5. SUMMARY AND DISCUSSION

Part II was concerned with aggressive and nonaggressive response habits adopted for coping with thwarting situations. A two-dimensional descriptive model was constructed, on the basis of which predictions were made of aggressive and nonaggressive patterns of behaviour. The two approaches for the testing of the hypotheses were:
(1) The structure of aggressive and nonaggressive habits was analyzed from the ratings made by the subjects' teachers and peers.
(2) Different types of treatment of thwarting situations were examined on the basis of the verbal responses of the extreme groups of each type of behaviour to aggression stimuli.

5.1. Correspondence between the two-dimensional descriptive model and the empirical findings

In the explication of the hypotheses on aggressive and nonaggressive patterns of behaviour in thwarting situations two viewpoints were employed as guidelines. Firstly, previous investigations (Eysenck, 1960; Peterson, 1965; et al.) have proved that observations of the interdependences of personality traits tend to differentiate in two bipolar dimensions independent of each other. In the descriptive interpretations of these dimensions different researchers have preferred different terms. Eysenck has called them Extraversion/Introversion and Neuroticism (Lability)/Stability. Secondly, thwarting stimulus situations are so frequent in social interaction that an individual's habitual treatment of these situations is likely to be closely connected with his total personality; if total behaviour can be described two-

dimensionally, it is likely that a considerable part of aggressive behaviour and of the alternative of it can also be described in terms of the corresponding dimensions. The hypotheses on the patterns of behaviour were not based on constitutional differences; in accordance with the procedure followed in Part I, social learning was considered essential in the development of response habits.

Within the present investigation aggression was defined as basically reactive. In a thwarting situation there arises an impulse for the elimination of the unpleasant stimulus. Until an individual is able to inhibit his aggression in a thwarting stimulus situation, he delivers noxious stimuli to the instigator, for which reason his way of responding is defined as aggressive. Direct aggression is generally not considered an acceptable way of solving conflicts. In previous studies inhibition of aggression has often been regarded as the reaction opposite to aggression. An attempt was made in the present investigation to differentiate the concept of inhibition by distinguishing in it suppression of the extrinsic aspect and neutralization of the emotional or intrinsic aspect. Responding in a thwarting stimulus situation may thus be characterized by either uncontrolled or controlled expression of impulses. The former refers to overt aggression, the latter to negotiation and efforts towards peaceful settlement of controversies. Correspondingly, passiveness in such situations may be due to either uncontrolled or controlled inhibition of impulses. Uncontrolled inhibition refers to avoidance responses motivated by fear and anxiety, whereas controlled inhibition suggests appraisal of the situation and avoidance of the resulting aggression. The dimension 'expression/inhibition of impulses', defined more generally as the dimension 'number of overt responses', is, as far as the descriptive model of behaviour is concerned, comparable with the dimension 'Extraversion/Introversion' (Eysenck), and the dimension 'weak/strong control of behaviour' with the dimension 'Lability/Stability'. More accurate definitions of these dimensions and of the patterns of behaviour derived from the main dimensions by combining them have been given in the text (pp. 102—107).

The original construction of the descriptive model of aggression presented in Part I (p. 29) was three-dimensional. Empirical findings of interindividual differences showed that a two-dimensional description was sufficient at the most general level (second order factor structure). The model of aggression was incorporated in the two-dimensional descriptive model of behaviour in thwarting stimulus situations, where it was located in the quadrant termed uncontrolled expression of impulses. The assumption was made that in a combination of the characteristics of 'great number of overt responses' and

'weak control of behaviour' the habits of defensive aggression and also those of offensive aggression acquired through conditioning are the strongest, whereas the habits of direct defensive aggression are typical of individuals characterized by a great number of overt responses, and those of indirect aggression of individuals characterized by weak control of behaviour.

The variables for the empirical examination were chosen as representing the hypothesized types of behaviour. In order to connect them with behavioural traits independent of aggression they were also taken to include some reference variables.

For the study of the hypotheses on the two-dimensional descriptive model a factor analysis was carried out, and the proportion of the common variance explained by the two principal factors was examined. The result showed, *supporting Hypothesis A,* that a description of the common variance in terms of two dimensions was pertinent, and that only the location of some individual variables was contrary to expectations. Even then the results were interpretable. The aggression variables had strong common variance, which was probably due to the method of rating, and direct and indirect defensive aggression were not differentiated in the two-dimensional description as clearly as expected. The result might have been partly due to the exclusion of different degrees of intensity from the sampling of the aggression variables, a procedure aimed at reducing the number of variables, as a consequence of which interindividual differences could not emerge in as many aspects as those in Part I.

A comparison of the results concerning the two-dimensional description with previous results revealed the following. The general aggression factor extracted by means of the method of rating both in Part I and in the studies by Mandel (1959), Banta & Walder (1961), Walder et al. (1961), et al. corresponded to the pattern of behaviour termed here uncontrolled expression of impulses. The degree of the lack of control in aggressive expressions was positively related to the degree of their intensity. The dimension of intensity in the descriptive model of aggression was thus comparable with the dimension 'uncontrolled expression/controlled inhibition of impulses' describing the strength of aggressive habits or the magnitude of aggression.

The emergence of additional components of aggressive behaviour depends essentially on the sample of variables. The common variance of aggression variables is emphasized if the variables included in a factor analysis are heterogeneous, and especially if some of them measure controlled behaviour. If the structure is analyzed from variables limited to weak control of behaviour, the aggression variables

divide at a general descriptive level into two factors interpretable, depending on the rotation of the axes, either as uncontrolled expression and uncontrolled inhibition of impulses (conduct problems and personality problems: Peterson, 1961; Eysenck & Rachman, 1965; et al.) or as great number of overt responses and weak control of behaviour (extraversion and neuroticism: Peterson, 1961; dominance or aggression and hostility: Digman, 1965; Magee, 1964).

If the variables included in a factor analysis are very homogeneous containing only uncontrolled expression of impulses, three main components of aggressive behaviour can be distinguished, as shown both in Part I and II: (1) offensive aggression and defensive aggression connected with it, corresponding to the general aggression factor; (2) direct defensive aggression without offensive aggression, which can be anchored in the dimension 'number of overt responses'; and (3) indirect aggression, which can be anchored correspondingly in the dimension 'control of behaviour'.

As far as nonaggressive behaviour is concerned, interindividual differences were describable in terms of three patterns of behaviour: controlled expression, controlled inhibition, and uncontrolled inhibition of impulses. In the writer's opinion one of the main points of the present study was an attempt to describe the empirical variables as treatment of situations generally instigating aggression, and to seek connections between types of treatment and more general personality traits. The closest analogy to this approach can be found in the classifications presented by McClelland & Apicella (1945) and Lazarus (1966); yet no attempt has been made in them to connect coping-reaction patterns with other personality traits. Lazarus has distinguished three types of direct actions (cf. p. 98). On the basis of the results of the present investigation those individuals who are characterized by a great number of overt responses and, at the same time, by strong control of behaviour, prefer the response type categorized by Lazarus »actions aimed at strengthening the individual's resources against harm,» and those with uncontrolled expression of impulses prefer »attack patterns». The third category for direct actions, »avoidance patterns,» are not completely comparable with any of the factors in the present study: the latter did not include variables for escape habits. Anxiety reaction patterns together with avoidance responses would constitute the nearest equivalent to uncontrolled inhibition of impulses. The assumption can also be made that avoidance patterns are very typical of those who behave aggressively when the thwart in a situation is found to be great. A result according with the assumption suggested that aggressive individuals, more frequently than those

representing the other types of behaviour, responded to verbal descriptions of situations inducing aggression by escape, especially when the instigator was a taller boy or a figure of authority. The reaction pattern categorized by Lazarus as »defensive reappraisal» is probably most typical of individuals whose habits are most nonaggressive, i.e. of those characterized by controlled inhibition of impulses. The interpretation was supported, for example, by the high score for the extreme group of the type 'controlled inhibition of impulses' in the lie scale of the inventory originally constructed by Eysenck (1965).

Lazarus has hypothesized that coping strategy is always based on the process of cognitive evaluation called secondary appraisal, whereas the assumption was made in the present investigation that cognitive appraisal intervenes between stimulus and response the more strongly the more controlled behaviour is concerned. The assumption was supported indirectly by the finding parallel with the hypothesis that, on the basis of school achievement, the level of the intellectual development of children characterized by strong control of behaviour was higher than that of children characterized by weak control of behaviour, and that, as far as appeal to children's own judgment is concerned, such differences could also be found in parents' child-rearing practices. Further investigations would, however, be necessary to solve this problem: for example, the decision-making processes of different individuals in thwarting situations could be analyzed in the conceptual framework of the Expectancy x Value theory of motivation. An examination of the dimension 'control of behaviour' could also be connected with the study of moral development (Piaget, 1948; Cowan, Langer, Heavenrich, & Nathanson, 1969; Bandura, 1969; et al.).

As regards the main dimensions, the results were comparable with earlier results concerning the two-dimensional descriptive system (cf. p. 100). The types of personality, or clusters of personality traits, outlined previously by means of these main dimensions are probably comparable with the individual patterns of behaviour in thwarting situations found in the present investigation, although, on account of the scarcity of the reference variables, the relationship cannot be generalized very far. The circular scheme presented by Eysenck & Eysenck (1964) relates the two main dimensions and more specific personality traits to the Galen-Kant-Wundt scheme of the four temperaments. Provided that such vague comparisons are allowed, the temperament type Choleric and such personality traits as impulsive and excitable can be taken to correspond to the 'type' of 'uncontrolled expression of impulses', Melancholic to 'uncontrolled inhibition',

Phlegmatic to 'controlled inhibition', and Sanguine to 'controlled expression of impulses'.

It is not possible to describe all the common variance of the variables for personality traits, or that for behaviour in thwarting situations in terms of two dimensions. From the 33 rating variables four interpretationally relevant factors could be extracted: aggression vs. controlled inhibition of impulses, strong control of behaviour, anxiety vs. socially approved activeness, and number of overt responses independent of control of behaviour. The results of transformation analyses showed that this structure had considerable invariance irrespective of rater, rating method, and sex. In spite of more specific common variance the variables were bound together by strong, two-dimensionally describable common variance.

On the basis of the results the number of rating variables can be reduced for a two-dimensional description to ten classes of behaviour containing both the main dimensions and the aggressive and nonaggressive patterns of behaviour.

Main dimensions

Number of overt responses

Great: Keep moving and running, play with others, have a great deal of energy. (An attempt was made to avoid in the description cues of socially approved activity probably included in variables 25 and 26. A somewhat similar definition of the dimension of activity is that by Walker, 1967.)
Small: Not move much, walk, not run, be standing alone, silent.

Control of behaviour

Strong: Reliable, keep a promise, not get excited or enthusiastic, friendly.
Weak: Unreliable, lacking concentration, the teacher feels concerned about the development of the child's personality because of ensuing anti-socialness; unfriendly. (Variable 27 of lability stressing the changeability of moods did not prove to be a good definition of the control of behaviour.)

Patterns of behaviour

Aggressive behaviour

Defensive and offensive aggression: Attack without reason, tease others, say naughty things, defend oneself readily if teased.
Direct defensive aggression independent of offensive aggression: Defend oneself if teased, but not tease others or attack without reason.
Indirect aggression: Try to restrain one's aggressiveness, which, however, often bursts out as aggression toward innocent persons, or as kicking at objects, sneaking, touchiness, etc.

Nonaggressive behaviour

Controlled expression of impulses: Try to solve annoying situations reasonably, negotiate, conciliate, side with smaller and weaker peers.

Controlled inhibition of impulses: Peaceable, patient, never quarrel, adjustable, submissive.
Uncontrolled inhibition of impulses: Fearful, cry easily when teased, unable to do anything to improve a situation either aggressively or nonaggressively.

5. 2. Value of the inventory scales as reference variables in the description of behaviour

The variables for the main dimensions of the descriptive model were supplemented by two personality inventories: a version (Junior NESI) of the Junior Eysenck Personality Inventory (Eysenck, 1965), and the Personality Inventory for the Lower Forms of the Primary School (KTK 1) standardized from the questionnaire developed by Cattell and Coan (1959). The inventories included altogether 16 scales. The correlations between the inventory scales and the rating variables were very low, which corresponded to the e.g. recent findings by Walker (1967) and Werdelin (1966) that there are but slight connections between self-ratings and teachers' ratings or peer ratings. When both the rating variables and the inventory scales were included in a factor analysis, the inventory variables divided into two factors independent of the rating variables. One of them was interpreted as a subjective conception of the control of behaviour (positive vs. negative self-concept), the other as a subjective conception of the number of overt responses (social cautiousness vs. impulsiveness). An inspection of the intercorrelation matrix revealed that only the variables spanning the latter factor had slight positive connections with the corresponding rating variables. Positive vs. negative self-concept was independent of the ratings of overt behaviour, and the few significant connections obtained indicated unexpected rather than expected connections. For example, the high scores for the anxiety scale correlated positively with socially acceptable activity.

Consequently, the scores for inventory scales obtained for children do not admit of direct generalizations concerning behaviour. The conceptual interpretation of the two-dimensional structures of the inventory and rating variables was the same, but their correlational correspondences were very slight. The weak relationships between the inventory variables and overt behaviour could also be seen when a comparison was made of the means of the extreme groups chosen on the basis of the peer ratings. In 10 of the 16 scales no significant intergroup differences could be found. The scales separating the extreme

groups most as expected were those of restlessness, dependency, altruism, and tough-mindedness. The scores for the neuroticism scale of Junior NESI were found to be related to the ratings concerning the dimension 'control of behaviour' in the shape of a U-curve. A possible interpretation of the relation is that both strong and weak control of behaviour result in a greater amount of experience of environmental pressures than average control of behaviour. In a school milieu individuals characterized by strong control of behaviour and, according to the present study, also by high intellectual capacity, may have feelings of tension and anxiety e.g. because of a high level of aspiration.

According to Rushton (1966), some 70 % of the previous studies have shown that children's scholastic success is positively connected with stability or adjustment, while the rest have indicated that it is connected with anxiety (neuroticism), when neuroticism vs. stability is measured by standardized questionnaires. The inconsistency of the results can be understood when the findings of the present investigation are taken into account: the direction of the relationship may depend on, for example, the composition of subject groups, especially on the types and proportional number of extreme individuals in the dimension 'control of behaviour'. If the control of behaviour is measured by ratings, school achievement correlates very significantly with stability (in which strong control of behaviour and a relatively great amount of overt responses are combined). The above was found not only for the teachers' ratings but also for the peer ratings, in which a knowledge of school achievements was hardly included as a halo factor.

The reliability of the inventory scales was satisfactory, and their interdependences differentiated into a logical structure; yet the answers were but slightly anchored in overt behaviour. A choice of the extreme groups on the basis of the factor scores for the factors of the inventory scales and a study of their overt behaviour might furnish additional information about the relationships among these variable groups.

5. 3. The aggressive and nonaggressive responses of the extreme types of behaviour to symbolic aggression stimuli

The extreme groups were chosen on the basis of peer ratings. Six groups were composed by employing the factor scores of four factors. A comparison of the inter-group differences in the peer ratings and

teachers' ratings indicated that although the groups were composed on the basis of four factors, their characteristics and interrelations could be described in terms of the two main dimensions of the descriptive model.

The symbolic aggression stimuli were administered as three series of questions (QS), the stimulus properties of which were varied. The aggression stimuli of QS 1 were attacks of other persons, those of QS 2 were more general frustrating situations, and QS 3 was concerned with habits of offensive aggression.

The results of the analyses of variance were presented in Chapters 4. 4. and 4. 5. for each hypothesis as a list, and the frame of reference of the interpretation was given in Chapter 4. 4. 5. The main results were the following.

Hypothesis B. 1 on a direct relationship between the magnitudes of overt aggression and aggressive test responses *was supported* for QS 1 and QS 3, when the aggressive and nonaggressive groups were treated dichotomically. QS 2 did not separate the aggressive and nonaggressive groups from each other. The fact that the results were not the same for QS 1 and QS 2 was interpreted as a consequence of the difference in their stimulus material: QS 1 consisted of direct questions about an individual's defensive habits without presenting any motives of the attacker, while the stimulus material of QS 2 included more specified descriptions of situations. It is possible that a more detailed description of the context strengthens the tendency to take the other party into account, i.e. the extrinsic motivation supporting the aggression inhibitory tendency. Allison & Hunt (1959) have made a corresponding finding concerning the connections between the scores for aggression and Edward's Social Desirability Scale (cf. p. 167).

The magnitude of aggressive responses towards boys of the same size separated the groups in the same way as the habit strength of overt aggression, with the exception of the stable introverts. The result was considered to support Hypothesis B. 1: it is probable that the inter-group differences in the amount of overt aggression in general are parallel to those in the amount of aggression toward boys of the same size. The finding could be taken into account in the construction of aggression tests. For example, the pictures of projective tests often include conflict situations between an adult and a child. Nevertheless, according to the present investigation, the inter-group differences in the magnitude of aggressive treatment were considerably smaller when the target was a figure of authority than when it was a boy of the same size.

Differences between the nonaggressive groups were not found in the total magnitude of aggressive responses that would have supported the hypothesis. The number of the aggressive responses of the controlled extraverts especially was smaller and that of the stable introverts greater than expected. An inspection of the distributions of aggressive responses among the targets revealed that the clearest discriminations between the targets were made by the controlled extraverts: they displayed direct aggression mainly toward boys of the same size (in the other nonaggressive groups direct aggression was also rather frequent toward girls and smaller boys).

For an interpretation of the results the formula presented was derived from the theory of achievement motivation by Atkinson:

$$R_{Aggr} = (T_A + T_{-f}) \pm M_{Extr}$$

The magnitude of aggressive test responses (R_{Aggr}) was assumed to depend especially on the strength of the inhibitory tendency (T_{-f}), which is a function of aggression inhibitory habits and the probability of failure. If aggression inhibitory (and aggressive) habits are of an average strength, the probability of failure is also average, and consequently (as shown p. 165) aggression inhibitory tendencies activated by an aggressive provocation are stronger than if the aggression inhibitory tendency is very strong or weak. The variation of aggression inhibitory tendencies and subjective probabilities of failure according to the targets, and the effects of it on the magnitude of aggressive test responses were discussed p. 166. A further investigation would be necessary to test the applicability of the interpretational frame of reference to this kind of detailed finding, and at the same time it would be necessary to examine the inter-group differences in the distribution of overt aggression among the different targets.

In connection with projective tests for different motive areas it has been discussed (Epstein, 1962; Feshbach, 1961; Olweus, 1969) how, in the case of subjects with low scores for a particular motive area, those with a so-called weak drive could be distinguished from those with a strong but inhibited drive. If the strength of drive for aggression is defined on the basis of the habit strength of overt aggression, it seems probable that in individuals with average aggressive habits, particularly in those whose behaviour is motivated by a tendency to respond in a socially acceptable way, aggression impulses activated by a stimulus are, at the symbolic level, under stronger control than in those with very weak aggressive habits. The result is that regardless of the differences in overt aggression the magnitudes of aggressive test responses are either equally great or correlate even negatively with the habit strength of overt aggression.

The interpretation was supported also by the results obtained by Olweus (1969). In his study the number of the projective aggressive test responses of those subjects who were more aggressive than the average correlated positively with aggressive behaviour, whereas in the case of boys who were more nonaggressive than the average the correlation was negative. As the ratings of overt behaviour were concerned only with the amount of aggression, it is not possible on the basis of the presented material to analyze whether those responding most nonaggressively correspond to the controlled extraverts of the present investigation. Olweus interpreted his results in terms of a modification of the model of approach-avoidance conflict. Olweus' analytic assumptions can be simplified by stating that the habitual aggression inhibitory tendencies of individuals with moderate habitual aggressive tendencies are higher than those of individuals with weak habitual aggressive tendencies, as a consequence of which the activated aggressive tendencies of the latter manifest themselves more strongly.

The assumption made in *Hypothesis B. 2* (p. 111) that there are differences between the groups (controlled extraverts & aggressive/aggressive-anxious & anxious) in the magnitude of direct and indirect aggressive responses was *not supported* to a statistically significant extent (the main effects of the groups were not significant), although some inter-group differences according with the hypothesis could be found. Consequently, the verbal responses of the groups to symbolic aggression stimuli did not provide the expected information on the effects of the inhibition of aggression impulses on the direction of aggression.

The total magnitude of direct aggressive (verbal) responses separated the aggressive and nonaggressive groups from each other in defensive behaviour (QS 1) more clearly than that of indirect aggressive responses. As to offensive behaviour (QS 3), both direct and indirect aggressive responses separated the mentioned groups to an equally significant extent.

Hypothesis B. 3 on the effects of external control on the magnitude of aggressive responses *was supported* by the significant main effects of the targets (attackers and victims). The hypothesis on a parallel increase in the aggressive responses of the different groups was also partly supported, although the significant group x target interactions indicated that aggressive responses tended, to some extent, also to accumulate in some particular targets in the different groups (p. 162).

Besides the attackers, the type of attack was also varied in QS 1. As far as defensive responses are concerned, the way in which another person attacked proved to be very significant. It seemed to be a gener-

al tendency to deliver noxious stimuli to the attacker in the same form as he had delivered them. The significant attacker x type of attack interactions revealed, however, that in spite of the general tendency the subjects were inclined to adjust their responses to stimulus situations and especially to take the strength of external control into account.

The results concerning aggressive verbal responses indicated that significant analytical findings can be obtained by direct, uncomplicated questions about an individual's own behaviour, at least in a comparison of extreme groups. With the employment of projective test responses it has been found out in recent investigations (Murstein, 1965; Coleman, 1967; Olweus, 1969; et al.) that aggressive responses to stimuli having »high or medium relevance for hostility» correlate with the habit strength of overt aggression more highly than those given to very ambiguous stimuli.

The scoring of the responses given to the question series could be made still more accurate by additional questions. As for defensive aggression (QS 1), for example, after given the answer »I'd hit back» the experimenter could ask, »Would you hit harder, as hard, or less hard?» When presented occasionally, this additional question seemed to separate the aggressive and the stable introverts. For offensive aggression a possible question would be, »When did you last behave like that?» The question would probably facilitate the rating of the strength of this particular aggressive habit.

Hypothesis B. 4 on the qualitative inter-group differences in nonaggressive responses *was not very strongly supported.* In general, the main effects of the groups were not significant. Several significant inter-group differences could, however, be found. The following directive findings deserve mention: (1) description of negative affects (e.g., I'd feel annoyed) was most typical of the anxious and (2) indifference of the controlled extraverts; (3) the stable preferred conciliatory response, which was in all groups most frequent when the aggression stimuli consisted of complex frustrating situations (QS 2; in QS 1 the most frequent responses of the different groups was indifference); and (4) in the responses of the stable introverts none of the scored categories was conspicuous. Thus the verbal responses to the different aggression stimuli did not support the assumption that the stable introverts take an indifferent stand in a thwarting situation or appraise such a situation on account of their strong aggression inhibitory tendencies.

The nonaggressive verbal responses did not furnish much information concerning the interpretation of aggression stimuli. For QS 2 this might be partly due to the form of the question repeated in every

item, »What would you then think and do?» To make the scoring of the responses clearer it would have been better to ask both what the subjects would think and what they would do. Boys aged 8—9 answered the second part of the question spontaneously, so information about thinking processes remained too scanty for reliable scoring.

When QS 2 was presented to the subjects by giving pairs of alternative answers formulated on the basis of the hypotheses it could be seen that the question series separated the groups very significantly in the dimension 'control of behaviour'. The aggressive, aggressive-anxious, and anxious had, more often than the groups characterized by strong control of behaviour, chosen alternatives representing uncontrolled expression and inhibition of impulses (weak control of behaviour). The result corresponded to the writer's earlier (1968) finding concerning the responses of university students, in which the subjects had to rank (1—4) four alternatives according to how probable they considered the occurrence of the described responses in their own behaviour. Due to the alternative answers QS 2 was more like a questionnaire for aggression. In previous investigations the scores for hostility have been found to correlate more highly with anxiety and neuroticism than with extravert personality traits.

The assumption was made in *Hypothesis B. 5,* based on a positive covariation between a habit strength and the degree of stimulus generalization, that the effects of variation in stimulus material on nonaggressive responses are slightest for the group of whom the type of nonaggression in question is most typical. The hypothesis was *not supported.* The stable preferred conciliatory response significantly more often than the other groups; yet the distribution of it among the different targets was no more even than for the other groups.

Both the aggressive and nonaggressive responses varied readily according to the target (attacker). Endler & Hunt (1968) compared the proportions of variance from individual differences, modes of responses, and situations for hostility and anxiousness measured by inventories. They found a lower level of interaction with situations for hostility than for anxiousness. They interpreted the difference as a consequence of the sampling of situations, which cannot be considered very systematic. In their study the situations were varied mainly by varying the general setting of the situation. With regard to aggression, it would be more relevant to vary the targets (instigators, attackers, or victims) than the scenes; for anxiety, variation of the scenes would be more relevant. In the present investigation variation of situational factors was limited mainly to the targets of aggression.

The procedure was based both on the results of the first part of the report and on the interpersonal characteristic of aggression.

5. 4. Possibilities of further investigation

The investigation showed clearly the importance of some general experimental problems:

— the dimension 'control of behaviour' (p. 181),
— the relationships between personality traits and the individual patterns of aggression and nonaggression (p. 181),
— the relationships between the scores for a particular characteristic obtained by different test methods (e.g. personality inventories, p. 184) and characteristics of overt behaviour, corresponding to that carried out exploratively by the writer (1968),
— testing of the model of interpretation for inter-group differences (p. 186).

The study of inter-group differences could be extended:

What kind of inter-group differences emerge when verbal stimuli are replaced by visual ones, and verbal responding by motor. To study this problem the writer constructed a set of equipments for measuring physical defensive aggression. The extreme groups were retested by employing this »quarrel machine,» but the results are not yet available.

The overt aggression of the extreme groups could be studied e.g. by arranging real situations instigating aggression, both in individual tests and in deliberately combined small groups, and by observing different types of expression and inhibition of aggression impulses.

Furthermore, physiological reactions in connection with different aggressive and nonaggressive verbal responses could be studied e.g. in whether autonomic reactions are activated by verbal description of negative affects, or whether they are more closely connected with indifference or some other kind of treatment.

A longitudinal study would make it possible to examine the stability of the individual patterns of behaviour. Another interesting question would be in which pathological syndroms the different 'types of behaviour' may occur when extremely prominent in adolescents or adults. The preliminary assumption could be made that offensive (impulsive) aggression is an indication of psychopathy, which is char-

acterized by a lack of internalized norms of behaviour. Another form of psychopathy has been distinguished, which is hostile psychopathy, possibly related to behaviour termed aggressive-anxious. As is generally known, anxiety is included in many clinical syndroms. The strong tendency of controlled inhibition of impulses may result in the development of defence mechanisms or obsessions. Psychosomatic reactions may emerge in several extreme types of behaviour, e.g. in those characterized by strong control.

A further far-reaching problem is concerned with the goals and methods of therapeutic treatment of the different types. If behavioural characteristics can be understood mainly as response habits, the principles of therapeutic methods may be derived from the theories of learning and motivation.

Problems can also be explicated so as to concern either the reinforcement history or the actual social psychological background of the individual patterns of behaviour (cf. p. 89, Part I).

One of the central theoretical problems is to study the reinforcers of offensive aggression.

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APPENDIX A. VARIABLES[1]

1. PART I

Problem A

I *Direct defensive aggression*

a) *Physical mode of aggression*

1. He resists X by using lenient physical means (e.g. by pushing off). (22)[2]
2. He behaves defiantly against X, e.g. opposes when asked or told to do something; disobeys intentionally. (19)
3. He tries to hurt X, e.g. by hitting, kicking, or throwing something. (7)
4. He starts fighting with X. (15)

b) *Verbal mode of aggression*

5. He resists X by saying, go away, get out, don't, etc. (9)
6. He opposes X's suggestions; e.g. I won't go, I won't give it. (17)
7. He threatens revenge; e.g. I'll tell the teacher, I won't let you play any more. (11)
8. He makes a scornful remark to X; e.g. you're mad, naughty; calls names. (14)

c) *Mimic mode of aggression*

9. He resents X, expressing it with an angry look or expression. (16)
10. He starts sulking, does not answer, withdraws. (10)
11. He starts crying in a situation caused by X. (12)
12. He threatens X by making gestures. (13)

II *Indirect defensive aggression*

a) *Stimulus generalization*

13. When a child dare not be cross with X, he displays aggression toward some object. (26)
14. When a child dare not be cross with X, he displays aggression toward some other person (Y). (23)
15. When a child gets very angry, he displays aggression toward X and also

[1] Appendices B (Tables and figures) and C (Question Series 1—3 and instructions) are obtainable mimeographed, address: Department of Psychology, University of Jyväskylä, Finland.

[2] The rank of the variables in the rating list.

toward some objects around him, without being concerned about the person they belong to. (24)

b) *Response generalization*

17. He swears at X on account of a situation caused by him. (21)
18. He damages X's possessions, productions, etc. intentionally. (8)
19. He sneaks about X to the teacher or an older peer. (18)
20. He tries to hurt a person who is close to X and whom X tries to protect (little sister, smaller peer). (20)

c) *Projected aggression*

21. When a child feels his own inability or some obstacle due to circumstances preventing him from doing something, he tries to damage objects in his environment, e.g. any material at hand. (28)
22. When a child feels his own inability or some obstacle due to circumstances preventing him from doing something (e.g., there are not enough tools for everybody; he breaks something accidentally), he tries to make somebody else (Y) the scapegoat. (25)

III *Direct offensive aggression*

a) *Physical mode of aggression*

23. He irritates somebody (Y) causing trouble in co-operation, e.g. by breaking the rules of a game, refusing to take turns, or intruding. (39)
24. He disturbs somebody (Y) e.g. by grabbing a tool, interfering with a game, or grasping him by the neck. (36)
25. He hurts somebody (Y) without any reason, e.g. by tripping, pulling hair, pinching, striking in passing, or slingshooting. (33)

b) *Verbal mode of aggression*

26. He tries to prevent somebody's (Y) activities, e.g. by saying, don't come here, don't touch it, that's not yours, we won't let you in. (38)
27. He teases and vexes somebody (Y), e.g. gibes, makes malicious remarks, or calls names. (32)
28. He makes scornful remarks to somebody (Y), e.g. about what he has made, about his clothes, or home. (35)

IV *Indirect offensive aggression*

a) *Physical mode of aggression*

29. He vexes somebody (Y) by doing secretly something he knows to be forbidden. (41)
30. He teases somebody (Y) by intentionally handling and damaging his possessions or something he has made. (34)

b) *Verbal mode of aggression*

31. He teases a person whom he knows to be close to or in the protection of somebody (Y), e.g. little sister or a smaller peer. (31)

32. He gossips and tells something awkward or false about somebody (Y) behind his back in order to bring discredit on him. (40)

Problem B

Personality variables

1. General activity vs. passiveness. The trait manifests itself as an abundance or lack of (either acceptable or nonacceptable) behaviour. (2)
2. A child's behaviour is usually uncontrolled and impulsive (e.g., when seeing in somebody's possession an object he likes, he wants to get it; he becomes easily enthusiastic and forgets his task; he seems to forget directions and orders). (40)
3. A child's behaviour among his peers: leader type — withdrawing. (4)
4. A child's position among his peers: popular — despised. (6)
5. General level of intellectual development, reflected in the child's resourcefulness, insightfulness, and ability to perform tasks. (1)
6. Level of verbal development, reflected in the child's verbal ability, extensiveness of his vocabulary, etc. (5)
7. Stature compared with the other boys of the group.
   Information about this was obtained by means of the preliminary inquiry form. The teachers were asked the heights and weights of all their boy pupils (also those of the boys excluded from the sample later on). Both variables were normalized in groups. The normalized scores were summed up for each subject. This sum score indicated the stature of each boy compared with the other boys in his group.

Background variables

1. Date of birth
2. Do parents live with the child? (d) Yes No
   If the answer is No: Are they divorced? Yes No
   Is the child illegitimate? Yes No
   Is one of them dead? Yes No
3. Number of children in the family.
   Which in order of birth is the ratee? (e)
4. Does the child attend the whole-day or half-day course of the kindergarten? (a)
5. Mother's attitude toward the child (h)
   concerned irregularly concerned indifferent
6. Mother attends different occasions organized by the kindergarten (i)
   whenever possible sometimes never
7. The child's needs for food and sleep are satisfied at home (j)
   normally often remain unsatisfied
8. Estimated use of alcohol in the family (g)
   frequently sometimes never not known
9. Father's degree or occupation Place of employment (b)
10. Mother's degree or occupation Place of employment (c)
11. Estimated economical status of the family (f)
    very low low average high

12. General estimation of the child's home conditions
excellent good average poor very poor

Problem C

1. Aggressiveness vs. peacefulness (3)
2. The child tends to display aggression: for a very slight reason — only after severely provoked (31)
3. The child is teased by others or his activities are interfered with, compared with the other boys: often — seldom (29)
4. On account of his behaviour the child is feared or his company is shunned, compared with the other boys: very much — not at all (42)
5. By means of his aggressive behaviour the child attempts to satisfy his needs which have remained unsatisfied (tries to be leader of his group, attract attention, etc.): seems likely seems unlikely (44)

Problem D

Targets of aggression

1. Teacher
2. Taller boy
3. Boy of the same size
4. Smaller boy
5. Girl

Scenes of aggression

1. Free play period outdoors
2. Free play period indoors
3. Periods of directed activity or formal group work, e.g. meals, periods of creative expressions, play and music.

2. PART II

Problem A

Variables of peer and teacher ratings

Aggressive behaviour

I *Direct defensive aggression*

a) *Physical mode of aggression*

1. Which of your classmates may hurt another child when angry, e.g. by hitting, kicking, or throwing something? (26)[1]

[1] The items were administered to the subjects in a random order. Half of the subjects gave their answers in reverse order, with the exception of the first two items which were given first in both cases.

b) *Verbal mode of aggression*
2. Who quarrel with other children even for a slight reason? (30)

c) *Mimic mode of aggression*
3. Who easily start sulking (their look reveals that they are angry although they do not say a word)? (21)

II *Indirect defensive aggression*

a) *Stimulus generalization*
4. Who tease smaller and weaker peers when angry at something? (9)
5. Who kick pieces of furniture or other objects when angry at something? (16)

b) *Response generalization*
6. Who tease others when angry when they do not notice? (12)
7. Which of your classmates are sneaks? (34)

III *Direct offensive aggression*

a) *Physical mode of aggression*
8. Who may attack somebody without any reason? (18)

b) *Verbal mode of aggression*
9. Who say naughty things to other children even if these had done nothing wrong to him? (24)

c) *Mimic mode of aggression*
10. Who keep sneering and making faces at other children? (28)

IV *Indirect offensive aggression*

a) *Physical mode of aggression*
11. Who may take other children's possessions? (33)

b) *Verbal mode of aggression*
12. Who sometimes exaggerate or tell lies about other children? (10)

Nonaggressive behaviour

Controlled expression of impulses
13. Who try to act reasonably even in annoying situations? (25)
14. Who think that if one negotiates, everything will be better? (13)
15. Who side with smaller and weaker peers? (32)
16. Who think that it is just a joke if somebody attacks them? (20)

Controlled inhibition of impulses
17. Which of your classmates are peaceable and patient? (29)
18. Who are considered reliable classmates? (23)
19. Who dislike squabbling company and leave it for something else? (17)
20. Who never quarrel with others? (35)

Uncontrolled inhibition of impulses
21. Who easily start crying if others treat them nastily? (27)
22. Which of your classmates are afraid of other children? (11)
23. Who readily apologize even if they had done nothing very wrong? (14)
24. Who think that they will certainly get revenge but never do anything? (19)

Reference variables

Number of overt responses

25. Which of your classmates are always busy and play eagerly with other children during breaks and after school hours? (5)
26. Who are always silent and do not care to be busy? (6)

Strength of control of behaviour

27. Which of your classmates are sometimes very touchy and sometimes really nice chums? (7)
28. Who always try to be friendly to others? (8)

Socially approved activity

29. (The item was presented as the first variable to be rated in the following way.) Let us imagine that one spring day the lower classes make an excursion. The teacher tells you to name the classmate who would be a good leader. A girl leader should be chosen for the girls and a boy leader for the boys. Who do you think would be good leaders? (3)
30. Whom would you never choose as leader of the excursion? (4)

Anxiety

31. Who do you think easily cry, say, at the dentist's? (31)

Secondary motivation of behaviour

32. Who tend to disobey the teacher? (22)
33. Who try to attract attention by making fun? (15)

Additional variables rated by teachers

Anti-social behaviour

34.[1] Which of the pupils of the class have been caught filching?
35.[1] Which pupils are inclined to truancy?
36. Which pupils does the teacher feel concerned about because of ensuing anti-social behaviour?

Withdrawal

37. Which pupils are too withdrawn and timid?

Impulsiveness

38. Which pupils are unsteady and lack concentration in their work and attentiveness?

Stable general impression

39. Of which pupils does the teacher think that they will certainly be successful in later life?

School achievement

40. Rank the pupils on the basis of their school achievements (latest reports). The best pupil is numbered (1), the next (2), etc., boys and girls separately.

[1] Excluded from the analysis of results because of their low frequency. Information furnished by them included in variable 36.

Socio-economical status of the family

41. Father's (mother's) profession (written after the pupil's name).

Personality inventories

Junior NESI

44. Impulsive extraversion
45. Social extraversion
42. Neuroticism
43. Lie scale

KTK 1

46. Masculinity vs. femininity (—)
    + girlish
    — boyish, frisky
47. Anxiety
    + easily anxious, resentful
    — not anxious, relaxed
48. Fearfulness
    + fearful, suspicious
    — fearless, trustful
49. Attitude toward school
    + attend reluctantly
    — attend willingly
50. Dominance vs. submissiveness
    + submissive, adaptable
    — domineering, commanding
51. Self-confidence vs. inferiority feelings
    + self-confident, self-sufficient
    — uncertain, feel inferior
52. Altruism, egoism
    + benevolent
    — egocentric, resistant
53. Emotionality
    + cheerful, jovial
    — worried, depressed
54. Restlessness
    + clamorous, noisy
    — peaceful, silent
55. Sensitivity
    + insensitive, tough-minded
    — sensitive, dreamy
56. Co-operativeness
    + social, trustful
    — like to be alone
57. Dependency
    + seek parents' protection, helpful
    — unconcerned, not helpful