British Journal of Psychiatry (1994), **165**, 808–817

Autoscopic Phenomena

T. R. DENING and G. E. BERRIOS

Background. Autoscopy is defined here as a visual experience where the subject sees an image of him/herself in external space, viewed from within his/her own physical body. This paper reviews the literature both historically and conceptually, and includes a quantitative study of accumulated cases.

Method. Cases published since 1935 and meeting the above definition for autoscopy ($n = 53$) were included, together with three personally-observed patients. A clinical protocol was completed for each case, including information about the autoscopic image. Cases were compared using non-parametric statistics on dichotomised variables.

Results. There were 38 men and 18 women, with a mean age of 39.5 years (range 13–78). Of the subjects, 33 (59%) had a neurological illness, most frequently epilepsy (18 cases). Right and left sided lesions were equally represented. Psychiatric disorder was often present (33 cases, 59%), most commonly delirium, depression or psychosis. The features of the images seen were diverse, but speaking images were associated with younger age, male sex, psychotic illness, longer duration of image, and hypnagogic/hypnopompic experiences.

Conclusions. Autoscopy may arise from a convergence of several variables, including gender, personality factors, neurological and/or psychiatric disease, exhaustion and dissociation, whose interaction may override the normal inhibition of temporal lobe activity. A cognitive neuropsychological hypothesis is proposed, together with avenues for future research.

Autoscopy (literally, seeing oneself) is a concept which has at times been fashionable among physicians and creative writers but has been neglected as a subject of scientific inquiry. Autoscopy has generated considerable confusion as there is a lack of agreement regarding its definition and classification.

This paper seeks to (a) stimulate interest in autoscopy, (b) clarify the conceptual framework, (c) systematically analyse published cases and three newly-reported cases, and (d) make suggestions regarding further research. Only clinical accounts of autoscopy will be considered; literary accounts are suspect and have been reviewed elsewhere. For reasons of clarity, we will apply a narrow definition of autoscopy to describe experiences where subjects see an image of themselves in external space, viewed from within their own physical body.

Social, cultural and historical aspects

The concept of autoscopy is embedded in a wider nest of beliefs. The widest concerns 'bilocation', the purported capacity to be in two places at the same time. This paranormal, rather than medical, phenomenon postulates that people may dissociate into two material bodies, or into a material and an 'ethereal' moiety. Bilocation is related to another paranormal notion, 'astral bodies' – hypothetical bodies of fine matter linking the terrestrial body and higher astral representation, which are purportedly the carriers of psychical energy (indeed, most religions and cultures include in their belief systems analogous forms of 'meta-organism').

The experience of seeing the image of oneself does not seem to be historically recent (a description by Aristotle is often quoted) or culturally dependent upon Western ideas. Different cultural beliefs about the boundaries of the individual self may affect whether seeing one's own image is considered abnormal. Contemporary Western culture adopts a tight boundary for the self, which may cause such experiences to be labelled as more abnormal when they do occur. Rank (1971) discussed anthropological examples of the attitudes of other cultures to autoscopy and other experiences with double identity. Other phenomena at the edge of personal identity (e.g. near-death experiences) also occur universally, but with varying content across cultures (Kellehear, 1993).

We also suggest that, within Western culture, broad secular trends and fashion have played an important part. For example, in European folk-lore, autoscopic experiences have been regarded as portents of impending death (Todd & Dewhurst, 1962). With the Romantic literary movement of the 19th century, autoscopy and related phenomena, especially the *Doppelgänger* (double), attracted the attention of authors such as Goethe, Hoffmann, Maupassant and Dostoevsky. Some authors seem to have had autoscopic experiences themselves (Goethe, Stevenson). Literary accounts have been reviewed

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

extensively (Coleman, 1934; Dewhurst, 1954; Rank, 1971; Abse, 1976; Miller, 1985; McCulloch, 1992). Popular interest in psychological and parapsychological themes then developed, exemplified by the Society for Psychical Research (SPR) founded in Cambridge in 1882 (Williams, 1985), and similar bodies in the US, France and Germany. The SPR produced two "statistical inquiries" into hallucinations and illusions (SPR report, 1894); in the event, only 7 out of 1100 reported hallucinations involved doubles (McCulloch, 1992).

Reflecting these literary and popular interests in abnormal perception and the boundaries of the self, published accounts of medical cases of autoscopy began to appear from the mid 19th century (Wigan, 1844), and became more frequent around the turn of the century, especially in France (Sollier, 1908*a*; Naudascher, 1910; Nouët, 1923). The term 'autoscopy' was probably first used by Féré (1891). The concept was included within the group of disorders known as *cénesthopathie* (Dupré, 1913), which included corporeal sensations (e.g. pain, well-being, pleasure, fatigue, shuddering, hunger, nausea) rather than cutaneous ones (touch, temperature, pressure, location). The next major contribution was the seminal neuropsychiatric monograph by Menninger-Lerchenthal (1935), who discussed instances of autoscopy in apparently normal people, patients with neurological illness, and those with psychiatric disorders, with particular reference to relationships between autoscopy and brain disease, and between autoscopy and other hallucinations.

Following the Second World War, perhaps reflecting the availability of cases with focal brain injuries together with new techniques for physical and neuropsychological investigation, a spate of further cases appeared, alongside more general accounts of the effects of focal brain lesions (Lhermitte, 1951; Critchley, 1953; Weinstein *et al*, 1954; Russell & Whitty, 1955; Luria, 1963). However, excepting one significant review (Damas Mora *et al*, 1980), only infrequent case reports have appeared over the last three decades, mainly in the psychiatric literature, and there has been little conceptual progress. There may be several reasons for this. Previous studies have not demonstrated a consistent association between autoscopic phenomena and brain lesions, and meanwhile, neuropsychology has adopted a strongly cognitive emphasis, mainly concerned with hard-wired brain circuitry (McCarthy & Warrington, 1990). There are also conceptual difficulties, with terms being used loosely and interchangeably, leading to confusion and inhibiting the development of testable hypotheses. Finally, there has been 'closure' of classification systems in recent years, emphasis being placed on improving reliability of established symptoms rather than examining less fashionable ones.

Three impressions emerge from the literature (both medical and non-medical) on autoscopy: (a) repetitiveness; (b) vagueness and lack of definition (with entanglement of diverse phenomena); and (c) meagre clinical and scientific utility. There is a lack of well-described clinical series, and the aetiology, clinical presentation, natural history and significance of autoscopy remain obscure.

The concept of autoscopy

Autoscopy belongs within a range of ill-classified symptoms involving the boundaries of the self. There is disagreement as to whether autoscopy refers to a hallucination, an illusion, a delusion, a disorder of the body image, a disorder of the self, or a form of vivid imagery. The term 'autoscopy' is used ambiguously, and the phenomena included are heterogeneous (Jaspers, 1963). In addition, after Menninger-Lerchenthal (1935), the term 'heautoscopy' is sometimes used, emphasising that the self-image is seen at a distance (i.e. separate from one's body). However, we see no advantage in this term; it is pedantic, almost unpronounceable and not widely used in ordinary practice. Other terms have not caught on (e.g. specular hallucination; Naudascher, 1910).

The mixture of literary and clinical accounts is also confusing. Although some literary autoscopies have features resembling clinical descriptions, in other ways they are atypical. For example, in Dostoevsky's *The Double*, the second Mr Golyadkin first appears as a shadowy figure reminiscent of clinical descriptions, but the behaviour of the double later is quite unlike medical accounts. Perhaps the story originated from Dostoevsky's own autoscopy, but this cannot be assumed, nor can the story be regarded as a scientific contribution. Literary accounts often use broad concepts of autoscopy and doubles (Miller (1985) includes any kind of duality) because variations in the themes are of interest. However, neuropsychiatric investigation requires precise descriptions. Wider definitions may help to portray emotional and cultural aspects, but at the expense of understanding neuropsychiatric mechanisms.

In particular, there is an overlap with the *Doppelgänger* phenomenon, the experience of being accompanied by a double. On further examination, such cases also vary. The individual may simply sense the presence of their own double, or may see an associated autoscopic image. It is thus incorrect to equate autoscopy and the *Doppelgänger* (e.g. Lunn,

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

1970; Maack & Mullen, 1983; Collacott & Deb, 1988), since the double is often felt as a presence but not actually seen. Similarly, the definition of (he)autoscopy given by Damas Mora *et al* (1980), "the experience of duplication of one's real self", has the same problem. The notion of doubles may also lead to unnecessary confusion between autoscopy and the Capgras' delusion that others have been replaced by imposters (e.g. Enoch & Trethowan, 1979).

Certain other phenomena are visual perceptions involving the self, but fall outside our narrow definition of autoscopy. These include out-of-body experiences, 'negative autoscopy' and 'internal autoscopy'. Out-of-body experiences, which can occur in the context of severe illness as 'near death' experiences (Kellehear, 1990; Owens *et al*, 1990), may have a visual component or be limited to a physical sensation of leaving the body. The typical visual experience is for the disembodied self to hover above the bed looking down upon the physical body from outside. This experience is therefore unlike that in autoscopy (narrowly defined) where the subject remains within their body but sees the phantom image in external space. A recent series of ten cases of 'autoscopy' associated with epilepsy (Devinsky *et al*, 1989) included nine cases of out-of-body experience and only one with autoscopy by the present definition.

'Negative autoscopy' or absence of mirror image is a rarely-reported occurrence. A far more common problem is a failure to recognise one's mirror image, or even a complete misidentification (Hemphill, 1948), typically occurring in dementia. A spectacular but also uncommon symptom is 'internal autoscopy' (Sollier, 1908*b*), where subjects are able to 'see' inside their own bodies. According to standard texts (Hamilton, 1974), the internal organs are viewed as if in a butcher's shop. This symptom has a histrionic element (Comar, 1901), and when reported is usually associated with agitated depression. Neither 'negative autoscopy' nor 'internal autoscopy' meet our criteria above; they are phenomenologically distinct.

Organic disturbances of body image may overlap with autoscopy, including sensory inattention related to non-dominant parietal lobe lesions, and phantom limb experiences. Sensory inattention may incorporate a delusional component (e.g. when the subject insists that there is an intruder in the bed); other, sometimes bizarre, reduplications of body parts have been reported, often associated with psychotic illnesses (Weinstein *et al*, 1954; Ames, 1984).

Of uncertain status with regard to autoscopy are phenomena which are compatible with normality, such as imaginary companions of childhood (Bender & Vogel, 1941), hypnagogic imagery (McKellar & Simpson, 1954), and eidetic imagery (Saltzman & Machover, 1952; Morris & Hampson, 1983).

However, even when autoscopy is clearly separated from other symptoms (as above), the experiences described by real patients encompass a range of phenomena. Autoscopy obviously requires a visual component, but there must also be a psychic element for the subject to feel identity with the image, and there may also be associated kinaesthetic sensations (e.g. a feeling of being followed). The psychic or kinaesthetic elements may occur in isolation, leading to *Doppelgänger* experiences. Other mental phenomena such as depersonalisation and dissociation often feature in published accounts, but their significance has not been made clear, nor has that of personality traits such as narcissism. The degree of insight also seems to vary, as does the speed with which the image is recognised.

Subjects and method

For the reasons discussed above, no systematic review of published cases exists. We present data from the medical literature together with three personal cases. Only cases published since Menninger-Lerchenthal (1935) were included, since earlier accounts generally contain insufficient information about associated neurological and psychiatric disorders.

Several (often well-known) cases were excluded; some (e.g. Lhermitte, 1951) contained insufficient clinical information. When cases were reported more than once, the less detailed account was excluded (e.g. Marchand & de Ajuriaguerra, 1940; Pearson & Dewhurst, 1954; Russell & Whitty, 1955). However, the commonest reason for exclusion was that cases did not meet our criteria. Such cases could often be described as out-of-body experiences (e.g. Lunn, 1970; Devinsky *et al*, 1989). The case of Critchley (1953) had a *Doppelgänger* experience. Ames (1984) described the reduplication of a phantom head. Case 2 of Ostow (1960) did not have autoscopy, and nor did most of the cases described by Lippman (1953). Lukianowicz (1967) described three cases of 'autoscopic experience not involving visual perception'; these clearly do not meet our criteria, and seem to be examples of *Doppelgänger* experiences.

Cases were included from the following sources: nine cases from Hécaen & de Ajuriaguerra (1952); seven from Hécaen & Green (1957); seven from Lukianowicz (1958); three cases each from Dewhurst & Pearson (1955), Todd & Dewhurst (1955), Lance (1976), and Faguet (1979); two cases from Sivadon (1937) and Bychowski (1943); and one case each from Genner (1947), Conrad (1953), Lippman (1953), Constantinides (1954), Ostow (1960), McConnell

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

(1965), Craske & Sacks (1969), Lunn (1970), Maximov (1973), Damas Mora *et al* (1980), Salama (1981), Maack & Mullen (1983), Collacott & Deb (1988), and Devinsky *et al* (1989). Most cases were reported from centres in France ($n=18$) and the UK ($n=21$).

Each case was analysed by means of a standard protocol which recorded detailed information about the autoscopic phenomena: the nature of the image (colour, transparency, apparent age, whether it was a mirror image, whether it spoke or was silent); the circumstances and duration of the episode and the number of occurrences; and the associated affects and behavioural response of the subject. Information regarding the neurological and psychiatric state of the subject was also recorded, including the site of any brain lesions, alterations in consciousness, and presence of depersonalisation or other hallucinations. To examine possible effects of personality, subjects' occupations were noted, together with any evidence as to whether the subject had vivid visual imagery or narcissistic tendencies.

As some descriptions were brief, data were often missing, particularly with variables concerning the autoscopic image itself. We felt that the presence of certain variables would probably have been mentioned, such as if the image spoke, or was of different age from the subject, or if the experience greatly affected the subject's behaviour. We then used clinical judgement to decide if the item could be endorsed or not, although there was still sometimes insufficient information to decide. Some variables (e.g. the occupation of the subject, whether the image was coloured or not) could not be thus completed.

Where possible, dichotomous variables were created, such as whether neurological disease was present or absent, if the image duration was brief (30 minutes or less) or prolonged, and whether their occupation was creative or non-creative. Variables were compared using nonparametric statistics. Two-tailed tests of significance were used, but given the exploratory nature of the analysis, corrections were not made for multiple comparisons. Despite the large number of dichotomic variables, we also attempted to summarise the data by performing an exploratory principal components analysis with varimax rotation, using the variable mean value for missing data.

Results

A total of 56 cases were identified, 53 from the published literature and three previously unreported personal cases (see below). The mean age was 39.5 years (s.d. = 15.4 years, range 13–78). There were 38 men and 18 women. Other descriptive features of the sample and their autoscopic experiences are summarised in Tables 1 and 2.

Table 1
Descriptive data regarding subjects ($n=56$)

Variable	Yes (%)	No (%)	Missing (%)
Male gender	38 (68)	18 (32)	
Creative occupation	15 (27)	23 (41)	18 (32)
Neurological illness[1]	33 (59)	23 (41)	
Epilepsy[2]	18 (32)	38 (68)	
Decreased consciousness	25 (45)	27 (48)	4 (7)
Delirium	10 (18)	46 (82)	
Died within 12 months	5 (9)	51 (91)	
Hypnagogic/hypnopompic autoscopy	9 (16)	47 (84)	
Psychiatric disorder present	33 (59)	23 (41)	
Depersonalisation	10 (18)	27 (48)	19 (34)
Visual imagery/narcissism	19 (34)	4 (7)	33 (59)

1. Of those with information, eight had right-sided lesions, nine had left-sided lesions, and 13 had diffuse lesions. Of the focal lesions, nine involved the temporal lobe, and eight did not.
2. Of these, eight had temporal lobe epilepsy, five with right-sided foci, three with left-sided foci.

Neurological disorders

Thirty-three subjects had a neurological disorder, of which the commonest was epilepsy; 16 cases had seizures, one had an abnormal electroencephalogram, and one experienced autoscopy during a post-ictal state after electroconvulsive therapy. For statistical purposes these cases were analysed together. Where there was a unilateral brain lesion, there was no significant effect of laterality (eight right-sided and nine left-sided lesions). Such cases were more likely to have images confined to one half of their visual field than cases without unilateral lesions, and, if so,

Table 2
Descriptive data regarding autoscopic experiences

Variable	Yes (%)	No (%)	Missing (%)
Short duration (<30 minutes)	39 (70)	13 (23)	4 (7)
Few episodes (<10)	24 (43)	32 (57)	
Located only to one side right or left	14 (25) (9 to R, 5 to L)	38 (68)	4 (7)
Coloured image	18 (32)	9 (16)	29 (52)
Transparent image	10 (18)	18 (32)	28 (50)
Mirror image	22 (39)	6 (11)	28 (50)
Same age as subject	50 (89)	6 (11)	
Image seemed to speak	13 (23)	43 (77)	
Other hallucinations	29 (52)	23 (41)	4 (7)
Affective response:			
dysphoria	33 (59)	14 (25)	9 (16)
detachment	18 (32)	29 (52)	9 (16)
pleasure	5 (9)	42 (75)	9 (16)
Rapid recognition of self	41 (73)	9 (16)	6 (11)
Major change in behaviour on recognition	22 (39)	29 (52)	5 (9)

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

the images usually appeared in the contralateral field, as might be expected. Where the site of the lesion was described, the temporal lobes were often involved, particularly among patients with epilepsy (at least eight cases). The relationship between the autoscopy and seizures was variable; in some cases autoscopy occurred during the aura preceding a fit (e.g. Hécaen & Green, 1957), but in other cases (e.g. Case 3 below) there was no association with the timing of seizures.

Psychiatric disorders

Psychiatric disorder was present in over half the cases, and where it coexisted with neurological illness (8 cases) was usually diagnosed as delirium. The commonest psychiatric diagnosis was, however, depression, which was present in at least 11 cases. In three depressed cases, anxiety symptoms and/or panic were prominent. Eight patients were diagnosed as having schizophrenia or organic hallucinosis. Three patients also had comorbid substance abuse, one with delirium, one with depression and one with schizophrenia. There was one case each of mental handicap, dysmorphophobia, obsessive–compulsive disorder and acute stress reaction.

Autoscopic experiences

The autoscopic experience lasted less than 30 minutes in most cases, and a small majority had multiple episodes. In almost all cases the subject viewed the face, commonly the upper body, and less often the whole body. One exception viewed only her own phantom arm lying on top of the real one (Todd & Dewhurst, 1955). The cases included many variations; some individuals had only one experience, but among those with repeated autoscopy, the images were sometimes consistently similar and sometimes variable. For example, one man had four types of image within one month: his own corpse lying on the bed; himself walking round the room; himself as a young man dressed in rags; and assisting at his own burial (Sivadon, 1937). Dewhurst & Pearson (1955) reported a man who had two bouts of short episodes of autoscopy lasting ten days each, but separated by 24 years. Rarely, more than one image appeared at once; a woman with an occipital lobe infarct saw five or six images of herself imitating tasks that she had just performed (Lance, 1976).

The circumstances of the autoscopy also varied. The commonest situation described was that the subject was in bed ($n=17$), several being in hospital at the time. In ten cases it was mentioned that the subject was seated, and in four cases the subject was walking along. Extreme stress and fatigue were emphasised in cases reported by Todd & Dewhurst (1955) and Faguet (1979). The commonest affective response was dysphoria, including distress, fear, anxiety and depression. Detachment (distance, dizziness, dissociation) was less common, and positive affects rarely occurred. Most cases, even though amazed, only had minor changes in their behaviour. In some cases the reaction was more significant, such as a panic attack (Case 2) or diving into a river to save the other self (Damas Mora *et al*, 1980). Insight into the nature of the experience varied and was sometimes only partial; one subject realised he was hallucinating but found himself trying not to jostle the double as they walked along together (Sivadon, 1937), and another, although similarly aware, drew up a chair for the image to sit on (Dewhurst & Pearson, 1955).

Statistical analysis revealed a number of significant relationships between variables. For example, the presence of neurological disease was associated with impaired consciousness ($\chi^2=15.8$, 1 d.f., $P<0.001$) and with images lateralised to one side (rather than in front or moving across the midline) ($\chi^2=8.7$, 1 d.f., $P<0.005$). Neurological illness was also inversely related to psychiatric disorder ($\chi^2=10.8$, 1 d.f., $P<0.001$). In contrast, psychiatric disorder was associated with non-lateralised images ($\chi^2=4.5$, 1 d.f., $P<0.05$).

Talking images

Among features of the autoscopy, coloured images tended to be recognised more rapidly, as did images of brief duration and those described as mirror images, although none of these associations reached statistical significance. Duration of seeing the image was significantly longer for psychotic cases ($\chi^2=9.7$, 1 d.f., $P<0.002$), and tended to be shorter for subjects with epilepsy ($\chi^2=3.5$, 1 d.f., $P=0.06$).

Images appearing to speak were associated with younger age (Mann-Whitney $U=120.5$, $P<0.05$), male gender ($\chi^2=6.2$, 1 d.f., $P<0.02$), psychotic diagnosis ($\chi^2=10.9$, 1 d.f., $P<0.001$), hypnagogic/hypnopompic experiences ($\chi^2=5.0$, 1 d.f., $P<0.05$), and longer duration of image ($\chi^2=5.8$, 1 d.f., $P<0.02$). The association of talking image with male gender was striking; 13 subjects saw talking images, and all of them were men. This could be partly, but not completely, explained by the fact that seven out of eight cases with psychosis were male. To our knowledge, there is no case in the recent literature of a female subject experiencing a speaking autoscopic hallucination. Using discriminant function analysis, whether the image spoke or not was correctly classified in 86% of cases by the two variables psychosis and hypnagogic/hypnopompic experience.

Behavioural response

Behavioural response on recognition of the apparition was significantly more likely to be marked in creative individuals ($\chi^2=4.6$, 1 d.f., $P<0.05$), and tended to be marked if the associated affect was

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

Table 3
Principal components analysis

Factor	Eigenvalue	% variance	Variables	Loadings
Organic	2.41	17.2	Impaired consciousness	0.86
			Delirium	0.79
			Neurological illness	0.60
Psychiatric	1.97	14.1	Psychiatric illness	0.93
			No neurological illness	0.60
			Absence of delirium	0.47
Dramatic	1.76	12.6	Immediate recognition	0.76
			Creative occupation	0.72
			Major behaviour change	0.43
			Short duration of image	0.41
Talking images	1.57	11.2	Talking image	0.86
			Male gender	0.68
			Long duration of image	0.54
Dysphoria	1.40	10.0	Dysphoric response	0.85
			Lack of detached response	0.71

dysphoric (NS). Behavioural change also tended to be less marked in response to hypnagogic/hypnopompic images (NS).

Principal components analysis

Exploratory principal components analysis yielded five factors, accounting for 65% of the variance (see Table 3). These factors were labelled organic, psychiatric, dramatic, talking, and dysphoria.

Discussion

This survey has analysed data from a total of 56 cases of autoscopy according to our definition. This is the largest and most detailed series of such cases and the only one to look systematically at all the available clinical information. The study does have important limitations. The data were gathered retrospectively, from a range of sources, with very variable amounts of information. The analysis has therefore had to contend with considerable amounts of missing data. Given the nature of the data, statistical techniques have been used at the limits of their legitimacy. Despite these difficulties, the clinical descriptions of autoscopic experiences show consistency with each other. A small number of further cases, mainly with epilepsy, came to light after performing the analysis (e.g. Williams, 1956).

There was no control group, due to the heterogeneous nature of the sample. Thus comparisons with other groups of subjects experiencing hallucinations are hard to make. Nonetheless, the male/female ratio of more than 2 was surprising, and contrasts with other series of hallucinations (e.g. Berrios, 1990*a*) where women predominate. This is puzzling, as there was no obvious sampling bias to produce this finding.

Some items of potential interest proved difficult to rate. It was particularly difficult to decide what was meant by the image being a 'mirror image' of the subject. Was its laterality reversed, did it mimic the subject's expressions and movements, was its appearance and clothing the same as the subject's, or did it just appear "the same" in some unspecified or imprecise way? We suggest that more precision is needed in recording future cases, as such details may be informative. Other items proved uninformative, for example, attempts to classify the circumstances in which autoscopy occurred, or its precipitants. The presence or absence of other hallucinations also did not show any particular association with other aspects, except (unsurprisingly) the diagnosis of schizophrenia.

Variations between individuals

There were considerable variations between individuals both in terms of the visual experiences and the associated features. As emphasised by Todd & Dewhurst (1955), not only the visual components of the self may be projected outside the body. There may also be duplication and projection of *movements*, with the vision imitating the subject's gestures (e.g. Conrad, 1953); duplication of *sounds*, the double speaking to the subject (Maack & Mullen, 1983); duplication of *identity*, as in Constantinides (1954) where the subject felt divided between the two bodies; duplication and projection of *emotions*, such as that found by Hécaen & Green (1957), wanting to kill the double because he felt it meant him harm; and duplication and projection of *thoughts*, again found by Hécaen & Green (1957), where the subject's double held opposing opinions. Sims (1988) briefly described a case with a mixture of autoscopy and out-of-body experience.

Previous authors (Todd & Dewhurst, 1955; Hécaen & Green, 1957) have stressed characteristics of the subject in producing autoscopy. There is agreement that the Tamburini view of hallucinations as a form of sensory epilepsy (Berrios, 1990*b*) is insufficient to explain why some subjects experience

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

autoscopy and others do not. In other words, one has to consider beyond the lesion and its location. For Dewhurst the most important intra-subject variable was a tendency towards predominantly visual imagery. Our data are equivocal on this issue, as in many cases there was no information as to whether the subject was a visualiser or not. Craske & Sacks (1969) did test their patient and found her to be narcissistic but not reliant on visual imagery. Thus autoscopy may arise from a heightened visual awareness of the subject's own features, possibly in 'visualisers' or perhaps in narcissistic individuals who indulge in excessive self-scrutiny and over-learn their facial appearance. If this were the case, the perceived image might be laterally inverted (as seen in a mirror), but if autoscopy were produced by another means, such as projection of the body image into external space, the image should appear the right way round. We have, however, shown that the personality of the subject (as evidenced by their occupation) affects the way in which they respond to autoscopy, so perhaps creative individuals are more able to 'produce' autoscopy in the absence of brain disease.

The context of autoscopy

Autoscopy may occur in the setting of various underlying disorders, either neurological or psychiatric: tumours, epilepsy, brain injury, psychosis, depression and depersonalisation. Among cases with brain disease, the commonest diagnosis was epilepsy, half of these cases having temporal lobe foci. Nonetheless, it seems that autoscopy is still relatively rare in such patients, even in those with visual hallucinations (Sanford & Bair, 1939; Russell & Whitty, 1955), and even in cases with various disorders of the self (Devinsky *et al*, 1989). The side of the lesion has no apparent effect on the frequency of autoscopy. Several authors (e.g. Hécaen & de Ajuriaguerra 1952) have emphasised feelings of dizziness preceding or accompanying autoscopic hallucinations, and implied that disorders of the vestibular system may be involved in the development of autoscopy. There is, however, little evidence to support this view. Feelings of dizziness are frequently concomitant with states of altered awareness or arousal, and do not have any localising value. Furthermore, in no recent cases did vestibular disease lead to autoscopy.

Our three new cases differ from each other (see Appendix). In Case 1, autoscopy was associated with an episode of severe depersonalisation, in the setting of depressive illness. In Case 2, there was probably clouding of consciousness associated with terminal physical illness, consistent with traditional wisdom that seeing one's double presages death. Case 3, an imaginative and sensitive man with epilepsy, demonstrates the possible importance of suggestion, as the autoscopy occurred shortly after enquiry about such experiences.

The quality of the evidence and issues of psychopathological convention prevent us from asserting that all cases experience autoscopic *hallucinations*, as opposed to pseudohallucinations, and so on. Other important questions concern why autoscopy should occur in the manner it does, and why it should have so intrigued both creative and medical writers. It appears to generate greater fascination than analogous percepts, such as hearing one's own voice or smelling one's own smell. What is different about face perception? Ey (1973) suggested that this was because the visual image of the face is less strong than the self-image for other sensory modalities; consequently, its appearance is more surprising and alarming.

Notwithstanding our narrow definition of autoscopy, there are profound differences between the experiences of subjects, ranging at one extreme from single fleeting instances in individuals with no evident neurological or psychiatric disorder, to prolonged, complex and bizarre images in patients with florid psychotic illnesses. Might there be subcategories of autoscopy? Our exploratory principal components analysis (despite its limitations) lends some support to this possibility, although it also appears that clear distinctions would be difficult to draw.

Little attention has been paid to the process by which autoscopy arises. Facial recognition has recently attracted considerable attention: how does autoscopy fit in with contemporary neuropsychological models? The model of Ellis & Young (1988) proposes that the sight of a face leads to a process of structural encoding, followed by parallel processes of expression analysis, facial speech analysis, directed visual processing and face recognition units. All of these interact with the rest of the individual's cognitive system, and face recognition interacts with person identity nodes, before generating name retrieval from the speech output lexicon. We suggest that in autoscopy the problem lies in the interaction between face and person recognition and the rest of the cognitive system. In normal recognition, other cognitive domains presumably serve to promote recognition of familiar elements, but there must also be an inhibitory component which normally *prevents* the perception of faces when they are not present and prevents seeing external objects as oneself. A 'lesion' in the cognitive system (e.g. delirium, epilepsy, altered arousal) may 'release' facial recognition and personal identification. This hypothesis is consistent with the putative associations of narcissism (increased personal identification) and visual imagery (increased face recognition) with autoscopy.

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

As the stages of perception and recognition may or may not occur simultaneously, an analogy with primary and secondary delusions may also be helpful; simultaneous perception and recognition in clear consciousness would represent primary autoscopy, whereas gradual emergence of recognition from other hallucinations or clouded consciousness would be secondary autoscopy. The vivid accompanying affective experience, most commonly dysphoria, is also of interest. Generally, subjects attribute the emotional component as a reaction to the shock of the vision, but, as in temporal lobe epilepsy (Williams, 1956), such emotions and visceral sensations may well be concomitants of the experience.

Conclusions

It is a challenge to psychiatry as to how such rare yet relatively well circumscribed phenomena can arise. Other examples include musical hallucinations (Berrios, 1990*a*) and the Charles Bonnet syndrome (Berrios & Brook, 1982). While there may be just a single mechanism which is either rarely encountered or rarely triggered, this seems unlikely in autoscopy given the heterogeneity of subjects. More likely there are several potentially important variables which, in combination, give rise to autoscopy. What is rare is the combination, not each of the variables. In autoscopy, gender, personality, neurological disease (especially epilepsy), psychiatric disorder, exhaustion and dissociation are important. In nearly all cases, at least two of these variables come into play. The clinical picture is then influenced by other aspects of these interacting variables. Other authors have emphasised certain intrasubject characteristics, especially visual imagery and narcissism. To this we would add suggestibility and creative temperament, although all of these may represent a single dimension (not yet fully defined).

Where should further investigations be directed? The limitations of this study leave scope for more detailed phenomenological description. The hypothesis that autoscopy arises from temporal lobe dysfunction is not refuted by the data presented here, and needs examination using modern imaging techniques. Autoscopy may the product of temporal lobe activity released from normal inhibition by the factors discussed above.

Appendix: case reports

Case 1

A 55-year-old professional man employed by an Oxbridge college was walking across the college quadrangle when he had a sudden autoscopic experience. He saw himself directly ahead and several yards away. The image was vivid and coloured, although it did not speak to him. He stopped and the image persisted for 5–10 minutes before disappearing. During this time he also felt depersonalised and dysphoric. He then proceeded to have a full-blown panic attack. He had two similar episodes over the next few months and, fearing he was losing his sanity, consulted a psychiatrist. It emerged that he had always been an anxious man, who nevertheless had a distinguished record as an air force pilot, before leaving because of anxiety after a new plane was introduced. His present post was stressful and there were financial problems within the college which concerned him. He was currently suffering from a depressive illness with prominent anxiety symptoms.

Case 2

A 75-year-old male physician was afflicted by prostatic cancer. One night he awoke, feeling the need to use the toilet. As he sat up on the edge of the bed, he was surprised and disconcerted to see a solid-looking image of himself move away from the bed and walk silently across the room to the toilet. The image appeared to use the toilet and then disappeared, the episode lasting 2–3 minutes. He was left feeling amazed and shaken. After sitting quietly for a few minutes to compose himself, he used the toilet and went back to bed. He slept normally until the morning.

There was no evidence of neurological or psychiatric disorder. The episode clearly occurred in a state of altered consciousness upon waking. The autoscopy was not repeated, nor did he have any other hallucinations. He regarded the episode as a harbinger of his death, and he did indeed die a few months later.

Case 3

A man aged 35 presented with depression. At the age of 19 he sustained a major head injury with skull fracture and extradural haematoma requiring surgical drainage. He subsequently developed epilepsy with a right temporal lobe focus and partial complex seizures. These proved refractory to treatment over some years, and were exacerbated by alcohol abuse and various psychosocial stresses, including work and relationship problems. He remained, however, an articulate, sensitive and artistic person with an interest in literature. Before the accident he took pride in his appearance and used to study his face frequently in the mirror.

When first seen, he was questioned about sensory experiences including hallucinations. He had once perceived his ties hanging up as a row of snakes, but when asked about visual hallucinations or autoscopy, he denied any such experiences. One week later he attended for his next appointment in some excitement, having had an autoscopic experience. He had been sitting in a café, when he was suddenly aware of an image of himself, about 15–20 yards away, looking in through the café window. The image was dark and looked like him at the age of 19 (when his accident occurred). It did not speak and probably lasted for less than a minute. He felt amazed and uncomfortable, as though physically struck, and he felt he had to get up and leave. It is difficult not to suppose that the timing of this episode

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

was influenced by the questions asked by the psychiatrist in the previous week.

References

ABSE, D. W. (1976) Delusional identity and the double. *Psychiatry*, **39**, 163–175.

AMES, D. (1984) Self shooting of a phantom head. *British Journal of Psychiatry*, **145**, 193–194.

BENDER, L. & VOGEL, B. F. (1941) Imaginary companions of childhood. *American Journal of Orthopsychiatry*, **11**, 56–65.

BERRIOS, G. E. (1990*a*) Musical hallucinations: a historical and clinical study. *British Journal of Psychiatry*, **156**, 188–194.

—— (1990*b*) A theory of hallucinations. *History of Psychiatry*, **1**, 145–150.

—— & BROOK, P. (1982) The Charles Bonnet syndrome and the problem of visual perceptual disorders in the elderly. *Age and Ageing*, **11**, 17–23.

BYCHOWSKI, G. (1943) Disorders of the body-image in the clinical pictures of psychoses. *Journal of Nervous and Mental Disease*, **97**, 310–335.

COLEMAN, S. M. (1934) The phantom double: its psychological significance. *British Journal of Medical Psychology*, **14**, 254–273.

COLLACOTT, R. A. & DEB, S. (1988) Autoscopy, mental handicap and epilepsy: a case report. *British Journal of Psychiatry*, **153**, 825–827.

COMAR, G. (1901) L'auto-représentation de l'organisme chez quelques hystériques. *Revue Neurologique*, **9**, 490–495.

CONRAD, K. (1953) Über ein eigenartiges Spiegelphantom: heautoskopisches Phänomen als Dauerzustand bei Hypophysentumor. *Nervenartzt*, **24**, 265–270.

CONSTANIDES, C. D. (1954) De l'héautoscopie en général (avec analyse d'un cas). *Annales Médico-Psychologiques*, **112**, 336–347.

CRASKE, S. & SACKS, B. I. (1969) A case of 'double autoscopy'. *British Journal of Psychiatry*, **115**, 343–345.

CRITCHLEY, M. (1953) *The Parietal Lobes*. London: Edward Arnold.

DAMAS MORA, J. M. R., JENNER, F. A. & EACOTT, S. E. (1980) On heautoscopy or the phenomenon of the double: case presentation and review of the literature. *British Journal of Medical Psychology*, **53**, 75–83.

DEVINSKY, O., FELDMANN, E., BURROWES, K., *et al* (1989) Autoscopic phenomena with seizure. *Archives of Neurology*, **46**, 1080–1088.

DEWHURST, K. (1954) Autoscopic hallucinations. *Irish Journal of Mental Science*, **1**, 263–267.

—— & PEARSON, J. (1955) Visual hallucinations of the self in organic disease. *Journal of Neurology, Neurosurgery and Psychiatry*, **18**, 53–57.

DUPRÉ, E. (1913) Les cénesthopathies. *Mouvement Médical*, **23**, 3–22.

ELLIS, A. W. & YOUNG, A. W. (1988) *Human Cognitive Neuropsychology*. Hove: Lawrence Erlbaum.

ENOCH, M. D. & TRETHOWAN, W. H. (1979) *Uncommon Psychiatric Syndromes*. Bristol: Wright.

EY, H. (1973) *Traité des Hallucinations*. Paris: Masson.

FAGUET, R. A. (1979) With the eyes of the mind: autoscopic phenomena in the hospital setting. *General Hospital Psychiatry*, **4**, 311–314.

FÉRÉ, C. (1891) Note sur les hallucinations autoscopiques ou spéculaires et sur les hallucinations altruistes. *Comptes Rendus Hebdomadaires des Séances et Mémoires de la Société de Biologie*, **3**, 451–453.

GENNER, T. (1947) Das Sehen des eigenen Spiegelbildes als epileptisches Aequivalent. *Wiener Klinische Wochenschrift*, **59**, 656–658.

HAMILTON, M. (1974) *Fish's Clinical Psychopathology*. Bristol: Wright.

HÉCAEN, H. C. & DE AJURIAGUERRA, J. (1952) *Méconnaisances et Hallucinations Corporelles: Intégration et Disintégration de las Somatognosie*. Paris: Masson.

—— & GREEN, A. (1957) Sur l'héautoscopie (à propos de quelques cas récents). *Encéphale*, **46**, 581–594.

HEMPHILL, R. E. (1948) Misinterpretation of mirror image of self in presenile cerebral atrophy. *Journal of Mental Science*, **94**, 603–610.

JASPERS, K. (1963) *General Psychopathology* (trans. J. Hoenig & M. W. Hamilton). Manchester: Manchester University Press.

KELLEHEAR, A. (1990) The near-death experience as status passage. *Social Science and Medicine*, **31**, 933–939.

—— (1993) Culture, biology, and the near-death experience: a reappraisal. *Journal of Nervous and Mental Disease*, **181**, 148–156.

LANCE, J. W. (1976) Simple formed hallucinations confined to the area of a specific visual field defect. *Brain*, **99**, 719–734.

LHERMITTE, J. (1951) Visual hallucinations of the self. *British Medical Journal*, *i*, 431–434.

LIPPMAN, C. W. (1953) Hallucinations of physical duality in migraine. *Journal of Nervous and Mental Disease*, **117**, 345–350.

LUKIANOWICZ, N. (1958) Autoscopic phenomena. *Archives of Neurology and Psychiatry*, **80**, 199–220.

—— (1967) 'Body image' disturbances in psychiatric disorders. *British Journal of Psychiatry*, **113**, 31–47.

LUNN, V. (1970) Autoscopic phenomena. *Acta Psychiatrica Scandinavica*, **46**, 118–125.

LURIA, A. R. (1963) *Restoration of Function after Brain Injury*. New York: Macmillan.

MAACK, L. H. & MULLEN, P. E. (1983) The Doppelgänger, disintegration and death: a case report. *Psychological Medicine*, **13**, 651–654.

MARCHAND, L. & DE AJURIAGUERRA, J. (1940) Des troubles du schéma corporel au cours des accidents épileptiques. *Annales Médico-Psychologiques*, **98**, 252–259.

MAXIMOV, K. (1973) Epilepsie occipitale avec hallucinations héautoscopiques. *Acta Neurologica Belgica*, **73**, 320–323.

MCCARTHY, R. A. & WARRINGTON, E. K. (1990) *Cognitive Neuropsychology: A Clinical Introduction*. San Diego: Academic Press.

MCCONNELL, W. B. (1965) The phantom double in pregnancy. *British Journal of Psychiatry*, **111**, 67–69.

MCCULLOCH, W. (1992) A certain archway: autoscopy and its companions seen in Western writing. *History of Psychiatry*, **3**, 59–78.

MCKELLAR, P. & SIMPSON, L. (1954) Between wakefulness and sleep: hypnagogic imagery. *British Journal of Psychology*, **45**, 266–276.

MENNINGER-LERCHENTHAL, E. (1935) Das Truggebilde der eigenen Gestalt (Heautoskopie, Doppelgänger). *Abhandlungen aus der Neurologie, Psychiatrie, Psychologie und ihren Grenzgebieten*, **74**, 1–196.

MILLER, K. (1985) *Doubles: Studies in Literary History*. Oxford: Oxford University Press.

MORRIS, P. E. & HAMPSON, P. J. (1983) *Imagery and Consciousness*. London: Academic Press.

NAUDASCHER, G. (1910) Trois cas d'hallucinations spéculaires. *Annales Médico-Psychologiques*, **64**, 284–296.

NOUËT, H. (1923) Hallucinations spéculaires et traumatisme cranien. *Encéphale*, **18**, 327–329.

OSTOW, M. (1960) The metapsychology of autoscopic phenomena. *International Journal of Psychoanalysis*, **41**, 619–625.

OWENS, J. E., COOK, E. W. & STEVENSON, I. (1990) Features of 'near-death experience' in relation to whether or not patients were near death. *Lancet*, **336**, 1175–1177.

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press

PEARSON, J. & DEWHURST, K. (1954) Sur deux cas de phénomènes héautoscopiques consécutifs à lésions organiques. *Encéphale*, **43**, 166–172.

RANK, O. (1971) *The Double: A Psychoanalytic Study* (ed. H. Tucker). Chapel Hill, NC: University of North Carolina Press.

RUSSELL, W. R. & WHITTY, C. W. M. (1955) Studies in traumatic epilepsy: 3. Visual fits. *Journal of Neurology, Neurosurgery and Psychiatry*, **18**, 79–96.

SALAMA, A. A. A. (1981) The autoscopic phenomenon: case report and review of literature. *Canadian Journal of Psychiatry*, **26**, 475–476.

SALTZMAN, S. S. & MACHOVER, S. (1952) An inquiry into eidetic imagery with particular reference to visual hallucinations. *American Journal of Psychiatry*, **108**, 740–748.

SANFORD, H. S. & BAIR, H. L. (1939) Visual disturbances associated with tumors of the temporal lobe. *Archives of Neurology and Psychiatry*, **42**, 21–43.

SIMS, A. (1988) *Symptoms in the Mind: An Introduction to Descriptive Psychopathology*. London: Baillière Tindall.

SIVADON, P. (1937) Phénomènes autoscopiques au cours de la grippe. *Annales Médico-Psychologiques*, **95**, 215–220.

SOCIETY FOR PSYCHICAL RESEARCH (1894) Report on the census of hallucinations. *Proceedings of the Society for Psychical Research*, **10**, 25–422.

SOLLIER, P. (1908*a*) Quelques cas d'autoscopie. *Journal de Psychologie Normale et Pathologique*, **5**, 160–165.

—— (1908*b*) Autoscopie interne vérifiée expérimentalement. *Journal de Psychologie Normale et Pathologique*, **5**, 354–358.

TODD, J. & DEWHURST, K. (1955) The double: its psycho-pathology and psychophysiology. *Journal of Nervous and Mental Disease*, **122**, 47–55.

—— & —— (1962) The significance of the Doppelgänger (hallucinatory double) in folk-lore and neuro-psychiatry. *Practitioner*, **188**, 377–382.

WEINSTEIN, E. A., KAHN, R. L., MALITZ, S., *et al* (1954) Delusional reduplication of parts of the body. *Brain*, **77**, 45–60.

WIGAN, A. (1844) *The Duality of the Mind*. London: Longman.

WILLIAMS, D. (1956) The structure of emotions reflected in epileptic experiences. *Brain*, **79**, 29–67.

WILLIAMS, J. P. (1985) Psychical research in late Victorian Britain: trance as ecstasy or trance as insanity. In *The Anatomy of Madness*, Vol. 1 (eds W. F. Bynum, R. Porter & M. Shepherd), pp. 233–254. London: Tavistock.

T. R. Dening, MRCPsych, Fulbourn Hospital, Cambridge; **G. E. Berrios**, FRCPsych, Department of Psychiatry, University of Cambridge, Addenbrooke's Hospital, Cambridge

Correspondence: Dr Dening, Psychiatric Services for the Elderly, Fulbourn Hospital, Cambridge CB1 5EF

(First received 1 September 1993, final revision 6 December 1993, accepted 13 January 1994)

https://doi.org/10.1192/bjp.165.6.808 Published online by Cambridge University Press