THE CONVERSATIONAL STYLE OF A GROUP OF SEVERELY SUBNORMAL CHILDREN

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I—Introduction

The following article is based on an 18-month's intensive study of the linguistic output and capabilities of ten severely subnormal children. They were from 7.7 to 12.9 years of age at the start of the work, with I.Q.s ranging from 25 to 45, and an average mental age of 3 years 9 months. The aim of the writer is to illustrate and analyse the conversational style of the group and to relate the findings to existing research.

II—Selecting the Group

The experimental group was selected from 43 volunteers put forward as the result of a letter sent to the parents of all children of 12 years of age and under at a large Junior Training Centre. All the volunteers were interviewed (in a play situation) and each home was visited. Language and intelligence tests were given —Lyle's (1959) language tests, along with the Minnesota Pre-school Scale or the Griffiths (1954) battery, being used. The experimental group of 10 and a parallel control group (not involved in the present discussion) were eventually chosen. The selection procedure was deliberately prolonged as this approach provided essential information and helped in arriving at a fairer initial assessment of the children. Certain points particularly stood out and later acted as guides in the handling of the experimental group.

In the first place, it was obvious that these imbeciles, unlike normal children of like mental age, lacked not only the capacity but perhaps even more the urge to express themselves verbally to any great extent. This was, of course, in acco dance with expectation and pointed to the need for specific encouragement and stimulus in this direction if adequate samples of speech were to be obtained.

Secondly, as a group, the children clearly understood more than they could express. The parents confirmed and stressed this point but appeared to exaggerate the extent of the children's grasp. The desirability of exploring the limits and type of understanding displayed was indicated.

Thirdly, the reactions of the children in successive interviews at the preliminary stage suggested to the experimenting psychologist that an extended period of work with the children, using fairly frequent but not lengthy individual sessions, would be the best means of obtaining a reasonably complete picture of their verbal capabilities.

The experimental group was finally made up as follows: it contained 10 children, from 91—153 months of age, including 5 mongols and 5 non-mongols; 7 were boys and 3 girls; the mean C.A. was 127.3 months and the mean M.A. 45.25 months (on M.P.S.S.), with a range from 33—66 months. The status of the families, assessed in accordance with the occupation of the father, included grades 2—5. From a social point of view, except for two slightly superior backgrounds, they were all working class. Some details concerning the individuals are summarised in Table 1.

a wide waving gesture to indicate size. If the child started in such a way as this further talk would probably naturally follow but some children were capable only of a monosyllabic gloss on their pictures, " man," " house," " Christmas tree." At one stage cutting out became fashionable. Rita was particularly adept and explained how to make a bridge as she worked: " Going to make another one . . . going to make a bridge now . . . like that, fold it together . . . there, now there (this as she cuts) . . . and then this . . . right . . . and then that . . . and then . . . now . . . no, a boat." (The intended bridge finally resembled a boat rather to her dismay.)

Some of the activities just happened without planning. One day Mark found the room in need of rearrangement as various tables and chairs had been temporarily deposited there. This led to a great deal of purposeful activity and accompanying talk. Judy's conversation as she pasted paper on the wall or Joyce's as she organised table tennis (with bricks for racket and net) had somewhat the same quality and were genuine and urgent.

Such then was the character of the sessions of which each child attended 25 in the course of a school year. Most sessions involved a mixture of activities and forms of play as the lack of concentration of the children usually prevented them from sticking at any one for long, though most children had their preferences which held them for relatively extended periods. All their conversation was recorded verbatim. On occasion their speech became unintelligible or went too fast but this was rare. Thus a large body of material accumulated and the following sections will deal with various aspects—vocabulary, sentence form, thought content—as therein revealed.

IV—Analysis of Conversational Style

A. *VOCABULARY*

Oral vocabulary development in normal children has received much research attention of various sorts. In some studies records of individuals have been kept over long periods. The classic example of this sort of treatment is in Boyd's (1914) work. Other researchers, like McCarthy (1930) have used the results of interviews with different age-groups. Survey techniques with large numbers are exemplified in the work of Burroughs (1957) and of Dunsdon and Fraser Roberts (1955, 1957). Longitudinal follow-up studies of representative populations, as in the present writer's work (Sampson, 1956, 1959, 1962) has also thrown some light on the subject. All the above have been concerned with normal development. The question of the size and character of the vocabulary among older subnormal patients (10—30 years of age) has been explored by Mein and O'Connor (1960), while the progress of a single autistic child is reported on by Cunningham and Dixon (1961). All this forms a background against which the following notes can be viewed, but differences in method frequently make straight comparison impossible.

In describing the attainments in vocabulary of the present group, three aspects will be dealt with in turn.

(a) the size of the vocabulary

(b) the grammatical types employed

(c) individual features of each child's vocabulary.

(a) Vocabulary Size

During the 250 interviews a total of 18,757 words were recorded. Many of these were repetitions. Individual children's vocabulary lists ranged from 102-484

new words, that is different words which the child in question had not previously used, while overall 935 different words (as defined by Burroughs, 1957) were noted. In previous work (Burroughs, Mein and O'Connor) a distinction has sometimes been made between core and fringe vocabulary. The core is that part of the vocabulary of different words which is common to half or more of the subjects involved. For the present group the core totals 152 words which is 53% of the calculated average individual vocabulary employed. This proportion lies between that found for normal children of between 5 and 6½ years of age, and that of older subnormal patients of the same mean mental age. The core of the former amounted to one-third, and the core of the latter was two-thirds of their calculated average vocabulary. In the present case the core is, as would be expected, an extremely fundamental set of words. It includes M. E. Smith's (1927) ten commonest words (I, is, it, you, that, do, a, this, not, the). The majority (131) of the present core are also on both Burroughs' and Mein and O'Connor's list of the 500 words most frequently used by their samples. Of the remaining 21 words, 13 are on one or the other of these lists and 5 are among the second 500 on both, with the remaining 3 in the third 500 of one or the other. Considering the contrasts in the situation, age and type of the samples, not to mention the different methods of collection, the absolutely basic nature of the present core vocabulary is apparent. It is quoted below, arranged according to frequency of usage by the severely subnormal children.

Used by	LIST OF CORE WORDS
10/10 children	aeroplane, and, another, are, back, big, bus, car, chair, down, here, hello, in, is, it, no, on, one, that, the, there, up, yes. (N: 23)
9/10	a, again, all, at, away, ball, can, come, do, dog(gie), door, for, go, got, his, house, I, me, mummy, not, now, put, right, tail, them, this, we, with, you, your. (N: 30)
8/10	bath, bed, body, box, brick, cupboard, girl, goodbye, have, head, know, look, make, more, my, off, out, over, same, school, see, take, these, they, wall, way, where, window. (N: 28)
7/10	blue, boy, clean, coat, cut, dad(dy), downstairs, draw, flower, give, got, hand, like, mirror, new, of, open, pick, piece, please, red, round, she, skittles, stop, tea, too, train, want, wash, water, what. (N: 32)
6/10	baby, bag, boat, does, done, dinner, fall, floor, gone, him, hit, holiday, home, jigsaw, key, knock, leg, lot, man, meat, milk, more, other, paint, picture, play, rocket, road, say, shall, shop, sit, stick, then, today, top, van, who, yet. (N: 39)

In normal children vocabulary size is influenced by many factors and the part played by mental age, environment (including home encouragement, the socio-economic status of the parents, etc.) has received a good deal of attention. In the case of subnormals, inhibition of growth due to pathological causes has also to be taken into account. Certainly lack of language development is regarded as symptomatic by many. Goertzen (1957) reviewing the literature dealing with speech and mental retardation quotes evidence from Wallin (1949), Karlin and Strazzulla (1952) and others. Hurlock (1950) instances Shirley's findings of speech delay and faults in premature children as indicating the importance of maturity. Others, accepting that this has some bearing, also allow for "environmental retardation" (Sheridan [1948], Clarke and Russell Davis [1963]). Bijou and Werner (1944) and, to some extent Goertzen also emphasise pathology, while many (Descoeudres [1922] among them) admit many influences. The present group of children, in spite of the different occupations of their fathers, had fairly similar home backgrounds and

attended the same Centre. Their vocabulary size as measured in terms of total output and different new words spoken correlated highly— +.926. Both measures of vocabulary size correlated lowly with the actual age of the children (+.215 and +.309 respectively). Total output also correlated lowly, with mental age, but the different new words lists gave +.569. Of the tests used, the Minnesota Verbal Items correlated more highly with the different new words than the Lyle vocabulary tests, +.712 and +.558 respectively. The Lyle tests, however, gave other information. Lyle's battery consists in all of five sets of items, three of which are concerned with vocabulary and test the subnormal child's capacity for naming, comprehending and defining words. The imbeciles' relative advancement in understanding is seen in the comparable averages for naming and comprehension, 38.2 (naming), 47.0 (understanding), improving to 43.6 and 49.1 at the end of the period reviewed.

(b) GRAMMATICAL TYPES

Each individual vocabulary is made up of words of different grammatical types in characteristic proportions. In early childhood nouns dominate, but as the child grows older, other grammatical types appear. Whereas at 18 months nouns form 50% of total vocabulary, at 4½ years they make up only 19.3% according to McCarthy. Watts (1944) describes a "rough genetic order of speech" in which nouns appear first, followed by verbs, prepositions, pronouns, adjectives and finally adverbs. A study of the proportions of the different types, and especially of the proportion of nouns and verbs, throws light on the linguistic maturity of an individual or group. This aspect of the vocabulary of the present children is therefore of some interest.

One approach to a study of the grammatical composition of vocabulary can be made by type-token analysis. This considers the proportion of words of different grammatical types appearing in a sample of the individual's speech or writing. some (e.g. Chotlos, 1944) consider rather long samples (up to 1000 words) essential, but Mein (op. cit.) studied this aspect in his subnormal patients using samples consisting of 100 words spoken in sequence at a time when the subjects were well accustomed to the situation and had not begun to lose interest. In the present research there was never any falling off of interest, but the 100-word samples were taken from the middle of the records, as undoubtedly at the start talk was less free. Comparisons can best be made with Mein's patients in sub-groups (a) and (b) who are those nearest in mental and chronological age to the present children, as well as with McCarthy's normals. (Table 2)

The most striking fact that emerges from this table is the virtual reversal of the noun/verb proportion between imbecile and normal children. Differences elsewhere on this table are partly accounted for in differences of definition (e.g. McCarthy treats articles as adjectives). It is also interesting that on the noun/verb count, the patients, though mainly older chronologically are more like the subnormals than the normals. Where the patients differ the fact that their records were collected by rather different methods has to be remembered. Both the other records were taken in play situations.

Another way of studying the grammatical make-up of these children's vocabularies is by analysing the new-word lists into its components. Owing to the repetitiousness of imbecile children's speech and the very short sentences they use, distortions of various sorts occur in the type-token analysis, which are revealed when the child's total new-word vocabulary is thus considered. When put alongside of McCarthy's figures for normals, the total balance is seen to be very similar. (Table 3)

TABLE 2

GRAMMATICAL ANALYSIS OF SPEECH SAMPLES

%	PRESENT CHILDREN mean MA 3.9	MEIN'S PATIENTS (a) mean MA 3.6	MEIN'S PATIENTS (b) mean MA 4.8	McCARTHY'S NORMAL CHILDREN mean MA 3.6	McCARTHY'S NORMAL CHILDREN mean MA 4.0
nouns	27.1	38.8	30.75	18.5	20.1
verbs	17.1	18.6	20.0	26.0	26.0
adj.	8.2	12.5	7.63	15.7	14.6
adv.	12.6	6.1	9.25	7.8	5.9
prep.	6.7	6.6	7.38	6.3	6.7
pro.	13.2	9.2	12.0	20.3	21.6
conj.	1.0	3.3	1.63	2.3	3.6
art.	7.3	6.3	6.63	—	—
misc.	6.8	5.6	4.73	2.8	1.6

TABLE 3

GRAMMATICAL ANALYSIS OF VOCABULARY

%	PRESENT CHILDREN mean MA 3.9	McCARTHY'S NORMALS mean MA 3.6	McCARTHY'S NORMALS mean MA 4.0
nouns	44.8	41.4	39.8
verbs	24.1	26.1	28.4
prepositions	31.65	3.8	3.3
pronouns	5.5	5.5	5.6
adjectives	9.1	11.3	11.9
adverbs	8.55	7.7	7.3
miscellaneous other words	5.3	4.2	4.6

(c) The Individual Features

Even in the vocabulary of subnormal children who share a 'core' vocabulary of considerable relative size, individual characteristics are to be detected and these, as with normals, connect with their particular interests (even obsessions), and personalities. The smaller the vocabulary, the less the scope, and the peculiarities of the two least verbal children, Bernard and Paul, are more in the nature of mannerisms—the former's re-iterated 'oh yes' and Paul's 'here' are cases in point. The friendly Dennis, who is prepared to greet anyone as he goes up the corridor on visits to the University, has an unusually varied supply of such words as 'cheerio,' 'goodbye,' 'good morning,' 'hello,' 'please,' 'pardon.' Joyce is exceptional in bringing in up-to-date terms such as 'record-player,' 'typewriter,' 'helicopter,' though she also uses 'puffer-train' and 'tic-toc.' Judy has special interest in clothes and feminine things, testified to by such unique (for the group) vocabulary as 'blouse,' 'lipstick,' 'make-up,' 'powder,' 'slippers,' as well as the usual 'coat,' 'hat' etc. Billy's conversation makes a good deal of mention of food—'baked beans,' 'egg,' 'sausages,' as well as the expected 'ice cream' being included. Patrick's vocabulary has little bias, but contains some surprises, for example, the word 'collect,' 'handkerchief' in full, 'empty,' 'pretty.' Donald and Mark, with their more advanced speech, produce more individual vocabulary material. Donald is interested in the classroom activities and mentions the 'band' and its instruments, 'tamborine' and 'triangle.' He also enjoys 'football' and describes how 'golf' is played on seeing a picture of the game. Altogether he shows more awareness of the world around him than most of the group. Mark is, by contrast, absorbed in half-fantasy. This colours his vocabulary with frequent references to death and misfortune. Such words as 'ambulance,' 'accident,' 'bandage,' 'clinic,' 'care,' 'hospital,' 'died,' 'dead,' 'ill,' 'killed,' 'murdered,' 'poorly,' 'sore' are frequent. As well as this dire type of word, which makes his talk quite unlike any of the others, he also has words which take one by surprise, as when he calls the dirty attic in which the interviews took place the 'studio,' describes something as 'lovely,' greets the psychologist after a holiday with 'welcome,' and applauds her writing so much: 'you smasher.' Incidentally, it may be mentioned that while childish, exclamatory speech and some baby talk was noticed, on the whole there was little slang. Bernard used 'bother,' Mark 'blow' and Paul 'O.K.' on isolated occasions.

B. *SENTENCE LENGTH*

Sentence length and the complexity of structure employed in these forms probably the surest index of verbal maturity, according to the findings of Nice (1926), Smith (1927), McCarthy (op. cit.) and others. As the normal child grows older he departs from the primitive grammar of his first utterances (Bellugi and Brown, 1964), and his sentences get lengthier and approximate more and more to adult models. The whole process is strikingly orderly. In the case of imbecile children and older subnormal patients, the brief and truncated nature of their converse, which often remains at the primitive level, has frequently been observed. Such children at a relatively advanced age continue to talk in a style reminiscent of the normal beginner, in whom, according to the observations of Wick Miller and Susan Ervin (Bellugi and Brown, 1964) "a few high frequency words" tend to be restricted to a given position in the sentence and tend to define the meaning of the sentence as a whole. At this stage, exclamations and one or two-word utterances abound. These are characteristic of normal speech at around 24 months of age, and were generally typical in the present imbecile group. All the children however were also capable of producing examples of the more structured type of two-word sentence, containing a clear subject and verb or verb and object. Complete three

and four-word sentences on the adult model also appeared. These were rare in cases like Paul's, but even he gave some examples (e.g. 'You got it'). Sentences with five words were managed by eight children, sentences with seven by only four. Two children produced sentences of ten-eleven words. All these longer sentences were exceptions to the general pattern. The mean length of sentence was 2.61 words, ranging from 1.27 to 4.02 (individual means) over the whole series. The lengths achieved correlated highly with individual vocabulary, giving +.921 in relation to the children's total output, and +.919, in relation to their different new words. The correlations between sentence lengths and actual age was exceedingly low, +.059, with mental age it was +.386. For imbecile children linguistic maturity, as revealed in sentence length is evidently not closely related to general mental and physical maturity. As in other forms of learning but to an even greater extent, these imbeciles seemed bogged down, owing to their slow progress, in infantile forms of expression from which they rarely escape. There was, however, a slight tendency for the length and complexity of the sentences used to increase under the stimulus of the experimental situation, but individual performances could be very erratic. As was to be expected, some situations and forms of play were more stimulating to some than to others. Optimum response was hard to maintain. An example taken from the lower-middle of the group may be cited in illustration. The mongol Billy was capable of responses which put him 5th and 6th out of the 10 on the Lyle test of language complexity. He was frequently noted at the interviews as difficult to stimulate to speech, though he had quite an extended vocabulary seen in naming situations. His average length of response overall was 2.12 words, but the following quotations show the better levels of which he is capable on occasion: 'I've made a coach,' 'I looked at it,' 'play it at home,' 'hit it in the hole,' 'you see that the door,' 'I'll do the car,' 'I can see you.' But such more primitive responses as 'there bus,' 'this to there,' 'done now' are far commoner. In normal children more advanced forms rapidly supplant more primitive style, which is eliminated. With Billy and other imbecile children this is failing to happen. Even in the two most verbally endowed children of the present group, a considerable amount of exclamatory material, one-word sentences and truncated expressions occur. Mark, for example, in the third series of interviews, produces one such in every fourteen utterances, and Donald one in every four to five, though both boys are capable of 10-11 word sentences on occasion. At the other end of the verbal range represented by the group, babyish, incomprehensible gibberish and cries 'oh!', 'ah!' survive among mainly one-word response records, in Bernard's and Paul's cases. This slowness to outgrow the beginnings as well as their failure to develop more complex and advanced forms are among the features which give its special backward character to the speech of imbeciles. In this group, with CA from 91 to 153 months, and mean MA 45.25 months, the sentence length achievement on average falls between the 1.8 and 3.1 words expected (McCarthy, 1930) in normals at 24 and 30 months respectively.

C. *THOUGHT CONTENT*

All speech indicates the presence of thought in a greater or lesser degree, and the purpose of the present section is to examine the nature of the thought processes of the present group as revealed in their speech behaviour. The heads used are based on suggestions derived from the work of Piaget (1926, 1928), Luria (1957-1961), Hermelin and O'Connor (1960) and Lewis (1963), though the indebtedness is general rather than particular.

Simple declarative and imperative utterances, though they have some thought content, are not considered here. These inevitably form the great majority of the utterances of all the children. But where ideas of time, of amount, of relationship,

or forms of reasoning (the realisation of analogies, difference, cause, effect, purpose) or creative interpretation and 'inspiration' is involved, thought as generally understood, is to be inferred. All the examples given are from spontaneous speech and were not manoeuvred in any way.

TIME. All but the most backward (Bernard) use the word 'now' and thus show some consciousness of the present as distinguishable. Sometimes the word is used with an implied backwards reference, e.g. 'I've finished now' (Judy), sometimes with a forward look: 'now, draw a house' (Billy), 'back now' (Patrick). The latter is the more usual, paving the way for definite future tense statements e.g. 'I'll have a rocket now' (Rita). The word 'now' is also used in attempts to define time. 'My birthday not now' (Donald), or with the suggestion that the serial nature of time is appreciated. 'Now it's my turn' (Mark). These last examples are only found with the more intelligent, or more linguistically developed children of the group. Past time is also sometimes referred to but for most of the group, the past hardly seems to exist. Where past reference occurs, it may be indicated by past tense (correct or otherwise): 'I played Beatles' (Billy); 'I seen this before' (Dennis); 'had me hair cut' (Joyce); 'It rained. Did you hear it rain?' (Mark). More often just completed past acts are referred to. By contrast the future, particularly the immediate future, is relatively often discussed. 'I'll do it' (Dennis); 'I'll put the girl to bed' (Patrick); 'I'm going to jump' (Joyce). In the more verbally gifted, past and future tenses are sometimes supported by 'yesterday,' 'tomorrow,' 'yet' and such like. Alternatively past and future ideas are implied by the use of such words alone, e.g. 'No school tomorrow' (Rita); 'I go to toilet in a minute' (Joyce); 'we had our party yesterday' (Mark); 'don't know yet' (Donald); 'A man died last night in church' (Mark). Sections of the day, e.g. 'in the morning' (Joyce) are sometimes mentioned. Mark quotes precise times (maybe incorrectly): 'The bus broke down at 25 to 5,' and also refers to Monday and Easter, but he is exceptional in this. A preoccupation with time, part of his general anxiety, is often noticed in his case. Awareness of the serial quality of time has already been alluded to. Other indications of some recognition of this occur in such phrases as 'and then.' 'Put it away first' announces Judy, and Mark, pretending to read a postcard, says 'Dear Miss Sampson, we hope to see you again next year.' Rarely, time relationships are expressed e.g. 'When it's finished, I'm going downstairs' (Rita). 'I get the dinner ready while daddy sits down and reads the paper' (Donald, speaking for the mother-doll). 'After I finish school, I'll come over right away' (Mark, in an imaginary phone call). Sensitivity to time and an ability to express this, appears to be bound up with general mental or linguistic maturity. The absence or presence of such references can provide some index of mental development.

AMOUNT. Ideas of amount are next to be considered. The ejaculation of numbers and various automatic counting behaviour which was without reference, is not included. Ideas of amount appear to start from the concept 'more,' indicative of a sense of quantity, and 'this' 'this one' and 'another' isolating a unit. 'All' was also sometimes used e.g. 'All the plate out' (Patrick). 'One,' 'two' and in one case 'three' were correctly used adjectivally: 'one dot' (Rita); 'two balls' (Paul); 'three balls' (Dennis). 'One down,' 'two down' were used in scoring success with the skittles, but after that numbering tended to become random, though Billy could count, certainly up to six, reliably. In conversation amounts were sometimes evaluated in such phrases as 'too big for me' (Judy, about some boots); 'a bit more now' (Patrick).

The impression gained from the overall references to amount is that the children have not advanced far in this direction. Some find almost meaningless counting attractive but number concepts in the proper sense and the quantity as

well as the quality of the amount references is considerably below those connected with time.

RELATIONSHIPS. Awareness of relationships is an essential part of the thought process. Some of the examples already given show aspects of the children's slight and fragmentary appreciation of these in relation to time and amount. When they make comparisons, or group things as the same or different, they are working in the direction of a concept of relationship. They appreciate these in a concrete form before they can verbalise them. When they try to express such ideas, prepositions and particles are usually important in doing so. A study of these in the children's speech illustrates their very limited grasp, (even for decoding) and brings out a certain order of difficulty present in such concepts. The prepositions 'in' and 'on' are universally used and understood. Others in the common core of vocabulary are 'at,' 'to,' 'for,' 'with,' 'of.' 'Off' also occurs in 'off a bus' but is more often found adverbally: 'put off the light.' All the other prepositions are used by half or fewer of the ten children. There are such somewhat precise terms as 'after,' 'by,' 'from,' 'before,' 'behind,' and, lastly, 'under.' The 'under' concept is very difficult for these children and was not even understood by most when it occurred in games.

REASONING. Reasoning covers a wide field of mental activity and is not a sphere where mentally subnormal children can be expected to make much showing. Some of the clearest indications of thought at work come in their play, which may or may not be accompanied by words. Here, references to verbally expressed ideas only are considered. As the verbal expressions are rarely sufficient to explain the thought completely, however, most of the situations will require to be outlined. First of all, there are some examples of the perception of analogy and difference. Rita, scanning the wall where some of the children had been pasting up bits of paper, said 'like a big ship' in connection with one. Joyce explained one day that her hair had been cut 'like a Beatle'; Donald, looking at a picture, says he 'saw a monkey like that' on a visit to the zoo. Billy, playing with the bricks recognises one as resembling an ice cream cone. Of a similar shape he says, 'another ice cream there' and describes oblong bricks as 'brick ices.' Dennis is painting Christmas trees, as he calls his brushwork, and then goes on to do a 'different one.' The perception of purpose, cause and effect as attaching to actions and situations involves a form of reasoning which makes an occasional appearance. 'Fat' says Paul to explain why a ball will not go in a certain hole—the ball is too large to do so. 'Cot, for a baby' (Patrick) 'Keep it for a pet' (Donald) show some idea of purpose, but fuller statements of reasons are rare. Mark provides most of the examples: 'We changed our house, 'cos the other burnt down,' 'a car went, so a lady was knocked off a bus,' 'that's why, she's had trouble,' 'she's poorly, very poorly, so she's not coming."

Some of the interpretations put upon toys and situations show reasoning of perhaps a more creative sort. An imaginative perception of analogy, for instance, must lie behind Paul's saying 'it's a boat' when handling the Minnesota Cube Board. In the same way, Donald arranges the dolls and says 'they're watching telly.' Billy gives the greatest number of examples of this creative play reasoning. Two may be quoted: 'That's a lamp outside' he says, standing a brick near a toy house. Arranging pointed bricks on top of a flat one, he announces 'two ears.' Scientific reasoning, questioning and commentary, quite frequent in young normals, is practically non-existent among these children. Judy's remark as she studies the electric bulb (which hitherto she had been content merely to switch on and off) has this character: 'something in it.' As she says this, some sort of hypothesis is surely shaping, as to the source of the light.

Finally, a comment may be made on some of the confusions noticed. These are few, but show the children's thought functioning on familiar, though incorrect lines. 'Stand' for instance is used transitively: 'I'm going stand,' says Paul, intending to stand up the skittles. Judy says 'I want to fall this down' and Dennis confuses the idea of drying and wetting the blackboard, for which similar movements with the cloth are required: 'I'm drying, to shine' he explains when doing the opposite. 'Come' and 'go' are regularly confused by several of the children. All these examples show that distinct actions and their verbal expression are inadequately assimilated. On the whole, however, there was little of this. The thought and reasoning of the children was thus limited, rather than confused, in character.

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