush), iron, is, jump, kill, (leak), lean, lift, lock, may, must, nurse, ought, pack, paint, pass, push, reach, ring, rinse, rub, sail, say, (scamper), (scramble), sew, skate, smiling, smash, spit, step, stop, suck, squeak, swim, teach, (tickle), (tip), touch, trouble, try, tuck, (twisted), undone, (unwind), used, visit, watch, went, were, wet, (whack), wind, wish.

4: N. W.—157; T. W.—336.

Address, allowed, ask, balance, banging, beat, begging, begin, bend, blot, boiled, boosted, born, bother, burst, buy, camping, care, changed, chapped, check, choke, choose, color, cost, counting, crack, crawl, crayon, cure, dabble, dash, decided, decorated, died, dirty, discover, draw, dream, drink, drop, excuse, expect, fear, feed, finish, frozen, gargle, gazing, grow, grunt, guard, handle, hatched, haul, hold, howling, hunting, incubated, injure, invite, itches, jiggle, jingle, keep, kick, last, laugh, learn, lick, live, marry, match, matter, milk, mop, move, named, nip, order, paper, paste, pasteurize, pecked, pile, pin, pinch, poison, polished, prance, protect, punch, rattle, remember, rescue, roaring, rock, roll, rowing, rush, save, scald, scowl, screw, seal, set, shake, shall, sharpen, shave, shine, shoot, should, shout, show, skin, skip, sneeze, snow, snuffling, spank, spare, spatter, spell, spread, squeeze, stain, stamping, start, stay, steal, strain, strike, study, suit, support, supposed, swoop, talk, taste, telephone, travel, typewrite, undress, unfasten, unfold, unpin, untangle, untie, upset, vaccinate, vanish, warming, waste, whisper, wonder, yelling.

PRONOUNS

26, 2; 30, 14; 3, 25; 4, 44.

I. Personal

26: T. W.—2.

Me, my.

30: N. W.—8; T. W.—10.

He, her, I, it, mine, myself, them, you.

3: N. W.—6; T. W.—16.

Him, they, us, we, your, yours.

4: N. W.—10; T. W.—26.

Herself, himself, his, its, our, ours, she, their, themselves,
yourself.

II. Relative.

3: T. W.—1.

What.

4: N. W.—2; T. W.—3.

That, who.

III. Interrogative.

30: T. W.—1.

What.

4: N. W.—3; T. W.—4.

Which, who, whose.

IV. Demonstrative.

30: T. W.—1.

That.

3: N. W.—3; T. W.—4.

These, this, those.

V. Adjective

30: T. W.—2.

One, some.

3: N. W.—1; T. W.—3.

Other.

4: N. W.—4; T. W. 7.

All, each, each other, same.

ADJECTIVES

26, 5; 30, 46; 3, 97; 4, 162.

I. Article

30: T. W.—1.

A.

3: N. W.—1; T. W.—2.

The.

II. Demonstrative

30: T. W.—5.

Another, any, other, some, that.

3: N. W.—2; T. W.—7.

This, these.

4: N. W.—4; T. W.—11.

Each, such, these, various.

III. Quantitative

26: T. W.—2.

More, two.

30: N. W.—5; T. W.—7.

All, many. One, three, four.

3: N. W.—5; T. W.—12.

First, most, next, whole. Hundreds.

4: N. W.—3; T. W.—15.

Both, every, last.

IV. Qualitative.

26, 3; 30, 33; 3, 76; 4, 134.

A. Color.

26: T. W.—2.

Black, dark.

30: N. W.—3; T. W.—5.

Blue, tan, white.

3: N. W.—4; T. W.—9.

Brown, green, red, yellow.

4: N. W.—7; T. W.—16.

Grey, orange, pink, purple, rosy. Colored, shiny.

B. Spatial

30: T. W.—5.

Big, (great)3, high, little, tiny.

3: N. W.—8; T. W.—13.

Far, full, (hind), larger, long, low, (teeny), (weeny).

4: N. W.—9; T. W.—18.

Fat, deep, round, short, small, straight, tall, tremendous.

upper.

C. Sense

26: T. W.—1.

Hot.

30: N. W.—4; T. W.—5.

Cold, dry, warm, wet.

3: N. W.—7; T. W.—12.

Hard, heavy, slippery, soapy, sopping, sore, sweet.

4: N. W.—3; T. W.—15.

Sharp, smooth, smelly.

D. General

30: T. W.—18.

Asleep, bad, careful, clean, cunning, (dangerous), dirty,
 funny, good, happy, hungry, nice, open, (own)4, pretty, ready,
 sleepy, tired.

3: N. W.—26; T. W.—42.

Afraid, alone, (angry), best, busy, dead, fast, fine, (fresh), mean, naked, naughty, new, old, (ragged), right, silly, sorry, (spandy), (splendid), terrible, through, tight, ugly, (wooley), wrong.

4: N. W.—48; T. W.—85.

Alive, awake, bare, beautiful, brave, bushy, cheerful, contented, crippled, darling, dear, different, difficult, disappointed, discouraged, fair, fancy, foolish, fortunate, friendly, gay, glad, horriddest, important, interesting, lame, loose, loud, magic, merry, mussy, poor, quick, rainy, real, rusty, sick, slow, squeaky, tender, thirsty, tin, true, unhappy, useful, weak, wonderful, wooden.

ADVERBS

26, 15; 30, 39; 3, 59; 4, 115.

I. Time

30: T. W.—5.

Again, now, (someday)4, still, when.

3: N. W.—2; T. W.—6.

Ago, (sometimes).

4: N. W.—9; T. W.—15.

Always, before, ever, finally, first, never, once, soon, then.

II. Place.

26: T. W.—13.

Around, back, down, downstairs, here, off, outdoors, over, up, upstairs, there, way, where.

30: N. W.—8; T. W.—21.

(Along)4, away, home, in, indoors, out, outside, through.

3: N. W.—8; T. W.—28.

Backwards, behind, far, near, (sideways), underneath, upside down, wrong side out.

4: N. W.—9; T. W.—37.

Across, ahead, apart, by, farther, inside, on, somewhere, wherever.

III. Manner.

30: T. W.—4.

Barefoot, better, right, so.

3: N. W.—5; T. W.—9.

Anyhow, fast, horseback, how, quickly.

4: N. W.—27; T. W.—36.

Anyway, apparently, badly, busily, carefully, certainly, easily, for instance, gently, happily, headfirst, instead, lightly, like, neatly, nicely, perfectly, really, safely, simply, slowly, suddenly, terrifically, together, truly, well, why.

IV. Degree

30: T. W.—5.

All, just, much, too, very.

3: N. W.—6; T. W.—11.

A little, almost, else, more, nearly, quite.

4: N. W.—9; T. W.—20.

About, as, either, enough, even, mostly, only, pretty, rather.

V. Modal

26: T. W.—2.

No, please.

30: N. W.—2; T. W.—4.

(Maybe)4, (probably)3.

3: N. W.—2; T. W.—5.

Not, yes.

4: N. W.—2; T. W.—7.

Of course, perhaps.

PREPOSITIONS.

26, 2; 30, 9; 3, 14; 4, 20.

26: T. W.—2.

In, on:

30: N. W.—7; T. W.—9.

At, for, of, over, to, under, with.

3: N. W.—5; T. W.—14.

About, behind, (except), from, without.

4: N. W.—7; T. W.—20.

Across, after, before, beside, by, into, through.

CONJUNCTIONS.

26, 0; 30, 1; 3, 8; 4, 11.

30: T. W.—1.

And.

3: N. W.—7; T. W.—8.

Because, but, so, till, when, where, (while).

4: N. W.—4; T. W.—11.

If, or, than, whether.

INTERJECTIONS.

26, 5; 30, 7; 3, 9; 4, 12.

26: T. W.—5.

Goodby, good-morning, good-night, hello, oh.

30: N. W.—2; T. W.—7.

How d'you do, ouch.

3: N. W.—2; T. W.—9.

Well, why.

4: N. W.—3; T. W.—12.

Good afternoon, goody, gracious.

Proportions of the Parts of Speech

The numbers and percentages of the different parts of speech at the four different ages are given in Table I.

TABLE I.

	The Parts of Speech				Percentages			
	Numbers							
Age	26	30	3	4	26	30	3	4
Nouns	86	298	456	807	65.2	55.6	53.2	53.6
Verbs	17	123	189	336	12.8	22.8	22.1	22.3
Pronouns	2	14	25	44	1.5	2.6	2.9	2.9
Adjectives	5	46	97	162	3.1	8.4	11.2	10.7
Adverbs	15	39	59	115	12.1	7.4	7.0	7.7
Prepositions	2	9	14	20	1.5	1.7	1.7	1.3
Conjunctions	0	1	8	11	0.0	0.2	0.8	0.7
Interjections	5	7	9	12	3.8	1.3	1.1	0.8

Total 132 537 857 1507 100 100 100 100

At 26 months with 132 words D still had a "baby vocabulary" with a high proportion of nouns, adverbs and interjections and a low percentage of verbs, pronouns, adjectives and prepositions, while conjunctions were entirely lacking. At 30 months her 537 words approximated the proportions of the usual "child vocabulary" except that adjectives were present in somewhat too small numbers. By three years her proportions are typical of those of most child vocabularies. The next year they are practically unchanged, the largest variation in any part of speech being half of one per cent.

Rate of Learning. This child learned three words in her 20th month, 4 in her 21st, 9 in her 22nd, one word every other day for the next two months, 2 words every three days in her 25th month and 2.3 words a day in her 26th month. In the next four months she was evidently making up for lost time as she learned 3.3 words a day. During the next six months the rate dropped to 1.9 words a day. The rate for the whole year from two to three was 2.2 words a day and between three and four it was 2 words a day.

If she had kept up this rate during the next year her vocabulary at five years would have contained 2236 words. A month before her fifth birthday I tested her on the Stanford vocabulary and she defined 20 words which gave her an understood vocabulary of 3600 words—the number expected of eight year old children. If we calculate on the basis found in E's dictionary test

(Nice, '17:238) where the spoken vocabulary equalled two-thirds of the understood words, D's spoken vocabulary would have been 2400 words. When eight years old her vocabulary according to the Stanford test amounted to 6480 words—the eleven year level; and at nine it came to 9000 words.

Pronunciation. D had the worst pronunciation of all our children until after she was three, but by four her enunciation was much better than that of E or R; H attained correct pronunciation a little earlier than D. At 26 and 30 months the following initial sounds were replaced by b: cr, dr, f, fl, fr, g, pr, qu, scr, sp, spl, sw, v, wh. These initial sounds were replaced by d: j, s, sh, sk, st, th, y. T was used instead of the following final sounds; f, s, sh, th. Ch was replaced by t or g, l was omitted after b, c and p; s was omitted before m and n, while final g was dropped in ing.

Examples were "Been bat" for "green grass"; "Wat my bate" for "wash my face", and "Bunny ding" for "Funny thing."

At three her pronunciation was the same except that j, pr, sh, th and y were correctly pronounced; s was usually pronounced when medial and final, and ch was now sh. She never liked to have her mispronunciations repeated by anyone; this seldom happened but "buzz" instead of "fudge" was irresistible; D, however, would protest earnestly, "Buzz mean buzz." She could pronounce s and f when asked to do so but not in connection with a word—for instance she would say "ss—dee" and "ff—bat." When 39 months old she woke up one morning able for the first time in her life to pronounce her f's in words. Mastery of s came more gradually. When she was three and a half I noted, "She can say 'cry' and 'cream' and even 'travel' and 'drawer' but does not often try, as apparently 'py' and 'peam,' 'babel' and 'bawer' are casier." A week later she said "screw" and "crib" spontaneously and "Grandma" when urged to do so; the next week she used "trip" instead of "bip."

By four her pronunciation was entirely correct except that final g of "ing" was not sounded.

Mistakes and Omissions. At 30 months, D never used "is," "was" or "were," her only forms of the verb "to be" being "am," "are" and "be." Of auxiliary verbs she used "can," "can't," "might," "will" and "would." The past tense of many verbs was employed correctly. She never said "yes" at this age, but repeated what was asked her instead.

By 3 years she had added the auxiliary verbs "could" and "may"; "what" was her only relative pronoun; while "her" was

always used instead of "she." Some of her mistakes at this age were: "Us budder (our mother). Him house. Look where I are. I'm are. I has. I eated it. I ated it. I makd it."

One month before she was three we tried to take her whole day's conversation but were able to record only nine-tenths of her sentences; she uttered 2018 sentences and approximately 7600 words which gives an average length of sentence of 3.77. This shortness of sentence showed that she was still omitting minor words as the verb "to be," "a," and often pronouns. Six months later I have records of a series of 63 sentences, of which the average length is 7.1 words. At this time she had mastered inflections and her sentence structure was practically complete and correct.

At four years, D added "shall" and "should" and the relative pronouns "that" and "who" while "which" appeared shortly after. Mistakes noted at this age were: aten, eateded, bended, buyed, choosed, dreamted, flied, holded, hurted, losed, sended, shutted, sleepeed, sweeped, swimmmed, swunged, teached, thinked, throwed, tookeen, typewrited; foots, mans, mouses; littler, more colder, beautifullest, worstest; imagnate, upfold, upbutton, up-done; downer, toppest. These forms were used interchangeably with the correct ones.

The Sources of the Nouns. The sources of this child's nouns in numbers and percentages are given in Tables II and III.

TABLE II.

Age	Number of Nouns			
	26	30	3	4
Body -	8	20	28	37
Health -	0	0	5	13
Clothes -	13	41	42	63
Food -	13	41	50	80
Play -	13	35	54	99
I. Personal Experiences	47	137	179	292
II. Indoor Environment	7	46	78	142
Civilization -	4	18	43	53
Sky and Landscape	3	10	16	34
Plants -	1	11	12	27
Animals -	13	42	52	87
III. Outdoor Environment	21	81	123	201
IV. People	5	13	19	37
V. Pictures and Stories	6	10	13	41
Time -	0	2	12	20

Position -	0	4	9	13
Quantity -	0	2	7	16
Indefinite -	0	0	5	8
Abstract -	0	3	11	37
VI. Abstract, time, etc.	0	11	44	94
Total -	86	298	456	807

TABLE III.

Percentage of Nouns

Age	26	30	3	4
Body -	9.3	6.8	6.2	4.6
Health -	0.0	0.0	1.1	1.6
Clothes -	15.1	13.7	9.2	8.0
Food -	15.1	13.7	10.9	10.0
Play -	15.1	11.6	11.8	12.3
I. Personal Experiences ----	54.6	45.8	39.2	36.5
II. Indoor Environment ----	8.2	15.4	17.1	17.8
Civilization -	4.6	6.0	9.3	6.5
Sky and Landscape -	3.5	3.4	3.6	4.3
Plants -	1.2	3.8	2.7	3.3
Animals -	15.1	14.0	11.4	11.0
III. Outdoor Environment --	24.4	27.2	27.0	25.1
IV. People -	5.8	4.4	4.2	4.6
V. Pictures and Stories ----	7.0	3.4	2.8	5.1
Time -	0.0	0.7	2.7	2.5
Position -	0.0	1.4	2.0	1.7
Quantity -	0.0	0.7	1.4	2.0
Indefinite -	0.0	0.0	1.0	1.0
Abstract -	0.0	1.0	2.6	4.6
VI. Abstract, time, etc. ----	0.0	3.8	9.7	11.9

D's personal experiences are fairly typical in their percentage, and they decrease at each age, as other children's do. But in her proportions of nouns from indoor environment she is different from all others thus far studied except the Brandenburg's daughter ('16: 18-19) for she showed a steady increase in the relative numbers of these terms at each age. For some reason her words from this source were rather few until she was four when they reached a typical percentage.

The proportions from outdoor environment are also unusual, for instead of increasing at each age as all others do (Bohn, Bate-man, Brandenburg, Boyd, Drovers, and my children E and H), D's words from this source increase at 30 months but afterwards show a slight decrease. The reason for this probably lies large-

ly in the seasons—her 30 month vocabulary being taken in May and the three and four year in November; at the former time she had an unusually large proportion of words from nature but many had been forgotten by fall, or at any rate could not be evoked. Although D's percentages of nouns from outdoor environment are smaller than those of her sisters and Boyd's daughter at three and four years, yet they are considerably larger than those of the Brandenburg's child.

Words relating to the body, clothes, food and animals showed a uniform decrease from age to age, and those relating to health, quantity and abstract terms steadily increased.

Adjectives. The different classes of adjectives, both numbers and percentages are shown in Table IV.

TABLES IV.

The Adjectives

Age	Numbers				Percentages			
	26	30	3	4	26	30	3	4
Article	0	1	2	2	0.0	2.2	2.1	1.1
Demonstrative	0	5	7	11	0.0	11.1	7.2	7.0
Quantitative	2	7	12	15	40.0	13.1	12.4	8.7
Qualitative	3	33	76	134	60.0	73.4	78.3	83.2
Color	2	5	9	16	40.0	11.1	9.2	9.9
Spatial	0	5	13	18	0.0	11.1	13.3	11.6
Sense	1	5	12	15	20.0	11.1	12.4	8.7
General	0	18	42	85	0.0	40.1	43.4	52.8
Total	5	46	97	162	100	100	100	100

There is an increase in the proportion of qualitative adjectives from 30 months on; indeed, her percentages are very much the same as E's at the same ages.

At two D had no words for color; at 26 months she used two, black and dark, and at 30 months three more, blue, tan and white. Tan was used only in connection with her stockings of that color, while blue was an uncertain quantity, so that black and white were the only terms certainly known. At three years she had added green, red, yellow, and brown; she knew the first three of these but sometimes confused blue and brown. At three and a half she was sure of blue, green, yellow, red, brown and orange. At four she had added grey, pink, purple, and rosy, thus having at this age thirteen color terms and the three related words, dark, colored and shiny.

Adverbs. Adverbs seemed to be as much of a speciality with D as adjectives were with E.

TABLE V.
The Adverbs

	Numbers				Percentages				
	Age	26	30	3	4	26	30	3	4
Time	0	5	6	15	0.0	12.9	10.0	12.9	
Place	13	21	28	37	86.6	53.8	46.6	32.4	
Manner	0	4	9	36	0.0	10.2	15.0	31.6	
Degree	0	5	11	20	0.0	12.9	20.0	18.1	
Modal	2	4	5	7	13.4	10.2	8.4	6.0	
Total	15	39	59	115	100	100	100	100	

The earliest words of this part of speech to appear were the modal adverbs, "no" and "please," and a goodly representation of adverbs of place. This latter category has the largest proportion in all the vocabularies, although at four years it is almost equalled by adverbs of manner. These two classes, modal and place, which were represented earliest, decreased in percentage uniformly throughout the vocabularies. Adverbs of time and degree varied in their proportions, but adverbs of manner increased from zero at 26 months to 10 per cent at 30 months, 15 per cent at three years and 31.6 per cent at four. This is an increase of 400 per cent from three to four, for she had only 9 of these adverbs at three and 36 at four. She has a higher proportion of adverbs of manner than any other child that has been studied.*

Sentences at Different Ages

26 months:

Me' nap—Men (toys) (take a) nap.

Gut ap me—Cut apple (for) me.

Where duck?

Me go.

27 months.

Lolock men' up—Goldilocks is mended up.

28 months.

My dide (slide) ball (fall) down.

30 months.

Mackel (Maxwell's) cow might bump me.

(Playing with a toy dog) Where he eye? I take he out, I did. Dat he tail. Dat he hair. Don't know where he ribbon are, where he eye are. Wind blow out my hat. Don had wind!

*The other four year olds whose adverbs have been worked out in this study are: the following percentages of adverbs of manner: E, 22.5; M, Scandenburg's daughter ('16: 21), 24.3 and R, 24.4.

3 years. Early imaginations. (Inflections not yet mastered; sentences average $3\frac{1}{2}$ to $4\frac{1}{2}$ words.)

My big dog like me. Yes. My puppy like me. My hort (horse) like me. Mudder, did 'ou know that? I go ridin' on him. He go galoppin'. He like me. My dog dut (just) bark. He ha' dirty beet (feet). Go down to town and dut bark at me. Think o' that. He dut bark and bark and bark away.

$3\frac{1}{2}$ years. (Inflections mastered; sentences now average 6 to 7 words.) She was playing with a live spotted turtle and cutting out pictures of clothes for it from a catalog.

Spotted Bootiful has had her breakfast. Had ice cream. Ice cream bread with candles in it. I'm going to cut out those union suits for Spotted Bootiful and those covers. Oh, I'm goin' to buy that s'ipper for Spotted Bootiful. Spotted Bootiful won't die. No, because she has a shell on. Nobody won't step on her.

4 years.

A Pullam is a frog that sits in a pond with a stick to hurt people. He doesn't like people. His stick is a tail—it's as sharp as a needle. They like to eat people—little bits of people. He lives in a shallow mud house.

References

- Bateman, W. G. 1915. Two Children's Progress in Speech. *Jour. Ed. Psych.* VI. 475-493.
- Bohn, W. E. 1914. First Steps in Verbal Expression. *Ped. Sem.* XXI. 578-595.
- Boyd, Wm. 1914. The Development of a Child's Vocabulary. *Ped. Sem.* XXI. 95-121.
- Brandenburg, G. C. and Julia. 1916. Language Development During the Fourth Year. The Vocabulary. *Ped. Sem.* XXIII. 14-29.
- Drever, J. 1915. A Study of Children's Vocabularies. III. *Jour. Exp. Ped.* III. 182-189.
- Nice, M. M. 1915. The Development of a Child's Vocabulary in Relation to Environment. *Ped. Sem.* XXII. 35-64.
1917. The Speech Development of a Child from Eighteen Months to Six Years. *Ped. Sem.* XXIV. 204-243.
- Pelsma, J. 1910. A Child's Vocabulary and Its Development. *Ped. Sem.* XVII. 328-369.