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# Asperger and his syndrome

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Asperger's pioneering paper published in 1944 is part of the classic literature of child psychiatry, and a landmark in the development of the concept of autism. So far it has been accessible only to the German reader. While Kanner's original paper on autism, published in 1943, has become extremely well known, Asperger's has been strangely ignored. The neglect in turn has led people to believe that Asperger did not merit their attention. Nevertheless, the terms *Asperger syndrome* and *Asperger's syndrome*<sup>1</sup> are fast becoming used to describe certain patients who have never been easy to classify but who seem to constitute a recognisable type of autistic individual.

In the last ten years there has been an increasing interest in Hans Asperger and his syndrome.<sup>2</sup> This volume makes a start in answering some of the questions that are now being asked. It contains a translation of Asperger's 1944 paper, and in addition, presents reviews of current concepts of autism. These reviews suggest that the time has come to differentiate various forms of autism. As the contributors to this volume contend, one of these forms is justifiably called *Asperger's syndrome*. Supporting the argument are a number of case histories. At this stage it is largely through detailed case studies that we can begin to understand the syndrome. Just as one comes to recognize a Mondrian painting by looking at other Mondrians, one can learn to recognise a patient with Asperger syndrome by looking at cases described by Asperger and other clinicians.

<sup>1</sup> Both terms are widely used. There seems to me no virtue in being dogmatic about the letters, and for this reason *Asperger syndrome* and *Asperger's syndrome* appear in this volume.

<sup>2</sup> Wing's (1981) paper was instrumental in kindling interest in Asperger syndrome; Tantam (1988), Gillberg (1990) and Green (1990) provided annotations; diagnostic manuals (World Health Organization, 1990) and textbooks (for example, Rutter and Hersov, 1985) began to define the category, and systematic studies are now appearing (for example, Schopler and Mesibov, in press).

Should autism and Asperger syndrome be seen as distinct and mutually exclusive diagnostic categories, or should Asperger syndrome be seen as a subcategory of autism? This question cannot yet be answered definitively from existing scientific data. In this volume the subcategory view has been adopted which, in the absence of compelling evidence to the contrary, presents the parsimonious option. The terms autism and Asperger syndrome are therefore not treated as mutually exclusive. We propose that the Asperger individual suffers from a particular form of autism. This form does not seem to be particularly rare.<sup>3</sup>

### The developmental diversity of autism

To understand why and in what sense Asperger syndrome can be claimed to be a type of autism, it is useful to start with a general picture of autism as it unfolds in development.<sup>4</sup> This is not the place for detailed evidence. Instead, a number of simplified statements must suffice to summarise the prevailing clinical and scientific opinion. Autism is due to a specific brain abnormality. The origin of the abnormality can be any one of three general causes: genetic fault, brain insult or brain disease. Autism is a developmental disorder, and therefore its behavioural manifestations vary with age and ability. Its core features, present in different forms, at all stages of development and at all levels of ability, are impairments in socialisation, communication and imagination.

The first year of life of the autistic child is still shrouded in mystery.<sup>5</sup> It is as yet unknown if at this early stage behavioural abnormalities can be picked up that are truly specific to autism. This is not to say that no abnormalities whatever can be observed or will not be found in the future. The problem is to know whether they are specific or non-specific. General developmental delay is often associated with autism but is also present in mentally handicapped children who are not autistic. One of the first signs that is specific to autism is a lack of pointing and looking to share interest and attention with another person. If a child is very delayed in all respects, however, then absence of such behaviour would not be a *specific* sign. In non-autistic children with developmental delay the phenomenon of shared attention would also be expected to make a delayed appearance. It is therefore very difficult to make a secure diagnosis of autism before the age of two or three years.

The pre-school years, often stormy in normal development, frequently

<sup>3</sup> Gillberg and Gillberg (1989) estimate the prevalence of Asperger syndrome in the population of Swedish schoolchildren as between 10 and 26 per 10,000. If confirmed, this proportion is twice as high as for more classic types of autism (4 to 10 in 10,000).

<sup>4</sup> This brief sketch is based on the more detailed account in Frith (1989a).

<sup>5</sup> A recent study (Lösche, 1990), based on home movies, suggests that the timing and sequence of developmental gains differs between normal and autistic children only from the second year of life.

mark the phase of most troublesome difficulties for autistic children and their families. At this stage autism produces a highly recognisable pattern of behaviours, even though there is an enormous amount of individual variation. All sorts of behaviour problems can worry parents at this time. In almost all cases language learning is delayed, and in some cases language is never acquired at all. Most young autistic children do not seem to comprehend what others are saying to them or, indeed, what is going on around them. Deafness is often suspected but ruled out. Social interaction is severely limited. Imaginative pretend play is noticeably absent. The children are often fixated on simple activities, and may inadvertently tyrannise their family by intolerance of any change in routine. It has often been stated that young autistic children behave as if other people did not exist. Again there are degrees, but, taken with a grain of salt, this description sums up their behaviour quite well.

Developmental changes which are rightly experienced as improvements are often a marked feature between the ages of five and ten. From here the paths begin to diverge to such an extent that the idea of subtypes cannot be ignored.<sup>6</sup> Progress will be very different for the autistic child who speaks fluently and the child who has little or no language. Progress will also be different for the child who shows evidence of ability in some areas and the child who suffers from such pervasive brain damage that all his or her intellectual abilities are impaired.<sup>7</sup> Language and general intellectual ability tend to go hand in hand, but there are exceptions. These exceptions are not addressed in this volume, but deserve to be studied in their own right.

How should we tackle the question of subgroups? It may not be through a distinctive pattern of signs and symptoms at a particular moment in time, but rather through differences in developmental progress that we will be able to discern variants of autism. In this volume we focus on those autistic children who make good progress and are not crippled by multiple and severe learning disabilities. How do they diverge from other autistic children? Perhaps the main feature of children for whom we propose the label Asperger syndrome is that they tend to speak fluently by the time they are five, even if their language development was slow to begin with, and even if their language is noticeably odd in its use for communication. Some of these children show dramatic improvements despite having had severe autistic symptoms as toddlers.<sup>8</sup> As they grow older they often become quite interested in other people and thus belie the stereotype of the aloof and withdrawn autistic child. Nevertheless, they remain socially inept in their

<sup>6</sup> Problems in diagnostic classification when the whole range of ability and course of development are taken into account are discussed by Cohen, Paul and Volkmar (1987).

<sup>7</sup> Rees and Taylor (1975), as well as Bartak and Rutter (1976), drew attention to differences in developmental progress in autistic children with and without additional mental retardation.

<sup>8</sup> Rapid improvement in bright autistic children's social and communicative behaviour just before the age of five was found in a questionnaire-based study by Shah (1988).

approaches and interactions. By adolescence many will vaguely realise that they are different from their peers and that there is a whole sphere of personal relationships from which they are excluded.<sup>9</sup> They may learn many facts about the world, but their knowledge seems to remain curiously fragmented. They somehow fail to put their experience and knowledge together to derive useful meaning from these often unconnected bits of information.<sup>10</sup> Like other autistic individuals, they tend to show a highly typical pattern of performance on IQ tests, but unlike them, they usually score in the average range of intelligence.<sup>11</sup> It is a frequent complaint of parents, however, that their children, despite sometimes high academic abilities, lack common sense.

As adults Asperger syndrome individuals can become, superficially at least, well adapted and some are exceptionally successful. On the whole they tend to remain supremely egocentric and isolated.<sup>12</sup> They do not seem to possess the knack of entering and maintaining intimate two-way personal relationships, whereas routine social interactions are well within their grasp. Because of their idiosyncrasies, their egocentric bluntness and fragility, they find it difficult to live and work with others and may require psychiatric help. This is despite the fact that they may be intellectually able and often have special skills and talents. In line with these skills they tend to be preoccupied with some fanatically pursued interest, and in favourable circumstances they can achieve satisfaction and success. Adults with Asperger syndrome bear no physical resemblance to each other, but often appear gauche in the way they move and almost always sound odd in the way they speak. They seldom enter the natural flow of small-talk, and their use of language and gesture is often stilted. Even those individuals who are

<sup>9</sup> This observation was made by Kanner (1971) in his follow-up study of the eleven children he had described in 1943.

<sup>10</sup> Frith (1989a) attempted to sketch out the preliminary theory that one deep underlying cognitive deficit in autism has to do with a lack of coherence. In other words, autistic people lack the drive to pull information together into overall meaning. This theory addresses itself to the peculiarly fragmented pattern of abilities, the fragmented sensory experiences and the stereotypic repetition of fragments of behaviour. All these phenomena are associated with autistic spectrum disorders, and are particularly conspicuous in Asperger syndrome.

<sup>11</sup> Elisabeth Wurst (1976), a member of Asperger's team in Vienna, studied the performance on Wechsler IQ tests of fifteen seven- to eight-year-old children with Asperger syndrome diagnosed by Asperger himself. She found peaks on information and block design subtests, but troughs on comprehension and picture arrangement. This pattern of abilities is very similar to that shown in other studies with able autistic children (for example, Rutter and Lockyer, 1969; Lockyer and Rutter, 1970; Rumsey and Hamburger, 1988). The IQ level of the Asperger syndrome sample was average or above, while a comparison sample of what in this study were termed Kanner autists scored in the range of moderate to mild mental retardation.

<sup>12</sup> Volkmar (1987) reviews research on the social development of autistic individuals in general, and Sparrow *et al.* (1986) report on the social adaptive functioning of a very able group. It is possible that there are many undiagnosed individuals who would be recognised as having Asperger syndrome but who are doing so well that they never come to the attention of clinicians. How to distinguish such people from the normally shy is, of course, a very difficult question.

very able intellectually and have coped well with their handicap will strike one as strange. This strangeness may be perceived as anything from chilling cold-bloodedness to endearingly old-fashioned pedantry.<sup>13</sup>

Within this very brief and general outline of typical Asperger syndrome individuals there is much variation. Some show extreme behaviour difficulties, others are gentle and easy to manage. Some suffer from specific learning disabilities and do badly at school, others do very well academically and have university degrees. Some may find a niche in society and lead a reasonably contented life, but others become outcasts or remain misfits. For all their strangeness, people with Asperger syndrome seldom find the help and sympathy they deserve and need. As we shall see, theirs is a devastating handicap.

So far, Asperger syndrome is the first plausible variant to crystallise from the autism spectrum.<sup>14</sup> No doubt other variants will follow. In this volume we address the question of how best to characterise the syndrome from our present state of knowledge. A good starting point is to find out more about Asperger and to see how his ideas differed from those of Kanner.

### Names and labels

Hans Asperger and Leo Kanner were both born in Austria and trained in Vienna, but they never met each other.<sup>15</sup> Kanner, born in 1896, emigrated to the United States in 1924 where he became head of the Johns Hopkins clinic at Baltimore. With his textbook on child psychiatry he became the founder of a new discipline, but his greatest fame came from his discovery of autism. In 1943 Kanner introduced the label *early infantile autism* for a type of disorder hitherto unrecognised as a clinical entity, although it is possible to find earlier case descriptions. These early descriptions had failed to leave their mark because nobody pointed out their significance or gave them a name. After Kanner, every major clinic immediately found cases which fitted the category of early infantile autism.

Asperger, ten years younger than Kanner, pursued a career in general medicine with a view to specialising in paediatrics. He was attracted by the approach of remedial pedagogy, which had been practised with difficult children from about 1918 at the University Paediatric Clinic in Vienna, and

<sup>13</sup> This brief generalised description roughly distils Asperger's clinical description of the syndrome in its mature form. It also corresponds to descriptions of adults given by many other authors (for example, Wing, 1989). It also fits in with descriptions of less well-adapted cases as, for instance, in Tantam's (1986) study of a sample of adult psychiatric patients, subsequently diagnosed as suffering from Asperger syndrome, whose main characteristics were unusual interests, impaired non-verbal communication and clumsiness. This study is discussed by Tantam in chapter 5.

<sup>14</sup> Different forms of autism, seen as part of a spectrum of autistic disorders, have been described by Wing and Attwood (1987).

<sup>15</sup> A sympathetic appraisal of both men has been provided by Lutz (1981).

joined the staff of this clinic, where he worked on his Habilitation, that is, his second doctoral thesis. The topic of his thesis was what he called *autistic psychopathy* and what we would call autism. He submitted his thesis in 1943 and it was published in 1944. It is this paper which appears in translation in chapter 2.

By a remarkable coincidence, Asperger and Kanner independently described exactly the same type of disturbed child to whom nobody had paid much attention before and both used the label autistic.<sup>16</sup> They were pioneers in recognising that autism is a major developmental disorder and not merely a rare and interesting childhood affliction. From the start Asperger had an idea of what these children would be like as adults. He was interested in the subtle, and possibly milder, manifestations of autism in more able children. Nevertheless, he also emphasised that autism could be seen throughout the whole range of ability and that it produced a particularly striking picture when accompanied by mental retardation.

At the time of Asperger's and Kanner's pioneering studies a concern with subgroups would have seemed remote. Both men were intent on one aim, to convince colleagues that there was a previously unidentified entity, a highly recognisable disorder, which was present from early childhood and persisted for many years. It is only now, after autism has become almost a household term, that refinement into subgroups begins to make sense. Just where the category boundaries for such subgroups should be drawn is a difficult question, and readjustments from time to time are to be expected. The present volume is a first step in this process.

I wish to express the hope that the translation of Asperger's paper will not be used as a means for a false orthodoxy. It contains some startling insights which are still new to many. It also reveals some misconceptions that have crept into secondary sources. Nevertheless, we cannot extract from this paper a definitive view of Asperger syndrome, or of autism for that matter. In the first description of a few cases of a puzzling clinical entity of unknown aetiology it cannot be presumed that *all* the essential features and *only* the essential features will at once be identified. After all, such a description hinges on the happenstance of individual cases that come to the clinic. The task of identifying the core symptoms of autism has taken many decades, and a definitive answer will be reached only when we have full knowledge of the biological origins and their effects on brain development. It will undoubtedly be some years before Asperger syndrome is fully defined and recognised. We shall now take a closer look at Asperger and his background, and then briefly compare Kanner's and Asperger's first thoughts on autism.

<sup>16</sup> This label, first used by Eugen Bleuler to describe the schizophrenic patient's loss of contact with the world around him, was chosen presumably because detachment from the social world strongly characterised the special children Kanner and Asperger were studying. An English translation of Bleuler's textbook of psychiatry (1916) appeared in 1951.

### The man behind the syndrome

To understand Hans Asperger (1906–80) it is necessary to understand the idea of *Heilpädagogik* or remedial pedagogy. This approach to the treatment of disturbed children must not be confused with that form of remedial education which is entirely anchored within education and outside medicine. Instead, it is a seemingly intuitive synthesis of medical and educational practice applied by inspired doctors, nurses, teachers and therapists in a team effort. The children who in Asperger's view most urgently needed such treatment and could most benefit from it were children who suffered from what he called autistic psychopathy. Asperger believed that these children suffered from an inherited personality disorder which made them troublesome but also fascinating. He set out to prove that they constituted a real type – a recognisable clinical entity – with specific and persistent handicaps. He was sure that despite their difficulties the children were capable of adaptation – provided there was appropriate educational guidance.<sup>17</sup>

Asperger clearly cared about these children, who in most people's eyes were simply obnoxious brats. They were very unchildlike children. They did not fit in anywhere and were troublesome because they lacked any respect for authority. They made their parents' lives miserable and drove their teachers to despair. So unappealing were these strange boys that other children and adults were drawn to ridicule them. That a young doctor was captivated by these difficult children was a small miracle. Asperger appreciated their many surprising positive features while fully recognising their negative ones. He admired their independent thinking and capacity for special achievements, but also candidly documented their learning problems and seemingly spiteful and malicious behaviour.

Why did Asperger become the champion of these misfits and how did he approach the task of explaining their problems? Indirectly, we may find an answer through a lecture he gave to commemorate his predecessor as head and founder (in 1918) of the University Paediatric Clinic, Erwin Lazar.<sup>18</sup> Asperger spelt out three pairs of paradoxical virtues that he admired in Lazar: first, there was the mixture of tolerant humanity and deep scepticism that, he claimed, marks the genuine Viennese; secondly, there was the mixture of scientific thinking and love of the arts; and thirdly, there was the combination of razor-sharp scientific formulation and popular expression. Each of these virtues seems to apply to Asperger himself. Equally apposite seems Asperger's characterisation of Lazar's 'unsentimental, apparently cool, but in reality deeply empathic contributions'. Lazar, moved by the

<sup>17</sup> Examples of practical hints for the education of individuals with Asperger syndrome can be found in chapter 6. These hints are very similar to techniques advocated by remedial pedagogy. Examples are also given in Asperger's original paper (chapter 2) and in his textbook *Heilpädagogik* (1952).

<sup>18</sup> This lecture was published in 1962.



Fig. 1.1 Work in the University Paediatric Clinic, Vienna: Hans Asperger and his team testing children. Asperger is second from left. From the collection of Dr Maria Asperger-Felder

plight of neglected and deprived children following the First World War, was involved in voluntary organisations that ran homes and day centres in Vienna and provided help with forensic problems for children and adolescents. His compassion and commitment to this work were no doubt an inspiration to all who worked at the clinic.

Asperger frequently acknowledged his debt to the work of his predecessors and colleagues at the university clinic. The special and novel feature of the remediation practised at this clinic was its biological basis. This meant that the design of any programme began with the identification of organically caused limitations or deficits of individual children. After the handicap was identified, the children would be treated sympathetically. Education and therapy were the same thing. It is fascinating to read of the development of this work. To begin with, the remedial ward was like any other clinical ward. As in the hospital's other wards, the children lay in neat little rows of beds, and twice daily there was a ward-round. They were treated as sick children who needed to be made well again. As the team's experience grew, their ethos changed. Soon the children were out of bed during the day and played and worked in a busy round of activities. Now the aim was to give handicapped (rather than sick) children as positive an education as possible. In 1926 the ward moved to the beautiful purpose-built Widerhofer Pavilion, with its airy rooms, architect-designed furniture and artistic wall friezes.

The daily programme of play and lessons was led by a remarkable woman, Sister Viktorine Zak. Asperger called her a genius. Her intuitive diagnostic skills and therapeutic effects as a teacher were legendary. One of

Asperger's formative experiences, he reports, was witnessing Sister Viktorine calm a panic-stricken toddler in the midst of a destructive tantrum. Sister Viktorine's programme started daily with a PE lesson, using rhythm and music. There were organised dramatic enactments of events or of songs. There were also proper school lessons and speech therapy. The pervading ethos was that the clinic's work should be governed by the wish to understand and help children. Tragically, Sister Viktorine was killed when the ward was destroyed by bombs in 1944.

The team were keen to use psychological tests, but the qualitative assessment of performance was considered more important than the quantitative. Early on, Lazar had experimented with psychoanalysis and employed one of the first child analysts. However, he finally rejected the methods as unsuitable for children. With psychoanalysis flourishing in Vienna at the time, it is surprising to find little sign of the influence of the ideas of Freud or other analysts on Asperger's ideas on autism. At most, one can find an acerbic remark about possible psychodynamic factors; for instance, Asperger's paper mentions Adler's ideas on severe psychological problems that arise from being an only child in the family, but dismisses them as a possible cause of autism. This was not because he did not think that autistic children often were only children, in fact, he mistakenly believed that this was frequently the case. Turning the psychodynamic proposition on its head, he thought that it was the parents' own autistic pathology that made them produce only one child. He was convinced that autism ran in families and never wavered from the assumption that organic or constitutional factors were the causal roots of autistic children's problems. It is no coincidence that the remedial ward was situated within paediatric medicine and not psychiatry. For this reason he also tended to be sympathetic to the parents who, as he said, often understood their autistic child very well and did their best to bring him up.

Lazar died suddenly in 1932. His successor, Hamburger, who was interested in the unconscious affective life of children, carried on the tradition of remedial pedagogy at a time when Asperger was preparing for his Habilitation. The idea of a deep affective disturbance at a biological level of drives and instincts strongly influenced Asperger's conception of autism. It is interesting to note that the core team of doctors, nurses and teachers met at each other's homes for dinner once a week to talk about their cases informally. More than likely, the characteristic features of autistic children were debated on these occasions. Thus, the roots of the concept of autistic psychopathy originated in the vision and work of an extraordinary group of people during one of the darkest times in European history.

Asperger's private life was uneventful. He was married with four children. He was a quiet, reticent man, steeped in the humanist tradition, with an extensive knowledge of classics, history, art and literature. He enjoyed giving tutorials in all school subjects to the children on the ward,

and regularly accompanied groups of them on summer camps. Such camps were important to him because of his own schoolboy experiences of youth groups and camps run by enthusiasts of the *Jugendbewegung*.<sup>19</sup> The romantic ideology of such groups was comparable to that of the Boy Scouts, and the freedom of outdoor life represented a vivid contrast to the then stern discipline of school. Asperger spoke of these early influences as decisive, citing them to explain what had first interested him in the children who could never join in with the gang and would panic when forced to participate in a group. Far from despising the misfits, he devoted himself to their cause – and this at a time when allegiance to misfits was nothing less than dangerous.

After the war, Asperger was appointed to the Chair of Paediatrics at the University of Vienna which he held for twenty years. Large crowds of students always attended lectures, and his influence on many generations of them was significant. He received national and international recognition and obtained major academic distinctions. He died suddenly in 1980 while still actively engaged in clinical work.

#### Asperger versus Kanner

There is a great deal of overlap between Asperger's and Kanner's views of autism (see chapter 3 for Wing's discussion of the similarities and differences). Both recognised as prominent features in autism the poverty of social interaction and the failure of communication; highlighted stereotypic behaviour, isolated special interests, outstanding skills and resistance to change; insisted on a clear separation from childhood schizophrenia; and observed the attractive appearance (although Asperger emphasised odd aspects of appearance as well) and similarities in children's and parents' behaviour. On all the major features of autism Kanner and Asperger are in agreement.

In their original papers some important observations were made by one but not the other. Kanner first described language peculiarities, such as echolalia, pronoun reversal and difficulties in generalising word meanings. The children Asperger first described, apparently, did not show these features, but had clever-sounding language, invented words and generally spoke more like grown-ups than children; these comments suggest that there was something not quite right in the way they used language. Asperger, on the other hand, was the first to report oddities of non-verbal communication: eye gaze, gestures, posture, voice quality, prosody and word choice. He highlighted lack of humour and pedantry. Influenced by

Ludwig Klages' (1936) then popular science of expression, he considered these phenomena to be of fundamental importance in the clinical picture of autism.<sup>20</sup>

In his original paper Asperger reported examples of obsessive collecting of meaningless sets of objects which has since become recognised as a prototypical feature of autism. He also claimed that there could be severe homesickness and strong attachment to selected people, observations which have not always been endorsed by others. Asperger was keen to stress the possibility of social adaptation and academic achievement in those of his cases whom he presented as highly original thinkers. Like Kanner he may have been inclined to overestimate their intellectual abilities. Nevertheless, he also believed that there were some serious attention deficits and specific learning disabilities even in children with good intellectual skills.

The slight differences in the first two accounts of autism point to the possibility that the prototype Kanner had in mind was younger – with delayed and markedly deviant language acquisition – was, in short, a child with a more blatant and severe communication disorder. There remain, however, some contradictions which have so far hardly been formulated let alone investigated. Kanner believed that only the relation to people was disturbed and that the relation to objects was, if anything, superior to that found in normal development. Consequently he commented on the dexterity with which autistic children manipulated objects. Asperger, on the other hand, believed that there was a disturbed relation not only to people but also to objects. This for him explained the notable impracticality and clumsiness of the autistic person as well as the social ineptness. These two conjectures are interestingly different and amenable to being tackled by experimental techniques.

Asperger's paper is relevant to the understanding of autism in all its variants but may not serve as the ultimate yardstick for what will be called Asperger syndrome in the future. As more clinical and epidemiological studies are completed, different investigators will offer their own interpretations. Such studies are reported by Lorna Wing in chapter 3, Christopher Gillberg in chapter 4 and Digby Tantam in chapter 5.

Kanner's cases are so well known that they will always remain prototypes for new similar cases. Children who do not talk or who parrot speech and use strange idiosyncratic phrases, who line up toys in long rows, who are oblivious to other people, who remember meaningless facts – these will rightly conjure up Leo Kanner's memory. Children and adults who are

<sup>19</sup> Asperger provided this information in a talk given in 1977 at Fribourg, Switzerland and translated into English in 1979. This publication has long been the only primary source accessible to English speakers. Unfortunately, his reference to the *Jugendbewegung* has occasionally been wrongly interpreted as an allegiance to Nazi ideology.

<sup>20</sup> Asperger reported having met Klages when he was studying at Leipzig in 1934 and being much helped by his ideas. The history of a science of expression goes back a long way and includes Charles Bell's (1774–1842) *Anatomy and philosophy of expression* (1806) and Charles Darwin's work on the origin of the emotions (1872). Impairments in emotion recognition and expression in autistic individuals have been investigated only relatively recently (Hobson, 1986a, 1986b). Their relevance to Asperger syndrome is highlighted by Tantam in chapter 5.

socially inept but often socially interested, who are articulate yet strangely ineloquent, who are gauche and impractical, who are specialists in unusual fields – these will always evoke Hans Asperger's name.

### Diagnostic categories and diagnostic signs

Our knowledge of Asperger syndrome is still patchy, but a consistent picture is beginning to emerge. The developmental course of able, as well as less able, autistic individuals from childhood to adulthood has been traced.<sup>21</sup> Excellent progress is observable in at least some cases, whether these have been labelled high-functioning autism or Asperger syndrome.<sup>22</sup> We are also beginning to arrive at an understanding of problems that arise even for very able autistic individuals in certain situations, and of aspects of their behaviour that those around them find difficult to understand. This knowledge should have benefits for management. On the other hand, because the diagnostic classification is still in a fluid state, communication between different centres is, unfortunately, much hampered. This volume will have served its purpose if it provides a basis for discussion for future developments of diagnostic procedures.

There is unanimity among the contributors to this volume. All agree on the assumption that Asperger individuals belong to the autistic spectrum. All believe that Asperger syndrome has in common with autism in general a special type of communication failure and social ineptness. Nevertheless they see Asperger syndrome individuals as distinct from other autistic individuals, as better at communicating by virtue of their better language, and as more likely to achieve successful adaptation. The differences that have already been noticed and those that may yet come to light may suggest that Asperger syndrome is a separate clinical entity, not merely a subgroup of autism. Even within the subgroup view, there is disagreement; for instance, some have argued that it is unnecessary and confusing to use the label Asperger syndrome and that *high-functioning autism* or *mild autism* would be preferable, while others suggest that both categories might be useful. However, it is not yet clear where, and on what basis, the line

<sup>21</sup> Bartak and Rutter (1976) compared progress in retarded and normally intelligent autistic children, showing considerable differences between these groups. Newson, Dawson and Everard (1982) conducted a questionnaire-based study in Britain on a sample of over ninety very able people, most of them between sixteen and twenty-six years old. Discussions of practical issues in the life-span development of autistic individuals of very different capacities for adaptation can be found in Cohen, Donnellan and Paul (1987) and in the series edited by Schopler and Mesibov (1983 onwards).

<sup>22</sup> Szatmari *et al.* (1989), in a follow-up study of high-functioning autistic children, reported some excellent and near-normal adaptation (four out of sixteen). On the other hand, Rumsey, Rapoport and Sceery (1985) documented rather poor outcomes in able autistic adults. Other cases of excellent adaptation have been described by Kanner, Rodriguez and Ashenden (1972) and Brown (1978).

between high-functioning autistic and Asperger syndrome individuals should be drawn, if at all.<sup>23</sup>

There are also disputes on the drawing of boundaries between Asperger syndrome and *semantic-pragmatic disorder*<sup>24</sup> and other types of learning disability.<sup>25</sup> Others have argued that the concept of *schizoid* or *schizotypal personality* would fit the clinical picture of Asperger syndrome.<sup>26</sup> Relationships to other developmental disorders, such as attention deficit disorder, have also been pointed out. All these questions are addressed and discussed from different points of view in the chapters by Wing, Gillberg and Tantam on the basis of their own extensive clinical experience of autism and related disorders. The authors, who have published key papers elsewhere, draw up helpful guidelines and spell out their own diagnostic criteria. As Wing points out in chapter 3, there are in fact great similarities between the sets of criteria used by a wide range of clinicians.

In defining clinical categories two kinds of error are common: the categories aimed at are too small and leave the majority of patients unaccounted for, or they are too large and do not differentiate patients who, in most clinicians' opinions, present different types of problems. In autistic spectrum disorders the twin dangers are omnipresent, accounting for pendulum swings between over-inclusion and ultra-specificity.

Diagnostic differentiation will eventually also have to take account of certain similarities between Asperger syndrome and schizophrenia. It is worth noting that the so-called negative signs of schizophrenia (poverty of speech, poverty of ideas and flattening of affect) bear a striking resemblance to the prevailing features of some types of autism in adulthood.<sup>27</sup> Progress in diagnostic classification depends on a better understanding of diagnostic

<sup>23</sup> Examples of the first studies tackling the question of how to differentiate high-functioning autism from Asperger syndrome can be found, for instance, in Gillberg (1989a); Szatmari, Bartolucci and Bremner (1989); Szatmari *et al.* (1990); Kerbeshian, Burd and Fisher (1990); and Ozonoff, Rogers and Pennington (in press). It has to be said, however, that these studies suffer from the current lack of consensus concerning the diagnostic characteristics of the groups compared. No study so far has avoided the danger of contrasting what may, in fact, be overlapping groups. This may be why no useful unanimous conclusions have as yet emerged.

<sup>24</sup> Bishop (1989) discusses possible differences between semantic-pragmatic language disorder, autism and Asperger syndrome.

<sup>25</sup> A number of neuropsychological investigations, recently reviewed by Semrud-Clikeman and Hynd (1990), have all identified a pattern of impairments in children which is suggestive of right hemisphere involvement. These impairments prominently include social ineptness, and the group so identified may well belong to the autistic spectrum.

<sup>26</sup> The schizoid or schizotypal individual (or schizothymic in Kretschmer's (1925) terminology) is usually described as unsociable, over-sensitive, cold (lacking in affectionate resonance), stubborn and pedantic. Wolff and Barlow (1979) and Wolff and Chick (1980) used the labels schizoid personality and Asperger syndrome interchangeably. Nagy and Szatmari (1986) came to the conclusion that patients with schizotypal personality disorder could also be diagnosed as suffering from mild autism. Many clinicians, however, prefer not to collapse the categories (Tantam, 1988b, 1988c).

<sup>27</sup> Frith and Frith (in press) discuss the relationship between autism and schizophrenia and suggest that there is a hidden similarity in the underlying cognitive deficit.

signs. One behavioural sign especially in need of clarification concerns the much reported clumsiness of Asperger people. It is tantalising not to know whether their gaucheness is in fact a motor co-ordination problem, or will turn out to be a problem not so much with movements as with the *use* of movements. It is also not yet clear if clumsiness can act as an important discriminating diagnostic sign of Asperger syndrome as opposed to other variants of autism.

Stereotypic behaviour remains a puzzle. In times of stress, able autistic individuals are just as likely to show stereotypic movements as less able ones. Those who have more social awareness, however, learn to suppress stereotypic movements more successfully.<sup>28</sup>

The odd interests of Asperger people are a largely unexplored feature. Their special interest is often their sole topic of conversation. Asperger individuals seem to love talking about their interest, regardless of whether one has heard it all before. Autistic repetitions and obsessions appear to be different from compulsions as the autistic person does not try to resist them, but apparently greatly enjoys enacting them. Attempts at deflection will be met with extreme annoyance.<sup>29</sup> The interest may appear excessive, abstruse and sterile to others, but not to the Asperger person. The special interests of Asperger individuals are so striking that they offer themselves as *aide-mémoire* labels for individual cases, for example, the case of the little frog expert in chapter 4. Fortunately, the ability to sustain strong interest in a particular area and to be absorbed and even enraptured by its pursuit can lead to outstanding achievements.

One mysterious feature that is not currently given much importance may hold further clues. Some Asperger individuals give first-hand accounts of sharply uncomfortable sensory and strong emotional experiences, often including sudden panic. From autobiographical accounts we learn that again and again the Asperger individual's interpretation of perceptions by ear, eye or touch, tends to be either extremely faint or overwhelmingly strong.<sup>30</sup> There can be hyper- as well as hyposensitivity. Feeling scratchy clothes, for example, is not merely uncomfortable, but agonising. On the other hand, pain may be tolerated to a phenomenal degree. Both the interpretation of the sensation and the subsequent emotional reaction, or lack of it, seem to be out of the ordinary. The same may also be true for

<sup>28</sup> Rumsey, Rapoport and Sceery (1985) provide results which support this claim. However, Szatmari, Bartolucci and Bremner (1989) found that stereotypic movements were observed much less frequently in their Asperger group than in their high-functioning autistic sample.

<sup>29</sup> Rumsey, Andreasen and Rapoport (1986) highlighted the finding that able autistic adults who showed considerable similarities to schizophrenic patients with negative features, such as poverty of speech, poverty of ideas and flattening of affect, were, nevertheless, much more likely than schizophrenics to exhibit perseveration on a given topic and single-mindedness in its pursuit.

<sup>30</sup> Grandin (1978), for example, describes extremes of sensitivity to certain types of sensory stimulation.

other types of autistic individuals but, unlike the Asperger syndrome person, they cannot tell us about their sensations. Unfortunately, we are far from a clear understanding of the mechanisms by which human beings normally interpret sensations and react to them.

These poorly understood features do not mean that Asperger syndrome is impossible to identify. Asperger himself maintained that the persistent, if sometimes subtle, impairments typical of the individuals he described are very obvious once one has come to recognise them.

### The biological basis

Asperger was convinced that the syndrome he described was of constitutional origin and genetically transmitted. In the less favourable cases, however, where additional physical and neurological abnormalities were present, he assumed a different type of biological cause, for instance, encephalitis. He speculated on whether the preponderance of males pointed to a sex-linked form of transmission. In Asperger syndrome this preponderance is particularly marked. Today these ideas are still topical as more information on putative brain abnormalities becomes available.

Gillberg, in chapter 4, presents results of pedigree-tracing and neurobiological investigations and discusses their implications. The evidence for a biological basis seems as strong for Asperger syndrome as it is for other variants of autism. As Gillberg's studies show, the difference is simply in the severity of the biological signs (Gillberg, 1989a). Asperger individuals tend to show less severe and fewer signs. The evidence for a genetic contribution to autism in general is impressive, while studies on Asperger syndrome are as yet rare.<sup>31</sup> What emerges in Gillberg's family genetic studies is that Asperger syndrome and autism frequently occur in the same family, for instance, a man with very mild Asperger syndrome may have a totally mute and autistic nephew. This finding suggests that the two conditions may indeed be different expressions of the same basic defect. Results of neuropsychological tests of able autistic people have been highly consistent. They are strongly suggestive of frontal lobe dysfunction.<sup>32</sup> These results do not necessarily mean that the frontal lobes are damaged. Since autism is a developmental disorder with very early onset, brain abnormalities would be likely to occur even before the frontal lobes are functioning. The kind of damage we are looking for may occur at a particular point in brain

<sup>31</sup> For recent reviews of genetic and neurobiological factors in autism in general see Rutter *et al.* (1990) and Gillberg (1989b, 1990).

<sup>32</sup> Rumsey (1985) investigated verbally able autistic people and found marked deficits on the Wisconsin Card sorting test which is sensitive to frontal lobe dysfunction. Rumsey and Hamburger (1988) showed a clear profile of performance impairments on so-called frontal tests, but not on temporal or parietal tests. Ozonoff, Pennington and Rogers (in press) also used frontal tests and found severe impairments in Asperger Syndrome individuals, and indeed in high-functioning autistic people in general.



development where a critical pathway is being prepared. This pathway may well project to the frontal lobes, possibly, from some much older part of the brain.

It is likely that the investigation of the biological basis of autism will advance faster by studying those autistic people for whom we propose the label Asperger syndrome. Only when complicating brain abnormalities can be ruled out, when there are no additional mental handicaps, can one begin to make links between specific patterns of impairments and results from brain scans or autopsies. The unravelling of the biological origins may therefore be expected sooner for Asperger syndrome than for any other variant of autism.

### The cognitive explanation

If Asperger syndrome is a type of autism, we must seek to understand its nature and origin in terms of explanations that apply to the whole spectrum of autistic disorders. The cognitive explanation of autism provides the most complete understanding of the cause of this disorder so far and it is useful to have a brief summary. Alternatives to cognitive theories in the explanation of autism are psychodynamic theories and behaviourism. Neither of these has succeeded, partly because they focus on only *some* aspects of autism and partly because they ignore biological factors. By the 1960s, facts had accumulated that made it no longer tenable to believe that a pathological relationship between mother and infant might be the cause of autism. Behaviourism induced researchers to look at the behaviour of autistic children in its own right. Social and communication impairment were seen as patterns of wrongly learnt behaviour which new learning might put to rights. It turned out, however, that behaviour modification – the practical application of behaviourist principles – involved heroic effort, and often the effort did not justify the limited results. Specific learning did not lead to the hoped-for generalisation. There were always new situations in everyday life where previously learnt behaviours were not appropriate and where new behaviour had to be generated. Nevertheless, behaviour modification remains an exceedingly useful tool in dealing with specific problem behaviours.<sup>33</sup>

The cognitive view, to put it simply, maintains that between behaviour and the brain there is a legitimate level of description: the *mind*. As a cognitive psychologist I do not take the behaviour of autistic children merely at its surface value, nor do I see it as symbolic of remote psychodynamic conflicts. Instead, the cognitive approach attempts to explain behaviour by a set of mental processes and mechanisms. These mechanisms need to be specified eventually in computational form, so that

<sup>33</sup> For a comprehensive review and a discussion of the principles and applications of behaviour modification see Schreibman (1989).

they can be mapped on to brain processes. The mind is neither an irrelevant black box nor a seething sea of unconscious primeval drives. The image I prefer is that of a wondrously complex machine. There are some simple but helpful hypotheses about the working of the mental machinery. For a start, we assume that the mind is made up of components which are innately programmed to process information, to produce knowledge and abilities, thoughts and feelings. Secondly, we know that great changes take place during development. If one of the innate components is faulty the whole course of development will be affected.

What particular advantage does the cognitive view offer? Above all, it provides a framework which may eventually allow us to bridge the vast gulf between brain abnormality and behavioural manifestations. It has already helped us to distinguish behaviour that is truly a manifestation of autism from behaviour due either to additional factors or to a secondary reaction to the primary problems. We can attempt this analysis because of a remarkable convergence of clinical, epidemiological and psychological studies.<sup>34</sup> The clinical studies told us which symptoms always occur together. The cognitive theory of autism tries to explain why they occur together.

The classical image of the autistic child – the child in the glass shell – was shattered by these studies. First, it was found that autistic children, especially when they are older, often show active social approaches. Their active social behaviour, however, suggests impairment just as much as their aloofness.<sup>35</sup> Secondly, a most prominent feature, often the major reason for referral of the child in the first place, namely, problems in language and general intellectual development, has had to be reinterpreted. It was not that poor language or poor intelligence caused poor communication and socialisation, rather, it was the other way round.<sup>36</sup> Thirdly, the autistic adult has come into focus. All these changes opened the way for reclassifying children and adults who did not previously fit into a more narrow concept of autism but whose oddness and vulnerability had long been recognised.

The most important theoretical change in the concept of autism centred around a deceptively minor feature, the lack of creative play, which was found to be as unique and universal a feature in young autistic children as was communication and socialisation failure.<sup>37</sup> This finding led to the critical question that enabled a breakthrough in our understanding of autism. What did pretence have to do with social and communication problems? Conversely, why did mentally handicapped non-autistic children, despite limited language and social interaction, show an appropriate level of pretence?

<sup>34</sup> See Frith (1989a).

<sup>35</sup> See Wing and Attwood (1987) for descriptions of different types of social impairment.

<sup>36</sup> See Frith (1989c).

<sup>37</sup> Wing and Gould (1979) contributed these important findings on the basis of a large epidemiological study.

An answer was provided by a new theory of cognitive development. In this theory Alan Leslie<sup>38</sup> distinguished first-order and second-order representations. He highlighted pretence as a major developmental milestone. The ability to pretend presupposes the capacity to form and process internal memory representations of mental states, and keep them separate from internal memory representations of physical states. The child can represent, for instance, the thought 'Mummy pretends that the banana is a telephone' without getting mixed up about what one does with real bananas and real telephones. This same capacity that underlies pretence is also fundamental to the child's ability to conceive of somebody else having a different belief. Here again, an internal memory representation of a mental state (that is, a belief) has to be created and kept separate from that of a physical state (that is, the real world situations that the belief is about). The processing capacity involved here is taking a propositional attitude, that is, pretending or believing something while temporarily suspending the normally active processes that check the truth and falsehood of states of affairs. You can pretend something that is not actually the case and, likewise, you can believe something that is not true.

There was a moment of 'Aha!' in this convergence of different perspectives. A strong prediction was made that if autistic children lack pretend play then they would also lack the ability to understand what beliefs are.<sup>39</sup> This ability was tested, for example, by the following test: Sally has a basket, Anne has a box. Sally puts a marble into her basket. Sally goes out for a walk. While Sally is out of the room, Anne (naughty Anne!) takes the marble from the basket and puts it into her own box. Now it is time for Sally to come back. Sally wants to play with her marble. Where will Sally think her marble is? Where will she look? The correct answer is: in the basket where she has put the marble and where she must believe her marble still is. This answer presupposes an understanding of belief. The results of the experiment suggested that autistic children did not understand the concept of belief. They expected Sally to *know* that the marble had been transferred even though she was absent at the time. They could not conceive of Sally looking anywhere but in the place where the marble was.

More findings have been systematically accumulating and they all support the hypothesis that autistic individuals have inordinate difficulty in conceiving of mental states such as belief, knowledge and ignorance.<sup>40</sup> They have

<sup>38</sup> Leslie (1987) has set out in detail the requirements for the achievement of pretence and has specified a mechanism which can explain pretence as well as the ability to form and use a so-called theory of mind. For updates of the theory see Leslie and Frith (1989) and Leslie and Thaiss (in press).

<sup>39</sup> This prediction was first tested and confirmed by Baron-Cohen, Leslie and Frith (1985). Frith (1989b) discusses the origins of the theory of mind hypothesis and the relevance of such studies as, for example, Leslie and Frith (1988) and Perner *et al.* (1989) to explaining the core symptoms of autism.

<sup>40</sup> A recent review of the field is provided by Baron-Cohen (1990).

no problems in understanding what it means to see and not to see something, but they cannot reliably relate seeing and knowing. They can tell what a scene looks like for different people at different places, but they cannot understand somebody else's point of view if by this we mean somebody else's attitude or belief. The cognitive fault we hypothesise is subtle, but has far-reaching implications for social interaction. One consequence is that the concept of an inner world of thought would be immensely difficult for the autistic person. On the other hand, their understanding of the physical world should not be severely affected.<sup>41</sup> One particularly striking consequence of the deficit is that their understanding of emotions in themselves and in others would be very limited.<sup>42</sup>

Encouraged by our empirical results, we work with the assumption that the normal child comes equipped with a mechanism for manipulating representations of mental states, and that, given normal developments, this mechanism causes us to understand mental states such as pretence and belief. We hypothesise that autism results if this particular component of the mind is faulty. Above all, the fault would impede development and learning of social imagination and communicative skills.<sup>43</sup>

How does this theory apply to Asperger syndrome? The theory addresses itself to the core symptoms that apply to the whole of the autistic spectrum, namely the triad of socialisation, imagination and communication impairments. Asperger individuals appear to be less severely impaired in these core symptoms than other autistic people. Furthermore, given a relatively high age and ability, they tend to solve simple theory of mind tasks such as the Sally-Anne test.<sup>44</sup> Do they, then, possess a normally working theory of mind? Not necessarily. Bearing in mind that the tasks are normally passed by the age of four, and that autistic children who can solve false belief tasks do so at a much later age than normal, they may well solve them by a different strategy which is not theory-based.<sup>45</sup> Those who manage to perform simple tasks such as the Sally-Anne test still tend to fail more complex theory of mind tasks which normal seven- to eight-year-olds solve easily.<sup>46</sup> Thus, by using theory of mind tests of varying complexity, we can

<sup>41</sup> Evidence for this prediction has been obtained, for instance, in studies by Baron-Cohen, Leslie and Frith (1986) and Baron-Cohen (1989a).

<sup>42</sup> Hobson found evidence for a specific impairment of emotion recognition in able autistic individuals. He proposes that this impairment is a primary deficit, not a consequence of lacking a theory of mind. For discussions of this issue see Hobson (1989) and Leslie and Frith (1989).

<sup>43</sup> Possibilities and problems in the causal connection between the basic cognitive dysfunction and the core symptoms of autism are discussed by Morton (1989).

<sup>44</sup> This result was obtained recently by Ozonoff, Rogers and Pennington (in press).

<sup>45</sup> In a study carried out at the MRC Cognitive Development Unit, we found that out of fifty able autistic children (minimum verbal mental age of 3:6y) no child passed theory of mind tasks with a chronological age of under eleven and a mental age of under five years. Furthermore, the majority of those beyond these levels failed still.

<sup>46</sup> Baron-Cohen (1989b) documented that a group of ten able autistic individuals, selected for passing a simple false belief test, failed a higher order belief test.

objectively distinguish several degrees of competence. It remains to be seen if these distinctions map on to diagnostically valid categories. If so, the diagnosis of Asperger syndrome and other variants of autism would be greatly facilitated. For instance, one criterion for the diagnosis of Asperger syndrome as opposed to, say, high-functioning autism, may be success on belief attribution tasks. This success may be no more and no less than a further sign of the superior adaptation of Asperger individuals.

Clearly, there are theoretical advances to be made in order to understand what enables some individuals to gain a measure of success on theory of mind tasks and what this success implies for their social and communicative abilities. One such advance has been the application of Relevance theory. In Dan Sperber and Deirdre Wilson's (1986) theory of Relevance the essential element in successful communication is the ability to infer the speaker's intentions. According to this theory, if this inference cannot be made automatically, then communicating with each other becomes arduous. Genuine interactive communication (as in understanding irony and reading between the lines) becomes impossible. Specific predictions can be made as to which aspects of communication will be learnable and which will not. For instance, understanding of factual information can be developed to a high degree. Understanding of intended implicit information will not be as good as understanding of literal information. The theory is suited *par excellence* to guide research into the problems of Asperger syndrome individuals. Their fluent, yet literal use of language is elegantly explained in this new framework. Francesca Happé, in chapter 7, discusses Sperber and Wilson's theory of Relevance and applies it to the autobiographical writings of some very articulate individuals with Asperger syndrome. Their writings seem to test the very limit of communication that can be achieved with impaired cognitive ability for inferring intentions and computing relevance.

If we take seriously the notion of Asperger syndrome as a subspecies of autism, we must attempt to apply the hypothesis that the underlying cognitive deficit in Asperger syndrome is the same as in autism in general. If the underlying cognitive deficit were shown to be different – and it may be different – then a more complex model of autism and its variants would have to be worked out. In the absence of such evidence, however, we must try to conceptualise how a single cognitive abnormality can result in severe autism in one case and mild Asperger-type autism in the other. Could it be that the underlying cognitive deficit can be more or less severe? A less severe underlying deficit would have less severe repercussions. The mechanism we propose to be faulty can be faulty in a mild sort of way. One could think of partial, intermittent or slow functioning, or of more or less extreme developmental delay. All these possibilities deserve to be explored.

We can also consider another, perhaps stronger, hypothesis: the underlying cognitive fault does not come in degrees, but at one end of the spectrum of autistic disorders there are aggravating factors, such as additional

handicaps, and at the other end, where Asperger syndrome is situated, there are mitigating factors which cushion the effect of the deficit. The problem is to specify what such mitigating factors are. Here then is a chance for speculating and producing testable ideas. To start with, could it be that one such factor is the presence of a sociable disposition? Asperger syndrome individuals seem to be distinguished from other autistic individuals by a desire to communicate and be part of the social world.<sup>47</sup> Their desire to communicate is often demonstrated in their tendency to talk incessantly about their pet interest. Their desire to be part of the social world is often seen in their expressed frustration and sorrow at not finding friends or spouses. Could it be that a sociable disposition drives the acquisition of very detailed social learning, which can be applied to great effect in routine situations, as well as in the Sally–Anne test? One test of this hypothesis would be to see whether meaningful subgroups of autistic children can be identified at very young ages in terms of their basic sociability. Measures of sociability would have to be independent of the ability to conceptualise mental states.

Those Asperger-type individuals who have found effective ways of coping in social and communicative interactions and still retain their autistic oddness present a great challenge for theory and practice. In the next section I shall tentatively explore the hypothesis that we are looking at compensatory learning in the presence of a severe deficit rather than at a very mild form of deficit. In line with this hypothesis I propose that well-adapted Asperger syndrome individuals may have all the trappings of socially adapted behaviour, may have learnt to solve belief attribution problems, but yet may not have a normally functioning theory of mind. The hypothesis allows us to describe behaviour as *resembling* the normal pattern but arising from quite abnormally functioning processes.

#### How far can they go?<sup>48</sup>

An exceptionally well-adapted and able autistic person resembles that imaginary creature, the mermaid, of Hans Christian Andersen's fairy-tale. The mermaid, who was in love with a human prince, desired to take on human form, but could do so only at considerable cost. She had to sacrifice her voice to gain legs but when she moved it was like walking on knives. As she was unable to communicate, those around her did not understand her

<sup>47</sup> Case studies show that not all Asperger individuals are talkative and show a desire to be sociable. Indeed, some are distinctly reticent and keep themselves to themselves (Wing, 1989). As a coping strategy this may be highly effective. Perhaps it is this type of person who occasionally appears in family histories as a relative who was recognised as eccentric but never needed specialist attention.

<sup>48</sup> This title echoes that chosen by Kanner, Rodriguez and Ashenden (1972) in their follow-up study.

true nature. This led to the prince marrying someone else, and to her own failure to gain a place in this world.

Superficial resemblance to normality is, as case histories in this volume show, within the reach of at least some Asperger individuals. It may well be that this capacity to achieve near-normal behaviour is the single most distinctive feature of Asperger syndrome as opposed to other forms of autism.

It is possible for the Asperger person to learn social routines so well that he or she may strike others as merely eccentric. They would not consider that there was anything wrong with them. Of course, such hard-won adaptation is achieved only at a price. The Asperger person will have had to learn with great effort what others absorb quite naturally. He or she will have needed unstinting help and a high degree of motivation. Unfortunately, achievements bought at high cost are often fragile, and he or she will have to run where others stand still. The question arises whether such gains are worth the high price. One has to acknowledge too that not all Asperger syndrome individuals can achieve near-normal social integration for all their strenuous efforts.

Just how high is the cost, and how much effort is being spent in keeping up appearances? Often outsiders do not appreciate that there is a cost at all. Parents must find it irksome to be told by someone who has seen their Asperger son or daughter for a brief and pleasant interview that they are fussing about nothing. If the family members bring up anecdotal examples of difficulties, they will probably be told that these are normal problems that could happen to anybody. For instance, they may mention the embarrassing occasion of an autistic adult sitting in a crowded underground train and readjusting his or her underwear. 'So what?' comes the well-meaning but naive reply, 'Anybody in extreme discomfort might do this!' As for the charmingly humorous example of the autistic man who always forgets to take off his bicycle clips, the standard comment is 'Well, which bicyclist hasn't!'

Many examples of Aspergerish behaviour – to do with being oblivious of other people's reactions or with being over-concerned – can be cited, but there is always a retort handy that implies it is nothing out of the ordinary. Even the more outlandish examples, such as the young man who came down naked to a living room full of visitors asking where his pyjamas were, can be put down to a healthy disregard for stuffy conventions. In terms of behaviour the autistic person can be so well camouflaged that his or her occasional slips are generously discounted. Is it truly generous to overlook such problems? Or 'is it in fact a mistake not to acknowledge that there has been a cover-up of much more serious problems?'

Sometimes the incompatibility of interest groups – the person with Asperger syndrome, the family, the community and the specialists – has to be kept in mind. Imagine a child with Asperger syndrome who is up for

adoption. If his or her difficulties are ignored or dismissed as within the normal range by a well-meaning care-professional, this would be a great disservice to the child and the family. Would the family be able to cope without being warned about the problem and without some guidance? Probably not. Would they become demoralised when the hoped-for normal relationships with the adopted child fail to develop? Probably so. On the other hand, if properly prepared, the adoptive parents may be willing to enter into the challenging but rewarding process of guiding such a child, to use Asperger's own words.

One can, of course, look at the struggle for adaptation in another way. What, after all, is normality? Given that there is an enormous range of social behaviour with many degrees of adaptation and success or failure in the normal population, where does normality end and abnormality begin? Does it make sense to talk about deficits and exclusive categories? Should one instead talk about normal and abnormal behaviour shading into each other? To put it another way, should one look at Asperger syndrome as a normal personality variant?

#### A word to the person with Asperger syndrome

What would follow if the autistic individual saw himself or herself as just like everyone else and were treated as such? When routines have been long established and when things are going well, this attitude may be justified. It can convey a well-earned feeling of triumph and success. But what if things do not go well? And what if nobody, including the autistic person, is aware of the deeper underlying problems? To what extent can Asperger people themselves be aware of their difficulties? The uninformed employer might request something that for a normal person would be a trifling effort – unwittingly demanding a major effort from the Asperger individual. Sudden panic could result. For example, an autistic person who retains an extreme dislike of breaks in routine may be asked to accept a change that seems reasonable to the employer but which will throw him or her into despair. Presumed normality does not make allowance for sudden gaps in the carefully woven fabric of compensatory learning. A catastrophic reaction like screaming can cost a job, then.

The person with Asperger syndrome may well ask, 'What is so good about being normal anyway? So what if I am different?' The single-minded pursuit of a special interest or an outstanding artistic or musical talent is worthy of admiration and can lead to great social success. Those who care for an autistic individual may be captivated by his or her beauty and egocentric dependence. There is a fascination about eccentricity which is missing in conformity. Much that is obnoxious can be forgiven. Many people find autistic innocence appealing. 'Autistic is beautiful' could be a

slogan which helps to increase confidence and happiness.<sup>49</sup> Asperger went out of his way to emphasise how valuable to society the autistic person can be. The autobiographical writings of Asperger individuals discussed in chapter 7 represent concrete examples of outstanding achievement, a coming to terms with the handicap.

However, only a few Asperger syndrome individuals adapt so successfully as to pass even fleetingly for normal. As yet we have little idea what makes the vital difference. Common sense suggests that high general ability, determination, a controllable temperament and a favourable environment all play a positive role. Chapter 6 presents the examples of Jack and Anne, two people who have adapted admirably. They have accepted the problems created by their handicap in a realistic fashion and even suggest ways of coping that might be helpful to others in a similar situation. The recognition of a handicapping condition leads to greater general tolerance, but not everyone can be informed. Ultimately, it may fall on handicapped people to explain themselves and request patience. Asperger individuals need to strive to be tolerant of those in their social environment who lack understanding and who can cause them anguish. It is not easy, but in controlling themselves they are dealing with the one person over whom they rightly have power.

### Malice and the law-abiding citizen

Perhaps Asperger's most provocative speculation is his characterisation of spiteful and mischievous behaviour in the children he describes. What are we to make of this? Some readers of Asperger's paper in the past have been antagonised by these uncompromising statements. Nobody else has described autistic children as malicious. Margaret Dewey, in chapter 6, makes a convincing case for considering the examples Asperger gives as motivated by a simple desire for physical ends, not psychological effects. This is the case, for instance, when Fritz V., Asperger's most prototypical case, made his teacher angry simply because he enjoyed seeing a display of anger. Fritz readily admitted to this, just as another similar boy admitted that he enjoyed seeing blood spurting out after a knife wound. Malice does not come into it, but Asperger failed to distinguish between a deliberately malicious act and a merely unpleasant one.

Acknowledgement that some autistic children can be guilty of peculiarly repulsive acts has been rare.<sup>50</sup> Yet it is vital to acknowledge this problem of

<sup>49</sup> Mesibov and Stephens (1990) reported on high-functioning autistic individuals' perception of popularity among peers and found that they valued humour, attractiveness, intelligence and athletic ability though they did not necessarily agree with other people's perceptions of these attributes.

<sup>50</sup> Examples of socially unacceptable behaviour in the children described by Asperger include running away, shouting, violent attacks, self-injury, inappropriate sexual behaviour, temper tantrums and eating and sleeping disturbances.

which practitioners have long been aware. It helps us to understand repugnant behaviour if we realise that the autistic person does not calculate the effect his or her behaviour has on other people's states of mind. Likewise, violent and dangerous acts can be committed by an individual who does not automatically take account of his or her own and other people's mental states.<sup>51</sup> Autistic people are not intent on hurting other people's feelings. Hurting another person's feelings is a behaviour that presupposes an active theory of mind, something which autistic people conspicuously lack. If care-givers are upset by an autistic child's apparent enjoyment of the distress that he or she provokes, they need to remember that without an understanding of the underlying mental states, delight and fury give rise to equally fascinating facial and vocal displays. In this way an innocent detached curiosity can be the cause of socially harmful behaviour.

Autistic people, and particularly those of the Asperger type, have been involved in some difficult forensic cases. Sometimes their offences are part of their single-minded pursuit of a special interest, sometimes the result of a defensive panic-induced action and sometimes the consequence of a complete lack of common sense. Police officers and magistrates profess to the strong but subjective feeling that the person before them cannot be held responsible for his or her action. Typically, the Asperger individual, when apprehended, does not seem to feel guilt, does not try to conceal nor excuse what he or she did, and may even describe details with shocking openness. Sometimes, however, law officers misunderstand and thus mistreat the unfortunate and unwitting culprit. This is especially likely in the case of the relatively well-adapted Asperger individual whose behaviour is superficially normal, whose appearance and demeanour do not elicit the help he or she needs.

It should also be said that many Asperger individuals, far from becoming delinquent, are excessively concerned with doing the right thing. They anxiously refrain from doing what they believe to be unlawful, and also expect others to behave lawfully. One very small and gentle 25-year-old carried with him for a time a set of police handcuffs so that he could make a citizen's arrest if he spotted unlawful behaviour. Examples of Asperger people as law-abiding individuals are shown in many case studies in this volume and elsewhere. One cannot make reliable generalisations regarding autism and antisocial behaviour because of the observed range of actual behaviour, from violence to saintliness.

One viewpoint assumes that essentially everything experienced by humans, however extreme, is within the range of normality. Only degrees of difference exist. At extremes one may talk, merely as a shorthand, of

<sup>51</sup> An example is given by Baron-Cohen (1988) who describes a case of a 21-year-old with Asperger syndrome who often violently beat his 71-year-old(!) girl-friend.

abnormality. Autistic features in particular show a whole range of manifestations. Surely everyone is a little bit autistic on occasion?

From the point of view of the diagnostician there is much support for the idea of Asperger syndrome shading into normality. After all, the diagnosis is, so far, based on behaviour and not on tests that clearly identify underlying problems. If it is difficult to diagnose Asperger syndrome, one might argue that a case could be made for its being a normal personality variant rather than a brain abnormality. I am fortunate to be allowed to reproduce here an example of a professional report on a case which seems to fall into this borderland, a case which does not show all the classic features of Asperger syndrome. Let us refer to it as 'The case of the lonely cyclist'.

Dear Dr Robertson,

Re: James Jones. Aged 16 years

Thank you for asking my opinion concerning James's diagnosis, which presents an interesting problem. I saw his mother on 13 February 1987 and she gave an account of his developmental history. I saw James himself on 15 February with two colleagues.

#### *Infancy*

James was the first and only child of his parents. Labour was prolonged and delivery was by forceps, but his condition was said to be satisfactory at birth. As a baby he was very placid and noticeably less demanding than other babies of his mother's friends and relations. He was not cuddly and did not positively reach out for attention and affection, although he smiled when approached. He would lie in his pram and gurgle happily at the trees. He was easily toilet-trained and slept well from birth onwards.

#### *Development of basic skills*

He walked rather late, but was not slow enough to cause alarm. He was somewhat delayed in talking and when he did talk his speech was very unclear. For a long time his mother was the only person who could understand him. Dressing and self-feeding skills were also delayed.

#### *Play and imagination*

James was quite good with fitting shapes, but had no pretend play. He had many toy cars, which he would arrange in lines and push along. He did not use them imaginatively. Before going to school, he played with other children in the street but always followed what they did – he never initiated

activities. He lacked curiosity and did not go through the usual childish stage of asking questions about everything.

#### *Behaviour at school*

When James was three years old a nursery schoolteacher informed Mrs Jones that he interfered with the other children, often knocking their toys down, and was very restless. However, he was allowed to stay at the nursery.

When he transferred to primary school, he was unco-operative, over-active and disturbing to the class. He was slow at learning and was found to be below average in intelligence. He was placed in a special school with a structured, organised programme, and there he got along well. This seems to have been the best placement of his childhood.

For his secondary education he was first placed in a school with a permissive regime. His behaviour became extremely disturbed, worse than anything before. Again, a move to a school with a more structured regime produced improvement.

#### *Social interaction and communication*

Now, at the age of sixteen, James seems fond of his mother, his grandmother and the family pets, but does not seem able to understand what upsets other people. When his family has visitors he goes to his own room. He desperately wants to have friends but his peers will not put up with him. He always wants his own way and does not seem able to develop a give-and-take relationship. His attempts to interact are clumsy and irritating to others. He makes remarks which upset his peers; he pushes people and takes their possessions. However, if others turn on him, he does not fight but runs away and cannot be caught.

He has never been able to converse, and cannot explain his own actions or motivation. He replies briefly to questions. This has been the case all his life.

He is just beginning to be interested in girls but does not have the social skills to make friends with a girl.

#### *Motor skills*

He can swim, horse-ride and cycle with a fair degree of skill. On the other hand, he is hopeless at team games of any kind. He appears unable to co-ordinate his actions with those of the rest of the team and ends by aggravating everyone. He is quite likely to kick the ball into his own goal.

#### *Current interests*

At home he still likes his toy cars, which he continues to push around in long lines.

He has no interest in his own appearance and his mother has to choose his clothes for him.

He also needs help with brushing his hair.

He likes watching television and has a remarkable memory for past programmes. He also remembers routes to places, even those visited only once. He memorises routes on the London Underground and likes looking at maps. He seems to have no interests apart from these and spends much time in his room when at home. He goes out alone for long rides on his bicycle. His parents worry about him going out alone but do not want to deprive him of one of the few things he enjoys.

#### *Difficult behaviour*

James has never been much trouble within his own home, where the main concern has been his passivity and isolation from social interaction. However, there has been a series of problems in other environments, beginning with his disturbed behaviour on starting school. He tends to make inappropriate comments to strangers in the street and will push past other people or barge into them as if they did not exist. He sometimes attempts to join in the street games of younger children and does odd things such as throwing bricks or running away with their footballs or cricket bats, to their bewilderment and fury. There have been several incidents of his taking money, apparently to try to buy friends. He has also been seriously assaulted by two of his age-peers, an incident which he recounted with little emotion.

#### *Reasons for present referral*

Recently, James went out alone on his bicycle and was away for longer than usual. It seems that he cycled into town, entered a supermarket, filled a basket with a random assortment of items for which he could not have had any use, then walked out without paying, in full view of the employees. He was apprehended, his parents were contacted and, eventually, a referral for a psychiatric opinion was arranged. He could offer no explanation for his irrational act beyond suggesting that he 'wanted a bit of fun'.

He tends to elaborate some answers to questions to the point of fantasy. For example, he described a purely imaginary episode that, he claimed, occurred on a skiing holiday which ended with him hanging by his arms from a cable car. It is likely that these stories were copied from television commercials current at the time of referral.

He shows no guilt or concern for others. When asked to talk about and describe his mother he said she had blonde hair and 'looked American'. He expresses no affection for his parents nor worry about the effect of his behaviour upon them. His plans for the future are singularly unrealistic, comprising the intention to live with one of his earlier school-mates whose father, he claims, owns a travelling fair and is a millionaire!

#### *On examination*

James is small for his age and has a naive, immature appearance and manner. He was friendly and amenable and did not seem to be at all disconcerted by the situation. He answered questions fully and elaborated some of his answers. He was by no means monosyllabic in the interview. He made good eye contact, used appropriate gestures and intonation when speaking and was prepared to involve all three people present in the conversation. He had none of the mannerisms, odd intonation and lack of gesture typical of autism or Asperger syndrome.

James has an overall IQ of 67 on the WAIS with no marked discrepancies on subtests. He was given tests of his ability to understand sequences of events in picture stories and their consequences for the characters involved. These he completed at a level a little above that predicted from his WAIS IQ.

#### *Formulation*

James is in the mildly retarded range of intellectual ability, but this on its own does not account for his strange behaviour.

His developmental history, while showing elements of both conditions, is not typical of Kanner's early childhood autism or of Asperger's syndrome. His profile on the WAIS does not show the very marked discrepancies found in these conditions in the classic form. In particular, he has no special skill with block design, although he is quite good at object assembly and is reported to be adept at jigsaw puzzles. He is able to arrange pictures to tell a story which is unusual in typical autism and Asperger syndrome.

He lacks some other common features of the above syndromes, that is, the stereotypes, odd bodily movements, repetitive routines and idiosyncratic language of typical autism, and the long-winded repetitive speech on special topics found in Asperger's group. On the other hand, his language development was delayed and he failed to develop imaginative play. His mother says that he is capable of affection but his social interaction skills and empathy with others are limited and, in practice, disastrously inappropriate. His gross and fine motor development was delayed, and he is inept when attempting to join in team activities, although he can perform reasonably well in solitary physical activities. He conspicuously lacks common sense which, Asperger emphasised, was a cardinal feature of his syndrome. He appears to have little capacity to describe his feelings and motivations. His pattern of interests is markedly limited, and he has the unusual memory for routes, maps and television programmes typical of conditions in the autistic continuum. His 'fantasies' seem to be limited to scenes he has watched on television.

It can be argued that James has a developmental disorder affecting his capacity to plan his own life and fit into the social world. Classification as socially impaired and having a disorder within the autistic continuum would seem to be appropriate. The assignment of a precise diagnosis for his pattern of behaviour is of academic interest. From the practical point of

view, it is important to realise that the prognosis is poor for young adults with similar histories and behaviour patterns. Because of their lack of inner resources of understanding or imagination, they are unable to benefit from programmes of re-education that are based on psychotherapy, group therapy or family therapy. They function best in a closed, structured, organised but sympathetic environment, with staff who understand their handicaps and a high staff-to-resident ratio. They need to be provided with a range of activities but should not be under any pressure to achieve beyond their level of ability. The fact that James did well at a school with this type of regime is evidence of his needs.

Ideally, such an environment should be provided on a long-term basis. Unfortunately, in most such cases, any improvement is specific to the situation. Once the programme ceases, relapse to the former difficult behaviour is only too likely to occur. People like James are, because of their developmental impairment, unable to build an organised inner world of ideas capable of regulating their own conduct. They need other people to provide structure for them over the course of many years, and perhaps for their whole lives.

Yours sincerely

X.Y.

### The goalposts have shifted

This report was taken almost at random from a busy clinician's files. It makes clear just how much has changed from the days when everything outside classic autism, but nevertheless resembling autism, was a no man's land of diagnostic uncertainty. With a more precise clinical picture of Asperger syndrome, the no man's land has shrunk considerably, and now we can acknowledge that there are cases, like James Jones, who do not follow any textbook and would probably not have been recognised previously as belonging to the autistic spectrum at all. More recently, he might have been described as a mildly retarded person who has some autistic features – in the way that an unrecognised clinically depressed patient may be described as a dull person with some depressive features. Both autistic and depressive features can be shown by anybody occasionally. They are behavioural signs and need not necessarily be caused by autism or depression. Conversely, autism and depression can exist in unrecognised and/or camouflaged forms where clear behavioural signs may be suppressed. Therefore, the diagnostician needs to consider signs as clues and to evaluate them as positive or negative evidence for the hypothesis he or she holds about the condition, rather than the other way round. This is very much the procedure followed in the report. Behavioural symptoms are almost always attributable to many different causes. We cannot find the causes merely by going backwards from observation; we also need to go forwards, guided by hypotheses.

The category Asperger syndrome – even when it is seen as a subcategory belonging to the spectrum of autistic disorders – has itself associated with it a spectrum of more or less prototypical cases. Just as within the range of normality there are ordinary people and eccentrics, so within the Asperger syndrome there are typical and less typical cases. In clinical practice, of course, the less typical is the more frequent. This is because circumstances and efforts at compensation muddle even the purest case.

We can now ask the question that prompted the inclusion of this case: Is James Jones normal, only very odd? Is he, in fact, a case which belongs at one extreme of the distribution centred around the prototypical normal? If this is our conclusion, then we would have to consider that all his different oddities are there by coincidence. This may be so – we cannot be sure. If, on the other hand, we conclude that James Jones suffers from Asperger syndrome, all the oddities would fall into place. However, he would be a less typical case of Asperger syndrome. This is no idle speculation, since it is amenable to being tested. Using the cognitive theory, we would predict that James Jones has subtle communication problems and would not be able to understand irony, for instance.

There is no reason to suppose that behaviour shading into normality will ever cease to be a problem for diagnosis. The aim of compensatory learning is to produce behaviour that more and more shades into normality. As demonstrated by the report, one solution of diagnostic problems presented by cases where camouflage is achieved is to reconstruct a full childhood history. The history would reveal if there once were important signs (for example, lack of pretend play) and if difficulties were overcome by special efforts.

The categorical distinction of normal and abnormal functioning of mental processes at a deeper level can only be inferred and cannot be directly derived from the initial observation of behaviour. As far as the naive observer is concerned, anything can happen. Not so the expert, who asks specific questions guided by specific hypotheses. Differences in observed behaviour outweigh similarities to such an extent that one often hears the argument that there is no point in classification since every child is unique. This conclusion is inevitable if one restricts oneself to only observed behaviour, which is infinitely variable. It would be quite different if we aim to explain behaviour at a cognitive level – we would draw together superficial differences and bring out hidden similarities. This is no easy task, and in the case of Asperger syndrome it is only just beginning.

### A dash of autism

Hans Asperger deserves to be recognised as a pioneer and champion of all Asperger children. His case studies of Fritz V. and Harro L. are enthralling to read. These extraordinary boys have, unbeknown to themselves, contrib-



uted greatly to the study of developmental disorders. Asperger pleaded for the recognition of such children, pointing out the potential that they had to offer society, and from the start he argued that they should be given very special education and guidance. He warned of them being teased and bullied at school, and of being misunderstood by teachers. He identified with them to the extent that he believed that to help autistic people one needs to have a dash of autism oneself. He also suggested parallels between autism, scientific originality and introversion. As a classicist he was undoubtedly influenced by Seneca's famous words that there is no genius without madness.<sup>52</sup> While this idea has been with us for centuries, it is only now that we are considering that the madness in question may point to autism.

Asperger's views on the positive value of autism as an important aspect of creative thought and intellectual style are still fresh and provocative, and perhaps just as controversial as his views on malicious behaviour. The cause of autistic originality was, for Asperger, not some mysteriously intact special ability but, rather, the result of an inability to learn by conventional means. There is no getting round the fact that autism is a handicap. Even the best-adjusted individual with Asperger syndrome has more than the usual share of problems. It would be tragic if romantic notions of genius and unworldliness were to deprive bright autistic people of the understanding and help they need. The case studies presented in this book serve to document the severity of the sometimes well-camouflaged handicap.

Like Asperger, I too would sometimes like to claim a dash of autism for myself. A dash of autism is not a bad way to characterise the apparent detachment and unworldliness of the scientist who is obsessed with one seemingly all-important problem and temporarily forgets the time of day, not to mention family and friends. True to the recursive pattern of thought it is possible to conclude that an appropriately never-ending subject for such a single-minded interest could be Asperger's syndrome.

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<sup>52</sup> Seneca (c. 4BC - AD65), in *De tranquillitate animi*, formulates the statement 'nullum magnum ingenium sine mixtura dementiae fuit', reflecting Aristotle's (384-322 BC) similar beliefs about the relationship of melancholia and creativity.

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