

time of great sensitivity provided a focal point for her anxieties. The purpose of her dysmorphophobia appeared to be to provide a projective defence that perhaps she was not seen by men as lovable; the crystallisation of her particular body-image symptom amounted to resigning herself to the fact that she was not going to be favoured by her father, and implicitly there was a sense of profound loss.

As well as considering the significance of this symptom, it seems necessary to look at why dynamic psychotherapy may constitute an appropriate treatment. Dysmorphophobia may manifest as a symptom in a variety of clinical contexts. In this case, this young woman with her developing personality is subject to various unresolved conflicts, relating to separation and individuation. These are symbolically represented by her symptom. A psychodynamic approach provides a forum in which the purpose of the symptom can be explored and comprehended, more specifically by using the therapeutic relationship and such aspects of therapy as the acquisition of insight into the transference and role of certain antecedent family factors.

Based on our experience of this patient, we conclude that dysmorphophobia should be viewed as a symptom which needs to be understood in a particular clinical context. If it is associated with an underlying neurotic disturbance, one appropriate treatment is psychodynamically oriented psychotherapy. But there is a caveat for the therapist who takes on such a task – there is a need to persevere over an extended period and to maintain a focus on the underlying disturbance; and not to become distracted by the

patient's potential preoccupation with body image.

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Another Calendar Savant

A 38-year-old patient, who can give the day of the week of any day this century, is described. He is believed to have been autistic in early childhood. The relationship of the autistic child and the adolescent *idiot savant* is discussed and brief reference made to the patient's method.

You're not at all such an - er - eccentric as you were described . . . such, - er - an invalid. . . . You don't have a napkin tied round your neck at meal-times, do you, Prince? (Fëdor Dostoyevsky, *The Idiot*)

The mentally handicapped sometimes surprise us, notably with feats of memory. Are these exceptional, or normal islands in an otherwise chaotic sea? A familiar figure in mental handicap hospitals, first described by Down (1887), is the patient who can name the day of the week when presented with a visitor's date of birth.

These patients have been called *idiot savants* and have been said to be autistic or unable to assume the abstract attitude. Their calendar computations appear as mysterious to themselves as to others.

True (1949) claimed to have regressed hypnotised subjects to the age of four and said that three quarters of them knew on what day Christmas had occurred that year. Barber (1961) obtained negative results when he repeated the investigation; hardly surprising, as in a group of four-year-olds from a comparable community, 70–80% had no idea of how to distinguish the days of the week.

Witzman (1909) reported a person who could give the weekday of any date from 1000 to 2000 AD.

Jaensch & Menhel (1928) described a calendar expert with a low IQ who employed eidetic imagery. Rothstein (1942) found eight talented amateurs out of 4000, showing ability with music, cube or square roots, drawing, sewing, or mechanical activities. All did poorly on accepted tests in their particular fields. Scheerer *et al* (1945) described a male whose mother was a schoolteacher. He had a Binet IQ of 86 at the age of 6–7 and of 48 on the Stanford Revised Binet scale when he was 16. As a child he took no interest in anyone other than his mother and was rigid about food. He could give the day of the week of any date from 1880 to 1950 when he was 11, and had a remarkable memory for the music of Giuseppe Verdi. Characteristically, he was unable to say how he performed calendar calculations, and could not tell the older and younger of two people separated by many years, even though he had just given the weekdays of their dates of birth. He was not an eidetic imager and had a normal digit span of 7 forwards and 5 backwards. The conclusion of Scheerer *et al* was that he suffered from an impairment of abstract attitude, leading to inability to form personal attachments and to his developing his one 'normal' ability as an avenue to self-expression. The apparent drop of IQ was attributed to the increasing proportion of abstract questions in the test for later years.

This was their explanation of early infantile autism, which had been described two years earlier,

in 1943, by Kanner (Kanner, 1973). This condition occurs in 0.45 per 1000 of the relevant age group (Wing *et al*, 1967), four times as often in boys as in girls, with a rate of 3% in sibs. There is virtually complete concordance in monozygotic twins.

The families do not show an excess of any psychiatric syndrome. Of Kanner's first eleven cases, ten had at least one parent who was a university graduate. Wing *et al* (1967) reported a population survey in Middlesex which confirmed the high IQs and educational levels of parents of autistic children, although their numbers were small.

Kanner's 1943 description was of children unable to relate to people from the beginning of life, who did not use language to communicate, who resented intrusions and treated intruding limbs as objects. Pronominal reversal occurred but by the sixth year was improving. After the age of six they established some contact with people. The children showed good rote memory but were inflexible. Of Kanner's original eleven children, three showed good musical memory and two an interest in numbers. His subsequent observations up to 1973 confirmed these points, and emphasised the maintenance of absolute sameness as a fundamental feature. The children's obsessive preoccupation with maps, names, watches, or calendar dates was noted in 1949. By 1956 he had described 120 cases. Follow-up in 1972 showed that only 11 out of 96 were leading lives of adequate adjustment, all of them being unmarried. Many others were in institutions (Kanner, 1973). Rutter (1966) gave the IQ distribution of 63 autistic children. Twenty-six were untestable or had IQs of under 50, 19 had IQs of 50–69 and 18 scored 70 or above. Extreme variability within IQ test scores was a feature, 20% showing a spread of four or more standard deviations, not shown by any control children. He pointed out that *idiots savants* show a very similar picture.

Hill (1975) reported a patient with congenital syphilis and an IQ of 54, whose calendar calculating apparently depended upon his ability to concentrate and on his use of remembered reference dates.

Hermelin & O'Connor (1986) studied eight calendar calculators with IQs of 38–88. The subjects' response times and error rates increased with temporal remoteness from the time of questioning, and future dates showed a longer response time than past dates, both results being significant statistically. Three experiments indicated that the subjects employed the regularities of the Gregorian calendar as well as arithmetical procedures and rote memory. The latter could hardly apply to future dates.

Case report

TMK, aged 38, is the youngest of three brothers, sons of a placid primary school headmaster and a graduate teacher of French. The eldest brother, five years his senior, is a chartered accountant. The second brother is two years younger and is a Doctor of Philosophy in physics. There is no family history of mental illness. TMK's birth was uneventful and he was bottle-fed. His mother cannot remember if he was a cuddly baby. He walked at 17 months. At 2½ years he showed rigid behaviour and a tendency to monopolise his mother, screaming if she stopped to talk to people in the street and, if she lingered in shops, screaming and pulling tins off the shelves. He had a favourite tin, which he carried with him everywhere. If he heard a tin being opened, he would rush downstairs and insist on opening it himself. Photographs taken at this time show a bright, alert, handsome and intelligent-looking child. He did not use any words until the age of four. At five he was babyish, clinging and unable to hold an idea in his mind to the exclusion of irrelevant matters. His problem-solving was poor but he progressed in reading and spelling. At the age of seven his IQ was 82 (Revised Stanford-Binet). He could not be drawn into a group. A year later he was overactive and prone to temper tantrums. At seven he appeared to dislike other people and would not join the activities of other children, although he would suck their arms. He did jigsaws well, fitting the pieces even if the picture was upside down.

At nine years his IQ was 63 on the Wechsler Scale. He talked nonsense in a high-pitched baby voice, repeated questions and formed no friendships. He was admitted to a child psychiatric unit. When he was eleven he went to a school for the educationally subnormal but had to be readmitted to the children's unit a year later after 'throwing a knife'. At this time he showed an interest in dates and routine, he was upset by change and his IQ was said to be 73 (Wechsler).

When he was 14 he was transferred to an adult psychiatric hospital nearer his home, where he still remains. On admission he showed pressure of speech and perseveration, repeated questions and touched certain members of the staff. He was overactive, emotionally labile and repeatedly read hospital telephone numbers. He showed no interest in children of his own age. He was diagnosed as schizophrenic, although he never showed convincing features of that disorder; more plausibly he was designated as autistic or as an *idiot savant*. He misbehaved in various ways, slapping faces (especially female), letting down car tyres and putting water in a petrol tank. He talked to himself. He was right-handed, no neurological abnormality was found and his electroencephalogram was within normal limits. A couple of years later he was described as 'mathematically quite remarkable'.

He grew into a tall adult with a high-pitched voice, which was believed to be an affectation. When he was 26 he had two major convulsions, probably due to large doses of chlorpromazine. His IQ was 71 on the Wechsler Adult Intelligence Scale (verbal 68, performance 78).

When examined recently he had nuclear cataracts. His penis, testes and body hair were within normal male limits,

as was his serum testosterone at 20.8 nmol/l. The urine showed a negative ferric chloride test for phenylpyruvic acid. Karyotyping of his leucocytes revealed a normal chromosome pattern (46XY).

He can give correctly the day of the week of any day this century and forward or backward for a few years. There is no evidence of eidetic imaging on testing, and when asked to study and memorise a calendar of unknown year (actually 1977) for five minutes, he immediately afterwards said that he could not 'see' it in his mind. But he was able to answer the day of the week quickly and correctly when questioned, and indeed more efficiently than usual.

If one allows for the fact that he incorrectly supposed 1900 to be a leap year and 2000 not, he gave correct answers for all 19 dates offered between 17 July 1899 and 13 July 2000. He was later able to go backwards to 1894 and forwards to 2011, but not beyond these years. Three earlier well-known dates – 14 July 1789, 1 June 1794 and 18 June 1815 – could not be attempted.

No pattern of mistakes or delays could be correlated with the order of presentation of year, month and date in their various permutations.

He dislikes deviation from routine, insisting with some asperity that his mother does up all her blouse buttons and that any dirty dish is washed up at once.

Apart from two superficial friendships, he has never shown any interest in the opposite sex.

His spelling is excellent. When asked the meaning of various words, he did well with concrete definitions, saying that a rope was a 'thick piece of string', but he performed badly with abstract terms, saying, for example, that honour meant 'disobey' and justice 'observe', and being unable to give a meaning for bravery.

He did badly when asked to complete associations of the sort, 'Water – drink: air – ?', giving 18 wrong answers and eight correct ones.

He was often wrong in simple division, and could not grasp the short cut involved in $4+8-8$ until it was explained, thereafter forgetting the principle the following week. He could not recognise a series of prime numbers nor the three times table.

He could not perform the simple abstractions of the Weigl sorting test, which involve grouping coloured shapes either by colour or shape.

Discussion

Scheerer *et al* (1945) attribute to autistic children an impairment of abstract attitude, with consequent failure to form relationships with other people, and resistance to change. It would appear that, having bright parents, some are impelled to develop their average facility memorising numbers and music – features of an earlier stage of childhood development – when they belatedly attempt to relate to other people. In later life they may therefore achieve the reputation of *idiots savants*.

How does TMK do it? Mathematicians can see no formula or short cut. The problem, it appears, is not

one of mathematics but of psychology. Jaensch & Menhel (1928) recorded a patient who employed eidetic imagery. Lafora (1935) described a 16-year-old feeble-minded calendar calculator who remembered different dates of each year, from which she deduced the first day of each month by rules fixed in her memory. Hill's (1975) patient used remembered reference dates, and Hermelin & O'Connor's patients (1986) used arithmetic, rote memory and the regularities of the calendar.

It is probable that TMK employs anchoring points, but in common with other calendar savants he cannot explain what he does. On one occasion he mentioned Christmas Day as the point adopted but could not elaborate further. Another time he was asked how he worked out the day of the week for any date and was given 1969 as an example. He correctly replied, '1st January, 1st January 1969 – Wednesday'. Asked then to go to May 1969, he said '21st May 1969' – also a Wednesday and presumably arrived at by subtracting the numbers in excess of 28 for the intervening months from 29 January. Then asked for 31 May, he correctly answered Saturday.

If he uses an anchoring date such as 1 January, he would need to know the initial years of 18 columns running down from Monday to Sunday, with a gap before each leap year, which is then adjusted for January and February. Alternatively, he might know seven sets of years, each set including 14 or 15 years with the same weekdays, which might be memorised as two chunks. The sequence within each set is too complicated to be an aid to memory. He cannot recognise such column headings or sets, nor can he match given years from them. The order in which date, month and year are slowly presented makes no difference to the speed or accuracy of his replies, nor does the remoteness or other features of the date. He has equal facility with future and with past dates.

Although he says that he has studied calendars, eidetic imagery does not seem to be involved, as he can give future dates for which printed calendars are not yet available. Given his demonstrable inability

to make abstractions, it is improbable that he calculates his responses. Rote memory appears to be involved, but the details are obscure.

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