Jizz and the Joy of Pattern Recognition: virtuosity, discipline and the agency of insight in UK naturalist arts of seeing

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> Jizz may be applied to or possessed by any animate and some inanimate objects, yet we cannot clearly define it. A single character may supply it, or it may be the combination of many; it may be produced by no one in particular. As a rule it is character rather than characteristics, the tout ensemble of the subject. Perhaps the outdoor naturalist, and in particular the field ornithologist, realises the full value of Jizz better than most people. At a distance, too far away to see details of form, colour or pattern, so precious in the eyes of the systematist, he sees a bird and recognises it. He says that is a chaffinch, a lark, or a sparrow; but how does he know? Shape, size, manner of flight, or maybe note, is the reply. Yes, but there is something more; something definite, yet indefinable, something which instantly registers identity in the brain, though how or what is seen remains unspecified. It is its Jizz. (Coward, 1922: 142) [1]

Motorways, speed and botanizing may not seem obviously connected. And yet, within the UK's community of practicing naturalists, the ability to identify plant species whilst driving at speeds of up to 70 miles per hour has become a recognizable sign of an expert - a '*real tiger*' in naturalist vernacular. [2] Indeed it is apparently quite common for two or more top-notch naturalists to arrange for a friend to drive as fast as is legally possible up the inside lane of the motorway as his/her passengers shout out species names along the way. Speed-identification along the asphalt is commonly described by naturalists as a somewhat tongue-in-cheek display of a particular kind of prowess; of a capacity for flash pattern recognition, described above by Coward and known across

Europe and the USA as '*Jizz*'.[3] To *Jizz* appears initially as a predominantly visual skill which most if not all naturalists aspire to attaining – it is a form of *gestalt* perception, a '*visual perception of synthesis*'[4] which reveals the identity of a species through an apprehension of a coalescence of its attributes as part of a broader set of ecological relationships, rather than through the arduous study and memorising of an organism's distinct diagnostic characteristics such as leaf or seed capsule shape and size. As will be discussed below, it can become increasingly 'normal' for experienced naturalists to rely more readily upon moments of flash recognition of a species-in-its-environment than to rely upon key diagnostic parts of the organism as evidence of its identity. *Jizz* perception is described as quite captivating, due in part to its potential to transcend meticulously observed detail and to signal virtuoso visual performance, but also because it bestows upon the observer a rarefied form of insight and, for some, an enchanting encounter with nature.

At present, reported numbers of practicing naturalists in the UK vary from 10,000 to 1 million.[5] This network of enthusiasts encompasses varying degrees of expertise in the identification, evolutionary histories and ecology of one and sometimes many groups of organisms; caddis flies, spiders, honey bees, micro-moths, algae, brambles, mosses and liverworts to name but a few. Whilst naturalists belonging to a variety of Specialist Societies and more generalist Wildlife Trusts are dispersed geographically and often individually dedicated to obscure specialisms, they also generate species data for closely monitored national and global biological recording schemes.[6] This data is filtered through a centralised and standardised validation process to ensure data accuracy and quality, especially important given that it is frequently used by the UK statutory agencies for nature conservation as they contribute to national and global assessments of the status of UK biodiversity.[7] Data validation involves a network of county specific Local Biological Records Centres and a central Biological Records Centre currently located at the Centre for Ecology and Hydrology at Wallingford. And since 1852 the UK has been divided, for botanical purposes, into 112 Vice-Counties, each with a Vice-County Recorder

responsible for 'harvesting' and validating the data produced by his/her constituency.[8] In cases of dispute over the accuracy of a contributed record, it is vital that documented observations of species are backed-up with a 'voucher specimen' the parts of which can be used to ultimately quash doubts and determine a species' identity.[9] Novice data contributors will also be visited in the field by an 'expert' recorder to ensure that their methods and quality of species recording are of an appropriate quality. Naturalist apprenticeship in practices of visual skilling is thus closely monitored by a supportive and disciplining network of biological recorders committed to producing high quality data on regularly updated UK species distribution.

As well as engaging in practices of biological recording, naturalists pursue their passion to observe, recognise and collect specimens of the natural world alone and perhaps for more hedonistic reasons (Ellis and Waterton, 2004, 2005a, Lawrence and Turnhout, 2010). Most practicing naturalists of course enjoy all of these elements, but all - 'neophytes', seasoned apprentices and cognoscenti alike - share a marked passion for learning, recognising and understanding the specificities of organisms and the relationships between them and their surroundings.[10] Fiercely motivated and sustained by a desire to enquire and gather knowledge about the natural world which often develops into a love for the organisms, they commit themselves to rigorous and sometimes painstaking observational work with the help of hand-lenses, microscopes and species identification keys.[11] Learning how to see, and eventually seeing well, is the principal way naturalists define their sense of allegiance and belonging to the naturalist community whether or not policy-relevant data is involved. Such visual practice and the palpable force of aspiration to see better hold naturalists within the field and allow them to enjoy 'membership' of a community of natural history aficionados.

Essentially what I have briefly described above can be characterised as a 'community of practice' and the ethnographic sections of this paper below provide a fuller sense of what it means to learn and belong to this

naturalist community. I focus on ways in which learning to see involves a closely accompanied range of discursive and embodied practices which are grown, shaped and guided as part of a 'socially organized perceptual framework' and sustained by 'professional perceptual standards' (Goodwin, 1994: 616; also see Grasseni, 2004, 2007). Seeing correctly is paramount and visual skilling which takes place within the naturalist community is thus imbued with and partly sustained by a strong sense of belonging; revealing what is at least a temporarily stabilised natural order requires accuracy and an allegiance to a shared nature.

It is within this context of accountability that *Jizz* potentially presents something of an anomaly which deserves close attention. Identification keys spell out and highlight the specific characteristics directly telling of a species' identity and the naturalist community rallies in sharing and re-enforcing this know how. *Jizz* perception, and the alternative human-natural encounter it enables, is less predictable or controllable than the recognition and memorization of tangible parts of an organism and as I will describe, enjoys a coveted place in the naturalists' repertoire of visual skills. Furthermore, it is a vivid demonstration of how the art of seeing encompasses far more than a penetrating gaze and places sight within a nexus of embodied and sensory relationships (in this case with the specimen in its surrounding environment).[12] The art of seeing, as Prentice recently emphasised, is commonly appreciated by scholars from STS and anthropology as a culturally imbued achievement, an entanglement between 'abstract' knowledge and a more tacit 'vivid, tactile and kinaesthetic experience' (Prentice, 2005:839; Polanyi, 1966).[13] Accounts of *Jizz* echo other examples of *gestalt* perception, expressing how a grasping of the whole renders it as more than, and quite distinct from, the sum of its parts. So one naturalist pointed out to me how he could identify a particular bird because it '*flies like a sack of potatoes*'.[14] *Jizz* thus offers the possibility of seeing and sensing the natural world in a rather different and captivating way. Expertise can be judged according to an individual's ability to know by perceiving a palette of hues on a leaf or by dissecting a moth's genitalia under the microscope but ultimately, the pinnacle of

achievement really signalling the insight of a virtuoso naturalist is to be able to transcend disciplined attention to detail, and to see a species accurately in a moment of flash recognition which apprehends the organism as part of an ecology of relationships. *Jizz* then reflects and perpetuates a certain romanticism characterising naturalist pursuits for centuries, which co-exists with the contrasting slog and sheer grit of methodically learning how to distinguish and characterise things, one from another, whilst simultaneously deleting this diligence from view.

By dissecting specific examples of naturalist visual practice in the field, I explore how it is that a potential to *Jizz* can captivate naturalists and allow for the richness of a possibly enchanted encounter with the natural world whilst depending upon the standards simultaneously required to hold together a community of practice. The material presented here is used to argue that the emphasis within existing literature on visual skilling over-emphasises the hegemony of visual standards and the controlling effects of a visual 'global hierarchy of value' (Herzfeld, 2004). In so doing, it neglects a far tighter entanglement of different ways of seeing and experiencing the natural world.[15] It is significant that approaches in anthropology and STS to relationships between parts and wholes, or to entities which Mol (2007), drawing upon Strathern, would call 'more than one but less than many' do not seem to have impacted recent parallel studies of visual skilling. In this paper I hope to use *Jizz* to bring these two apparently close but surprisingly disconnected bodies of thinking into a somewhat awkward but generative conversation. And to do so, I return to Goodwin's famous insight that we are best equipped to appreciate and analyse the co-emergence of perception and culture in 'situated activity systems'. However, in order to understand the relationship played out by naturalists between *Jizz* and character-based species identification, I have had to pay specific attention to how relationships between people and things are animated as well as sustained. In other words, where agency is defined as the ability to bring about action, in the case of

naturalist visual practice we need to ask different questions concerning to what and to whom agency can be attributed and how it is activated (Gell, 1992, 1998; Ingold, 2010).

My analysis of the relationship between *Jizz* and character-based species recognition emerges in this paper through a consideration of a range of observational and interview material gathered during a period of immersion in naturalist activities between 2003 and 2005 and continuing conversations with naturalists since.[16] Whilst not exhaustive of all naturalist pursuits, I have chosen examples of species observation, biological recording and training as illustrative of practices which become collectively vital for producing, inspiring and sustaining the community of UK naturalists. This choice also illustrates my own journey of appreciation of the entanglement of intuitive and systematic forms of species recognition as I witnessed naturalists individually and collectively refine their visual skills. I emphasise ways in which naturalists in all of these contexts engage in a careful and reflexive navigation between the need for both wonder and precision in the journey towards enskillment and belonging. I intersperse observations of naturalist practice with historical accounts of naturalist visual skilling plus some more recent cautionary reflections concerning certain limitations of *Jizz*. I begin below with a detailed description of how a single bryologist communicated to me her approach to visual skilling in the field whilst we wandered together in one of her favourite patches of woodland.

Learning to see moss

I first met Angela at one of the British Bryological Society's (BBS) seasonal meetings, this time held at the Field Studies Council, near Shrewsbury.[17] I observed her beside me on the bench, poring over a microscope and sometimes holding a small hand lens close up to one eye to observe fragments of moss. She occasionally

scribbled in her own hand-sewn vinyl covered book, bristling with notes and intricate botanical drawings. She spoke as she peered closely at one moss sample;

> I think oh, there is nothing more beautiful than that red peristone, the little red ring around the mouth of the capsule of that plant. So I think you say the name and you get the joy of what the actual, different plants give you different thrills for … some plants give you a thrill for some particular reason, like some mosses I just love them because of something they do for me. (Angela, 2003)

Angela's expression of an intermingling of intellect and affect as part of her intimate relationship with the species of moss is a vivid example of what Daston and Parks characterise as 'cognitive passion' (2001: 14) and inspired me to ask for an individual field lesson in 'mossing' with her.[18] She explained that although she participates regularly in the BBS organised events, most of her learning is solitary, close to home in a local patch of scrub heath and elder and ash woodland behind her house; perfect conditions, she added, to sustain a varied and healthy moss and liverwort population. She is also visited at least once a year by Roger, one of the many BBS members who have come to be known as '*bryophyte buddies'* and offer their expertise to other 'apprentice' bryologists. She explained that Roger's knowledge, and his willingness to accompany her in her journey of visual enskillment, instils in her a sense of confidence. This has become increasingly important as she contributes data to various moss recording schemes to be scrutinised by the relevant 'validation police'.[19] He brings close a highly relevant framework of bryological know-how, history and expectation within which Angela's own ways of knowing moss were being shaped. Learning moss in this way, she emphasised, has been once tortuously difficult and inspiringly revelatory.

Angela led me up a winding path and as we clambered over trunks of dead elder, she began by casting her sensory net wide. With half closed eyes she softly moved her head from side to side, scanning what was for her a familiar landscape. She walked slowly but absorbed the nature of the surroundings swiftly. She explained how finding a moss worthy of our attention involved a '*filtering activity in her brain*' by which she is able to instantaneously disaggregate between the known and unknown mosses. Today she was looking for something interesting to show me. Quite quickly she pointed out a protuberant moss emerging from the bark of a slender ash branch conveniently lying at our shoulder height. She began to explain the need to approach a moss by apprehending it as a possible life form sustained within a broader ecology;

> But this ash bow is horizontal so when it rains that rain's gonna stay on there much longer than if it were vertical. And you can see its responding with mosses. And here's quite a rich deep patch here so I'd make a beeline for that

Focussing her gaze inwards and upon the moss, she continued to point out certain diagnostic characteristics she had been taught would help reveal its identity;

> ...so these tufts are wetter, damper, darker green, quite tall and all joined up together so they're not sort of separate cushions, they're more in a, it's a matt of tufts rather than separate cushions

Once closer to the branch, she half-closed her eyes again and inviting me to do the same highlighted the shape carved from the sky by moss meeting the tree trunk; the trunk had become an additional useful tool. Combining insights drawn from her wider perceptual field with those provided by the specifics of moss, she added more detail to her now expanding explanation of visual skilling.

> So you're using your knowledge of… You're using altitude and … feeling where the wind is. Sun direction as well is something you don't think of, it's not something you verbalise or you're very conscious of but … you know, I am very aware of which surfaces the sun is shining on to so if there's a funny bank facing south then I'd be looking at quite a different range of bryophytes

As Angela verbalised the tacit and embodied dimensions of her practice, she then lent the upper half of her body along the length of the inclined branch, bringing herself closer to the moss. Out of a small canvas bag slung around her neck and shoulders, Angela pulled out a home-made improvised tool consisting of a steel needle implanted in a wooden handle. She then applied the metallic precision of her tool to stroke the moss branches apart, pinning some against the ash branch and gently drawing one more firmly within her field of vision. Angela had reached the final stage in her 'hunt' to identify the moss species and her attention was distributed between her limbs, the trunk of her body, her hands, eyes and the tool held deftly between her fingers. Significantly, to communicate this knowledge and to make explicit what was for her a partly tacit and indescribable way of recognising a moss species in the wild, she drew my attention to disaggregated moments in the process. She described first the work of landscape scanning and a rapid filtering of the known from the unknown. She then self-consciously described her acute discerning gaze as an achievement of a subtle appreciation of the place of a specific organism within a complex web of fellow species, light, wind, humidity, sky and substrate. [20]

Satisfied that I had so far understood her commentary on visual skilling, Angela then changed her approach to finding and identifying moss and our conversation took an unexpectedly different direction. Stepping back and

viewing a different species of moss from a distance, she mentioned quite tantalizingly that, in this case, she immediately recognised the organism because of its *Jizz*;

A: And again this Jizz, this word Jizz comes right into it because there is a definite Jizz and I can tell (species name) from a distance of six feet

RE: Really? That's quite a long way away

A: The way I do it is I just scan the branch against the sky.

Angela did not need to come close, take note of the nuances of climatic conditions, align her body or select and probe singular characteristics to experience the species' *Jizz*. She knew what the organism was in a flash and at a distance. Unfortunately for me at the time, Angela did not offer reflection on the perceptual experience of *Jizz* nor upon how she had acquired the ability. She presented it as an inexpressible sense of the organism's essence, embedded in and expressed through the shapes of ecological relationships.

There are two points I would like to draw out from the observations of Angela's quite distinct visual observation practices. Firstly, Angela firmly and explicitly positions her sensate, visual, kinaesthetic and affective faculties as separate but interconnecting joists ultimately sustaining the architecture of her perception. It is this very interconnectedness of her faculties which enables 'mossing' for Angela to elicit and nurture a close co-dependency between access to the wondrous minutiae of moss-worlds and the requirement for precision and accuracy in species identification. Secondly, although she pondered upon one visual method and described disaggregated moments and practices, her description of the other (*Jizz* experience) was frustratingly

fleeting. Both were however the result of several years of accompanied and shared practices of visual enskillment and the expectations of precision and data quality that this entails. Angela learnt how to see accurately alone with her field guide, hand lens and microscope, accompanied by Roger her 'bryophyte buddy' and during BBS training and moss recording events. Whilst she was able to clearly correlate her first set of moss identification activities – those relying on the specificities of the organisms and her way of approaching these – with what she had learnt in collective contexts, she was unable to articulate her later demonstration of an ability to *Jizz* although this had become a common and everyday method for species recognition for her. No-one had explicitly taught her this skill. She did however mention, with slightly breathless appreciation, that although Roger showed her the specificities of organisms, his own visual skilling now transcended reliance upon such detail. I later picked up on Angela's fleeting reference to *Jizz* in subsequent interviews with other naturalists.

Alfie's day job is vegetation mapping and the task he described when interviewed was the production of a vegetation map of 270 hectares of fen at a resolution of 1:2500. As Alfie strides swiftly across the fen, he has a practical pressing need to recognise and map vegetation types in transition and according to him, when mapping vegetation on this scale, without *Jizz* his job would be nigh on impossible; 'With Jizz I can walk rapidly across a site and immediately appreciate how vegetation is changing'. He describes how he is able to gain immediate knowledge of the physical and ecological features of the location; the water depth, pH, water flow, light intensity, developmental history and further notes how he uses particular species to signal the 'whole picture of the site'. Whilst one botanist I had interviewed earlier (David) described his experience of *Jizz* as 'the joy of pattern recognition', hinting at the affective quality of this form of perception, Alfie described it as 'a deeply satisfying sense of familiarity and deep pleasure at the ability to sense how things are and what makes things tick'.[21] He continued, 'You know what is making that species do what it is doing'. Lastly, Alfie embellished slightly on the 'deeply comforting' sense of familiarity and anchoring in place, *Jizz* perception gives him;

'ecosystems feel like friends'.[22] What is for Alfie a familiar encounter is for Angela and David something more sublime perhaps. For all three, a sense of experiential encounter and a disciplined urge for accuracy lie in comfortable and unproblematic co-existence. Such accounts conceal the work done over centuries in naturalist circles to separate and subsequently re-join romance and rigour as vital to naturalist pursuits.

From *Jizz* to hard evidence

> The trouble with Jizz is that there is no negotiation and I'm therefore suspicious. It is not helpful to say it just looks like it – it is just an assertion – that I recognize this and this is it

> I do allow myself to use Jizz but through correlation with hard characters. I then eventually realise that I don't need hard characters, but if challenged, I will, for example, return to the small curly hairs on the underside of a leaf[23]

Running through this paper is the idea that naturalists distributed throughout the UK constitute a community of practice which coalesces around a repertoire of visual skills together with a vital upholding of 'professional perceptual standards'. The descriptions above of Angela, Alfie and David's experiences suggest that *Jizz* provides what eventually becomes an every day, normal access to immediate species knowledge. These are accounts of an apparently seamless relationship between intuition and precision. The quotations from the botanist above, selected from further interviews with naturalists responsible for validating species records, however reveal ways in which *Jizz,* as a route to accurate species identity, needs sometimes to be treated with caution. They reflect an awareness of the need to be wary of the enticement of *Jizz* as an increasingly normal approach to species recognition and to temper an intuitive grasp of species- as- a-whole with precise information provided by its parts. The botanist continued to explain that such calibration becomes particularly

important when involving species that are notoriously difficult to identify, as in the case of his favourite family the Pondweeds (*Potamogetons*). Furthermore, it is in situations where serious doubts are raised over data quality that the remit of *Jizz* is questioned. Rather tantalizingly in a context in which considerable trust and recognition is accumulated by individual naturalists over the years, many misidentifications are in fact received at the Biological Records Centre from expert naturalists.[24] It is sometimes well earned recognition which allows better known naturalists to bypass the hard-character dependent validation procedure and rely instead on flash recognition in the field as sufficient evidence. It is on such occasions, which are by no means rare, that an expert's reliance upon *Jizz* may be challenged and a return to the field and an organism's individual features deemed necessary.[25] Suddenly the kudos and esteem associated with flamboyant virtuoso visual performance is removed. The following reflection provides a sense of the scandalous nature of some of the discoveries of expert misidentifications;

> My favourite group, Potamogetons, is one where *Jizz* as opposed to technical characters is of limited value – there was an attack once in print in the early 20th Century by an American botanist (M. L. Fernald) on the then British expert (A. Bennett) on his over reliance on such characters: the American was right, the British expert's taxonomy was dreadful[26]

Interestingly, such warnings of the neglect of hard diagnostic characteristics echo centuries of grappling with the complexity of relationships between wondrous and systematic encounters with nature. Indeed the legacy flavouring the pursuits of the majority of today's naturalists in the UK is one which resonates with both the romance of Victorian natural history (Gosse, 1902; Merrill, 1989), and the disciplining of the so-called 'New Naturalism' which developed during the inter-war period. Coward's account of *Jizz* in the quotation used at the beginning of this paper is uncritically romantic in flavour and perhaps disguises its reliance upon the more

mundane, practical and prosaic dimensions of naturalist visual skilling. As part of a critique of such naturalist romanticism, 'New Naturalism' emerged with a sense of responsibility to feed a national appetite for systematically gathered and documented environmental data typical of the 'planner-preservationist' dutifulness of post-war Britain (Toogood, 1996, 2010).[27] The need to convert the romantically inclined amateur naturalist into a member of a disciplined network of human environmental sensors, drew attention to a common division drawn between 'scientific' and 'aesthetic' naturalists (MacDonald, 2002), the former being more likely to have the rigour necessary to produce and compile valid species identification and distribution data. [28]

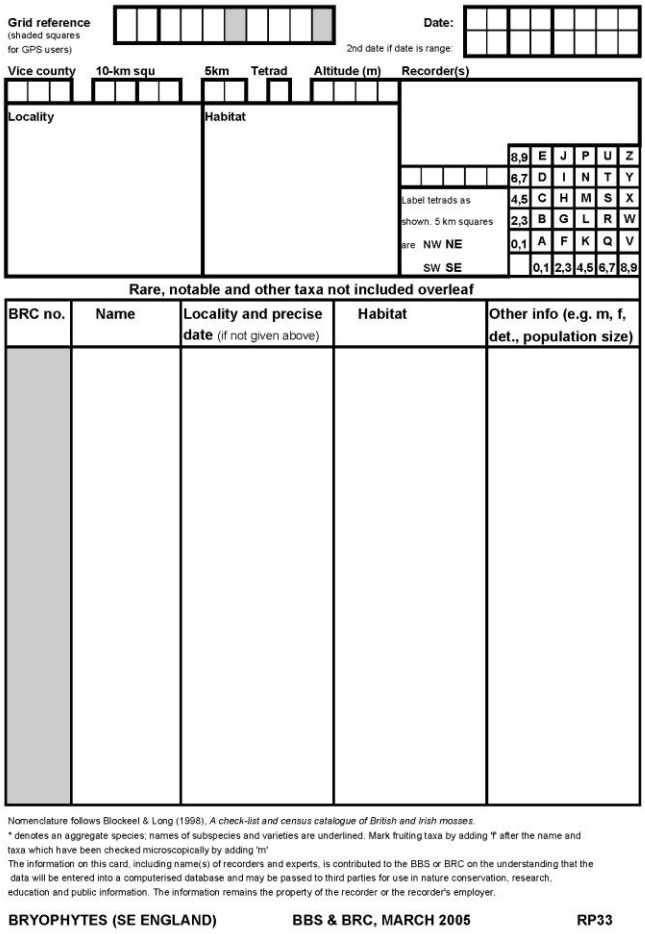
Remaining alert to these historical and contemporary comparisons and concerns, the rest of this paper explores ways in which UK naturalists today navigate, in collective rather than individual contexts, an entanglement between systematic identification and a sense of intimate abandon, both deemed necessary for visual enskillment. Whilst Angela performed this relationship between accuracy and enchanted encounter alone behind her house and Alfie as part of his professional life, visual skilling is also collectively generated and requires the careful apprehension of the practices and modes of attention of other fellow practitioners. Visual enskillment for UK naturalists does not begin and end with accurate species identification only but takes place as part of a far more tenuous, intangible 'aesthetics of belonging' developed by a community of practitioners (Grasseni, 2004). I will argue that the ability for *Jizz* to captivate the naturalist imagination does not occur in spite of a need for systematic forms of evidence, but rather that such material evidence constitutes a resource which releases naturalists and in fact allows for the thrill and unpredictability of *Jizz*. I now describe an example of a tightly organised biological recording event. I use my observations of this communal naturalist pursuit to convey and disentangle ways in which visual practice is relationally achieved, accompanied and sustained by a community of practitioners.

'Square Bashing' in East Anglia

In mid April 2003, I participated in a biological recording event which took place across South Norfolk and North Suffolk again organised by the British Bryological Society. As one of BBS' several annual events, this was typically designed to combine an ongoing training of 'apprentice' bryologists of varying levels of expertise, with the production of biological records. On this occasion the BBS had decided that this particular area needed the forensic-like attention of a '*square bashing*' meeting of this kind as the representation of the moss and liverwort inhabitants of the region needed updating. [29] In such a context, accurate species identification is the explicitly desired product of the collective event. In addition to the sense of duty to contribute biological records in this way, the bryological *cognoscenti* would practice their expert identification skills, and in displaying these to others would help in the ongoing informal but vital transmission of the arts of seeing and knowing bryophytes in the wild.

A biological recording card tangibly focussed the day's activities. This is simply a list of all bryophyte species, in this case encountered in the south-east of England, against which species spotted are recorded with a tick (see Figure 1). The moment the card appeared and a member of the group took responsibility for faithfully noting reported moss sightings, the remaining naturalists rapidly fragmented and spread through the woodland. For naïve first-time participants what ensued was a semi-choreographed chaotic flurry of physical and verbal activity reverberating through the trees. The individual holding the recording card had to be acutely attentive to the surge of species names shouted out through the trees in competitive and urgent tones. Such a clamour, we were told, was associated with '*blasting the site'* alongside revealing the subtle layering of expertise shaping the '*pecking order*' of the group. [30] Some strode off as pioneer '*hunters*' in search of rarer and hopefully previously unrecorded species for the area and the kudos associated with such discoveries, whilst other less proficient

'apprentices' clustered around those '*real tigers*' who chose to explicitly transmit their knowledge of specific identification skills.



Grid reference (shaded squares for GPS users) | Date: | 2nd date if date is range:

Vice county | 10-km squ | 5km | Tetrad | Altitude (m) | Recorder(s)

Locality | Habitat

Label tetrads as shown. 5 km squares are NW NE SW SE

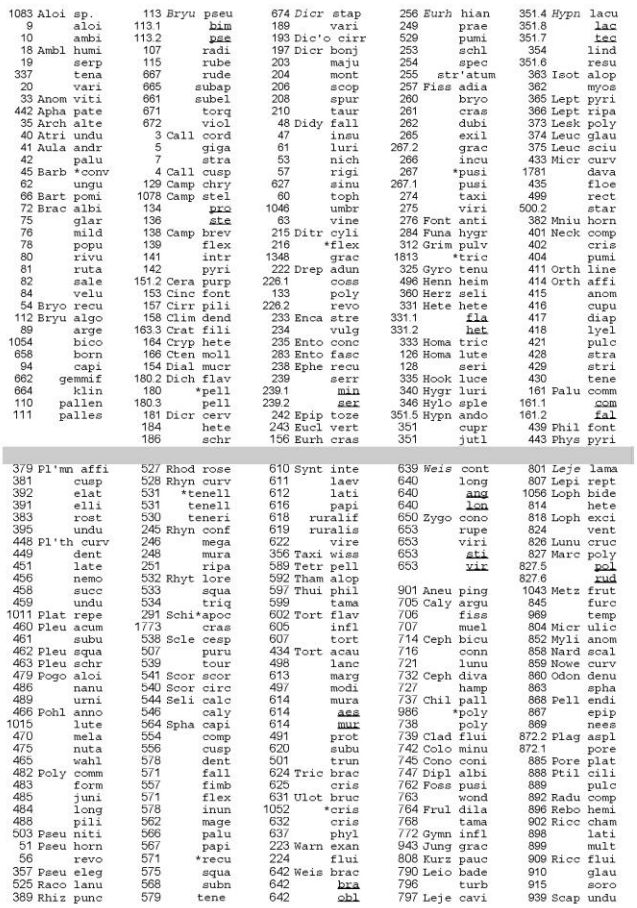
8,9	E	J	P	U	Z	
6,7	D	I	N	T	Y	
4,5	C	H	M	S	X	
2,3	B	G	L	R	W	
0,1	A	F	K	Q	V	
	0,1	2,3	4,5	6,7	8,9	

Rare, notable and other taxa not included overleaf

BRC no.	Name	Locality and precise date (if not given above)	Habitat	Other info (e.g. m, f, det., population size)

Nomenclature follows Blockeel & Long (1998). *A check-list and census catalogue of British and Irish mosses.*
* denotes an aggregate species; names of subspecies and varieties are underlined. Mark fruiting taxa by adding 'f' after the name and taxa which have been checked microscopically by adding 'm'
The information on this card, including name(s) of recorders and experts, is contributed to the BBS or BRC on the understanding that the data will be entered into a computerised database and may be passed to third parties for use in nature conservation, research, education and public information. The information remains the property of the recorder or the recorder's employer.

BRYOPHYTES (SE ENGLAND) **BBS & BRC, MARCH 2005** **RP33**



1083	Aloi	sp.	113	*Bryu*	pseu	674	*Dicr*	stap	256	*Eurh*	hian	351.4	*Hypn*	lacu
9		aloi	113.1		bim	189		vari	249		prae	351.8		lac
10		ambi	113.2		pse	193	Dic'o	cirr	529		pumi	351.7		tec
18	Ambl	humi	107		radi	197	Dicr	bonj	253		schl	354		lind
19		serp	115		rube	203		maju	254		spec	351.6		resu
337		tena	667		rude	204		mont	255		str'atum	363	*Isot*	alop
20		vari	665		subap	206		scop	257	*Fiss*	adia	362		myos
33	Anom	viti	661		subel	208		spur	260		bryo	365	*Lept*	pyri
442	Apha	pate	671		torq	210		taur	261		cras	366	*Lept*	ripa
35	Arch	alte	672		viol	48	Didy	fall	262		dubi	373	*Lesk*	poly
40	Atri	undu	3	*Call*	cord	47		insu	265		exil	374	*Leuc*	glau
41	Aula	andr	5		giga	61		luri	267.2		grac	375	*Leuc*	sciu
42		palu	7		stra	53		nich	266		incu	433	*Micr*	curv
45	Barb	*conv	4	*Call*	cusp	57		rigi	267		*pusi	1781		dava
62		ungu	129	*Camp*	chry	627		sinu	267.1		pusi	435		floe
66	Bart	pomi	1078	*Camp*	stel	60		toph	274		taxi	499		rect
72	Brac	albi	134		pro	1046		umbr	275		viri	500.2		star
75		glar	136		ste	63		vine	276	*Font*	anti	382	*Mniu*	horn
76		mild	138	*Camp*	brev	215	Ditr	cyli	284	*Puna*	hygr	401	*Neck*	comp
78		popu	139		flex	216		*flex	312	*Grim*	pulv	402		cris
80		rivu	141		intr	1348		grac	1813		*tric	404		pumi
81		ruta	142		pyri	222	*Drep*	adun	325	*Gyro*	tenu	411	*Orth*	line
82		sale	151.2	*Cera*	purp	226.1		coss	496	*Henn*	heim	414	*Orth*	affi
84		velu	153	*Cinc*	font	133		poly	360	*Herz*	seli	415		anom
54	Bryo	recu	157	*Cirr*	pili	226.2		revo	331	*Hete*	hete	416		cupu
112	Bryu	algo	158	*Clim*	dend	233	*Enca*	stre	331.1		fla	417		diap
89		arge	163.3	*Crat*	fili	234		vulg	331.2		het	418		lyel
1054		bico	164	*Cryp*	hete	235	*Ento*	conc	333	*Homa*	tric	421		pulc
658		born	166	*Cten*	moll	283	*Ento*	fasc	126	*Homa*	lute	428		stra
94		capi	154	*Dial*	mucr	238	*Ephe*	recu	128		seri	429		stri
662		gemmif	180.2	*Dich*	flav	239		serr	335	*Hook*	luce	430		tene
664		klin	180		*pell	239.1		min	340	*Hygr*	luri	161	*Palu*	comm
110		pallen	180.3		pell	239.2		ser	346	*Hylo*	sple	161.1		com
111		palles	181	*Dicr*	cerv	242	*Epip*	toze	351.5	*Hypn*	ando	161.2		fal
			184		hete	243	*Eucl*	vert	351		cupr	439	*Phil*	font
			186		schr	156	*Eurh*	cras	351		jutl	443	*Phys*	pyri
379	Pl'mn	affi	527	*Rhod*	rose	610	*Synt*	inte	639	*Weis*	cont	801	*Leje*	lama
381		cusp	528	*Rhyn*	curv	611		laev	640		long	807	*Lepi*	rept
392		elat	531		*tenell	612		lati	640		ang	1056	*Loph*	bide
391		elli	531		tenell	616		papi	640		lon	814		hete
383		rost	530		teneri	618		ruralif	650	*Zygo*	cono	818	*Loph*	exci
395		undu	245	*Rhyn*	conf	619		ruralis	653		rupe	824		vent
448	Pl'th	curv	248		mega	622		vire	653		viri	826	*Lunu*	cruc
449		dent	248		mura	356	*Taxi*	wism	653		ati	827	*Marc*	poly
451		late	251		ripa	589	*Tetr*	pell	653		vir	827.5		pol
456		nemo	532	*Rhyt*	lore	592	*Tham*	alop				827.6		rud
458		succ	533		squa	597	*Thui*	phil	901	*Aneu*	ping	1043	*Metz*	frut
459		undu	534		triq	599		tama	705	*Caly*	argu	845		furc
1011	Plat	repe	291	*Schi*	*apoc	602	*Tort*	flav	706		fiss	969		temp
460	Pleu	acum	1773		cras	605		infl	707		muel	804	*Micr*	ulic
461		subu	538	*Scle*	cesp	607		tort	714	*Ceph*	bicu	852	*Myli*	anom
462	Pleu	squa	507		puru	434	*Tort*	acau	716		conn	858	*Nard*	scal
463	Pleu	schr	539		tour	498		lanc	721		lunu	859	*Nowe*	curv
479	Pogo	aloi	541	*Scor*	scor	613		marg	732	*Ceph*	diva	860	*Odon*	denu
486		nanu	540	*Scor*	circ	497		modi	727		hamp	863		spha
489		urni	544	*Seli*	calc	614		mura	737	*Chil*	pall	868	*Pell*	endi
466	Pohl	anno	546		caly	614		aes	986		*poly	867		epip
1015		lute	564	*Spha*	capi	614		mur	738		poly	869		nees
470		mela	554		comp	491		prot	739	*Clad*	flui	872.2	*Plag*	aspl
475		muta	556		cusp	620		subu	742	*Colo*	minu	872.1		pore
465		wahl	578		dent	501		trun	745	*Cono*	coni	885	*Pore*	plat
482	Poly	comm	571		fall	624	*Tric*	brac	747	*Dipl*	albi	888	*Ptil*	cili
483		form	557		fimb	625		cris	762	*Foss*	pusi	889		pulc
485		juni	571		flex	631	*Ulot*	bruc	763		wond	892	*Radu*	comp
484		long	578		inun	1052		*cris	764	*Frul*	dila	896	*Rebo*	hemi
488		pili	562		mage	632		cris	768		tama	902	*Ricc*	cham
503	Pseu	niti	566		palu	637		phyl	772	*Gymn*	infl	898		lati
51	Pseu	horn	567		papi	223	*Warn*	exan	943	*Jung*	grac	899		mult
56		revo	571		*recu	224		flui	808	*Kurz*	pauc	909	*Ricc*	flui
357	Pseu	eleg	575		squa	642	*Weis*	brac	790	*Leio*	bade	910		glau
525	Raco	lanu	568		subn	642		bra	796		turb	915		soro
389	Rhiz	punc	579		tene	642		obl	797	*Leje*	cavi	939	*Scap*	undu

Figure 1: Bryophyte Recording Card (front and back) for SE England (from BRC website, accessed 24th August 2009)

As I sidled up to small clusters of people all gathered around and sharing portions of moss, gently shaking off clods of mud permeated by tiny anchoring cellular threads, it felt as if something quite different was occurring

in parallel to the vigorous and speedy moss sighting practices of the 'hunters' described. Specifically, what was being imparted were the diagnostic attributes of selected organisms plus some contextualising ecological information about their typical habitats. *Orthotrichum diaphanium,* for example, can be recognised by its open toothed capsules or *Campylium stellatum* as an indicator of mineral flush in the soil. One species of liverwort *Cryptothallus mirabilis* (see Figure 2) caught everyone's attention due to its subterranean habitat and non-photosynthetic and hence rather mysterious albino characteristics. This species of liverwort was a special find for the day and was described in the field meeting report as '*star find of the week*'. The species was previously unrecorded for the area and simultaneously became a vehicle through which a quiet but certain wonder of encounter plus the know-how of identification skills were transmitted from expert to novice. I was struck both by the nurturing and intimate tones of encouragement and tuition and by a sense of thrill expressed by experts and novices alike, similar to that expressed by Angela before, at encountering and learning how to identify beautiful organisms. Inevitably perhaps, the relationship between accurate identification and wondrous encounter again remained tacit despite the fact it arguably held the community of observers in the close union necessary for the revelation of a shared nature.

Figure 2: *Cryptothallus mirabilis* found on the meeting by Mark Lawley and photographed by Sam Bosanquet (BBS Website)

What also became apparent however is that belonging to this 'community of practice' cannot be taken for granted, but is a subtly managed achievement. As I observed these soft overtures at inclusion and encouragement, I was already aware of a parallel set of criteria used to gently but surely exclude certain members of the group.[31] The naturalists involved in this meeting were keen to draw comparisons, generally in hushed tones, between those who learn quickly and are considered to have a 'good eye' as an innate capacity and those who simply lack aptitude for skilled vision. Significantly, belonging in part depends upon visual skill but not only so; as Grasseni suggests, vision itself emerges through associated rituals of participation and a sharing of socially aesthetic sensibilities. Spending time with naturalists in the field I learnt that such practices are closely connected to a certain behavioural etiquette and one which pays close attention to the significance of the presence of self and others as part of the process of learning how to see. My observations and detailed field notes describe the nuances of softly spoken tones, gentle movements and a marked preference for diffident rather than confident or conceited claims to knowledge. I increasingly became aware that comparisons drawn between the visual capabilities of fellow naturalists involved parallel commentaries on comportment; an unlikely perhaps but nevertheless clear example of bodily disciplining. Naturalists would not explicitly articulate the connections between behavioural etiquette and a shared and singular ontology brought about through the refinement of visual skills. Nevertheless it is such tacit criteria of belonging which inevitably play a vital role in creating and sustaining the structures of perception. What is made clear is that whilst 'real tigers' are willing to invest vast amounts of energy and patience in those who show not only visual promise but also a rapid intuitive grasp of behavioural etiquette, they quite swiftly dismiss and exclude those who don't 'make the

grade'. The desire to belong is a powerful one and arguably drives naturalists in the pursuit of perfection, as much as the promise of natural encounter and revelation of an accurate natural order.

Visual virtuosity, captivation and the agency of insight

> Optical virtuosi with the gifts and training to explore and extend the limits of visual experience, transcend the conventions of their visual environment and open up new worlds for our eyes. (Jay, 1993:88)

It is quite straightforward to appreciate how the nurturing and training of accurate vision takes place within a space between apprenticeship and standards, and here the description of '*square bashing'* above adds nothing new to the insights of Goodwin (1994, 1997), Grasseni (2004, 2007) and Herzfeld (2004). In particular, the organisation of naturalist visual skilling through the imparting of expert identification skills is easily expressed, gains credence, and is sustained by the confidence of taxonomic tradition and authority. Such acquiescence rewards the apprentice and expert alike with the combined (and mutually enforcing) thrills of witnessing both beauty and the spoils of accurate vision, together with a firm sense of belonging and accompaniment. And yet, something is missing from this account of an 'aesthetics of belonging'. What is missing, I think, is an appreciation of the captivating role not only of nature's beauty and the corresponding enticement of acquiring accurate knowledge of its order, but also of a certain wildness and irreverence characterising virtuosity itself, hinted at in the opening section to this paper. I gained this sense both from naturalist accounts of the very experience of *Jizz* perception, and from the witnessing of displays of *Jizz* prowess of others which I describe below. These qualities characterising virtuosity I argue are also inherent to the making and sustenance of a

naturalist 'community of practice'. The phenomenon of *Jizz* perception provides the opportunity for their flourishing whilst simultaneously relying on hard characters as evidence of accuracy.

Alfred Gell in his re-theorization of the aesthetics of art objects has argued that it is the 'barely comprehensible virtuosity' of some art which possesses the seductive power (as agential) able to captivate observers by 'securing the acquiescence of individuals in the network of intentionalities in which they are enmeshed' (1992:43). [32] The pull of attraction of the object is thus distributed throughout a nexus of relationships gathered and re-enforced by the circulation and observation of the object in-the-world. Two elements of Gell's analysis are relevant here for my appreciation of the role of virtuosity in naturalist visual enskillment. Firstly, in a section of *Art and Agency* subtitled 'The Halo Effect of Technical Difficulty' (1998:46), Gell explores how part of what secures the acquiescence of observers is the seductive power exerted by the ungraspable mystery around how an object came into being, a mystery which dons the creator, in Gell's words, with the status of '*occult technician*'.[33] Secondly, Gell argues that part of the captivating mystery of technical virtuosity is 'the power that technical processes have of casting a spell over us so that we see the real world in an enchanted form' (1992:44). The power of captivation of the 'occult technician' is thus not to transform the world for the observer but to bring about an (enchanting) shift in perception, an ability which is itself incomprehensible.

What I understand Gell to be contributing in this context is a refreshing account of what activates and propels relationships between people and things, which work together to inform certain modes of perception.[34] The distribution of agency between the creator, the object, the recipient and the reactions triggered by the encounter, as posited by Gell, helps in understanding the process by which the acquiescence with particular visual apprehensions of the world by amateur naturalists is harnessed and captured even in contexts which reward both accuracy and intuition. Reverting to hard characteristics as evidence is not an example of the 'barely

comprehensible virtuosity' animating relationships which Gell is referring to. Demonstrating hard evidence is a tangible and do-able enough practice. It is the potential to *Jizz* as a quintessentially intangible, tacit and mysterious skill which promises to bring about a shift in perception and thus captivates. It is precisely by paying attention to the captivating role of visual virtuosity (and the agency performed by insight) that it becomes possible for accurate identification (rigour) and different encounter (romance) not only to co-exist but to become mutually re-enforcing. To reiterate, it is furthermore the very existence of material evidence as a necessary resource for accuracy which rather than hinder, in fact allows for the captivating potential of *Jizz* to flourish.

My final ethnographic section refers to a week-long moss identification course and focuses specifically on one observation of the powerful and seductive allure of *Jizz* enhanced virtuosity which inspired my analysis of the captivating role of *Jizz* presented in this paper.

The asymmetrical leaf

Moss identification courses can be exhilarating, intense, arduous and occasionally quite dull. They are also of vital importance to inexperienced and experienced amateur bryologists seeking out the concentrated instruction of experts in the field. During one such course, together with about fifteen participants, I had already spent several hours appreciating a Pembrokeshire bog through a lens of bryophytic life, when one particular incident captured my imagination. The course leader (Helen), a world-renowned bryologist, was crouching in a spongy carpet densely woven from various species of *Sphagnae,* a group of mosses comprising 34 species notoriously difficult to identify. Helen was animated as she drew our attention to the challenge of differentiating between two deceptively similar species; *Sphagnum auriculatum* and *Sphagnum inundatum*. As we drew around, she

held up a minute and frail leaf in between her thumb and forefinger and explained how the two mosses can only be told apart by the asymmetrical leaves of the *S. auriculatum* compared to symmetrical leaves of the *S. inundatum*. We clustered close around Helen, hand lenses poised ready for action, as she carefully teased apart a number of small specimens of branch leaf. The first problem some of us encountered seemed to be having enough fingernail and precision to scrape off a single leaf for scrutiny. She entreated those of us in possession of a leaf of *S. auriculatum* to confidently perceive asymmetry in the branch leaves of the specimen. To clarify and highlight the salience of the difference between the two leaves, she sketched a crude image of each type of leaf in the crusty surface of some nearby peat. This was a small and simply performed example of 'situated' discursive and embodied practice. Yet the significance of this minute difference between the leaves together with Helen's attempt to guide our vision carried sudden ontological weight. We were being persuaded and convinced of the ordering of a slender slice of nature. I was witnessing a vivid example of what Goodwin refers to as 'highlighting', a specific circumscription or delineation of the amorphous. A prominent feature of an object is selected as relevant and persuasively used to structure a shared visual account of the world as part of what he describes as the quite varied visual skilling practices amongst archaeologists, policeman and chemists (1994, 1997).

As we peered obediently at the fragments of moss branch through our lenses, sharing frustrations at our inability to discern asymmetry, the role of the highlighted feature took on a degree of subtle but unexpected complexity. We discussed the fact that Helen did not in fact require this diagnostic clue to be certain of this species' identity, although she seemed to emphasise its importance to aid our visual training. Indeed, Helen explained somewhat nonchalantly, that although she chose to highlight the 'asymmetrical leaf' for pedagogical reasons, she could instantly identify this species of *Sphagnum* growing within a dense carpet of various similar species, precisely because of its *Jizz!* She added that this quality of the organism emerged through her own idiosyncratic

perception of it and would be difficult to convey to others. She also appreciated that her tacit apprehension of the organism, although defying description and explanation, was a result of years of acute and detailed observation. Helen's 'confession' had an enticing and slightly disturbing effect upon us and a rather longing sigh with a hint of exasperation rippled around the group of gathered naturalists. The difficulty we experienced in perceiving asymmetry was somehow exacerbated by our observation that Helen possessed an almost incomprehensible ability to see (and sense) the organism differently. And yet, it was this unique skill which enabled her to instantly and accurately identify this elusive species of moss. At the same time I felt that my own ability to enquire was constrained; rather than be guided towards the revels of *Jizz* perception which were kept tantalizingly out of reach, I *had* to see *asymmetry* in a leaf I could barely distinguish from the branch itself or from the stem or apex leaves on the plant.

In fact, no one in the group could see asymmetry. This realisation came as a welcome relief to all of us; a momentary form of consensus but one which separated the students from our teacher. Bernard, one of the braver, more outspoken members of the group, apparently willing to contest Helen's authority, proclaimed; '*This is too hit and miss for me!*', echoing the voices of caution referring to the limitations of *Jizz* in an earlier section of this paper. Perhaps voicing a feeling shared by the group, Bernard wondered how an authoritative account of a species could persuade and engender a shared perception, if an observation of asymmetry is subject to so much doubt and negotiation knee high in water on an exposed bog in Pembrokeshire. Consensus was reached, not that the leaf was definitely asymmetrical, but that asymmetry was something difficult to observe in the field with a 10x hand lens. At the same time, we all knew that Helen was right, in part because she possessed the visual acumen to discern asymmetry without a shadow of a doubt. More alluring and persuasive however, was her '*psychic gift'* of *Jizz* insight, the demonstration of which temporarily dispelled the significance of the pedagogical tool of the organism's diagnostic feature[35]. In this example, *Jizz* suggests that

Goodwin's reference to singular highlighted features within a visual matrix, used to actively encourage and shape shared vision, might require complementary additional explanatory factors to fully flesh out our understanding of how relationships between naturalists and organisms in the wild become significant in the collective process of visual acquiescence.

At this point Helen saved the situation, not by categorically imposing authority or by hailing the sphagnum's *Jizz* as evidence of its identity, but by underlining the importance of meticulous and rigorous observation in visual skilling. She stated, 'At this point, I say 'back to the lab!'…The identification of this species of Sphagnum is subject to confirmation'. We stuffed our specimens into pre-prepared newspaper packets, scribbled the Latin name together with a question mark and marched on behind Helen to observe the next species of interest. Back in the lab, a slide with several branch leaves of the *Sphagnum* in question was prepared. Helen then connected a compound microscope to a monitor screen so that the whole class could observe the leaves, now magnified several hundred times. Helen was triumphant! With the help of the microscope, the asymmetry could now be safely and surely demonstrated.

There are a number of points I would like to highlight from the above description which I will then relate to some general concluding points. In general terms, this story is a culmination – an expression of a fully complex 'web of intentionalities' which places the captivation of *Jizz* in a head on relationship with reliance upon concrete evidence to prove species identification. More specifically the episode on the bog and culminating in the laboratory worked to raise and then quash any doubts apprentice bryologists might have had about the species' identification. Utmost certainty about the nature of the part (the asymmetrical leaf) and the whole (the organism itself) was established by Helen but also by group consensus when back in the lab. This certainty depended upon a highlighting of a very specific and difficult-to-observe characteristic. However, and it is here

that I draw most explicitly upon Gell's insights about virtuosity, it was the special pull exerted by the witnessing of an incomprehensible and apparently non-transmissible flare that seduced the naturalists into this particular process of visual enskillment.

Simultaneously, and here I go straight to the heart of the problem set up at the beginning of the paper, it is the virtuoso flare and insight working in close collaboration with the security of hard evidence, which essentially allows accurate vision and a different encounter with nature to co-exist and be mutually dependent. To be caught in the 'web of intentionalities' of experienced naturalists is thus to achieve wondrous (enchanted) encounter and to identify and see accurately. Although the on-looking naturalists I describe were not privy to *Jizz* perception and special experience it affords, they were witness to its potential. It is the potential for such insight which seduces and activates or holds together all the faculties, objects and relationships that coalesce in the visual skilling of naturalists. An alternative experience of specific organisms is hinted at without disrupting the prevailing natural-social order dependent upon accurate species identification. It is not enough to see accurately, but it is the potential to see and experience differently which 'ensnares' naturalists and simultaneously promotes and depends upon reproducing an accurate version of the world.

Conclusion

Approaches to visual skilling from Anthropology and STS have provided rich ethnographic accounts of some of the ways in which 'professional perceptual standards' permeate and organise a web of relationship between persons, their cognitive-sensory faculties and a world of objects. Grasseni and Herzfeld, for example, (drawing initially upon the insights of Goodwin) demonstrate how ways of seeing cannot be extricated from the socio-cultural and political forces by which they are shaped. In such accounts, it appears to be the forces of discipline and control - a hegemony of standards – which activate or trigger the relationships required to generate a shared

visual account of the world in the face of potential perceptual difference. Grasseni, supported by Herzfeld's Epilogue to her edited volume on visual enskillment, concludes that ongoing strategies for visual resistance and creativity tend to be quashed and that; 'often these very strategies reinstate the marginality and subalternity of their protagonists' (2007:8). Such are the controlling effects of what Herzfeld refers to as a 'global hierarchy of value' (Herzfeld, 2004). It thus seems that in carefully demonstrating the work that goes into delegitimizing and ultimately segregating alternative visual versions of the world, Grasseni and Herzfeld do not actively consider the generative role of variety (in embodied visual apprehension) but instead instate ontic, perceptual and corresponding political fragmentation.

It is surprising to me that studies of visual skilling, expressing a firm commitment to the relational, multi-sensorial and embodied nature of vision, have not been impacted by a parallel interest in STS/Anthropology in the co-dependencies between multiple and singular ways of world sensing, knowing and making. Drawing inspiration from accounts of so-called non-western societies such as the Hagen, Piaroa and the Yolngu, for whom incommensurable accounts of the world are not only readily accommodated but cosmologically necessary (Overing,1985, Strathern, 1985, Verran, 1998, Verran and Christie, 2007), STS and anthropology have explored different ways to hold together in creative tension the possibility of versions of reality which are once singular and multiple. Such insights, I believe, bring a lot to bear upon understanding 'occidental' ways of seeing. I would hope that UK naturalists, for example, produce and share in the ontological sophistication described for certain non-western societies by accommodating rather than segregating potential difference brought about by perceptual variety.

When I first encountered naturalist accounts and performances of *Jizz*, I was initially struck not only by a vivid and quite tantalizing example of the creativity of multi-sensorial embodied perception, but also by the potential

it had for possibly generating various and potentially competing accounts of nature. I thought at first that the issue requiring analysis was the negotiation of different visual accounts of the same species; the negotiation and creation of a particular kind of ontic multiplicity. What I found was that multiplicity lay elsewhere. I have demonstrated that naturalist visual skilling relies upon an intricate co-dependency between the tacit and the literal in terms of visual – sensory perception. To understand this relationship I have delved into the intricacies of how ways of apprehending moss involve finely calibrated relationships between the sensate, visual, kinaesthetic and affective faculties. Observing the entanglement of multiple perceptual faculties was not quite enough however. What I found was that the clue to understanding the ability of *Jizz* to nurture enchanted encounter without disrupting the role of accurate vision in revealing and producing a singular natural order, lay in its quintessentially tacit and possibly unattainable characteristics. Simultaneously, this relied upon hard characters as a necessary resource for evidence. Displays of virtuoso performance both perplex and seduce naturalists into the field of shared vision and expectations. It is this unstated and rather subtle relationship between accurate identification and wondrous encounter which holds a community of observers in the close union necessary for the revelation of a wildly perceived but shared nature. *Jizz* thus presents a way of both embracing and transcending hegemonic standards shaping vision. The phenomenon presents us with a way of playfully escaping the constraints imposed by culture on how we see whilst maintaining the order and status quo by being a skill that is ultimately trusted and aspired towards.

Notes

[1] I thank Anne Secord for referring me to Coward's chapter on *Jizz* from *Bird Haunts and Nature Memories* (1922). MacDonald (2002) refers to the same chapter.

[2] The protagonists in this paper are in fact bryologists (moss and liverwort aficionados). Whilst different groups of naturalists such as bryologists use the concept and practice of *Jizz*, it is most commonly associated with

ornithology. *Jizz* has come to be recognised however throughout all naturalist circles as the particular form of *gestalt* perception referred to in this article.

[3] As will be made clearer below the term '*Jizz*' is used to refer to both the overall gestalt-type apprehension of the organism (i.e. a quality the organism possesses) and to the verb of the particular observational skill – the ability to '*Jizz*'.

[4] A description of *Jizz* perception provided by Chris Preston, Botanist working at the Centre for Ecology and Hydrology,Wallingford.

[5] See, for example Leadbeater and Miller (2004).

[6] Biological records are sightings of species across the UK documented according to the globally accepted standards of biological recording (*the 'what', 'where', 'who', 'when'* or alternatively the 4 Ws).

[7] The main UK statutory agencies for nature conservation are the Joint Natural Conservancy Council (JNCC) and Natural England who draw data from the database National Biodiversity Network (NBN) plus individual species Atlases which contain distribution maps for most UK botanical species.

[8] The system of vice-counties is broadly based on the ancient counties of Britain and was introduced by H. C. Watson in his 3rd volume of *Cybele Britannica* published in 1852.

[9]A 'voucher specimen' is a physical specimen of a species which can accompany written species records.

[10] See Secord (2002) for an explanation of the term 'neophyte' referring to novice naturalists in 19th Century UK naturalist circles

[11] Identification keys are pictorial and textual step-by-step guides which help naturalists pin down an organism's identity. See Lynch and Law (1999) for a discussion of the role of identification keys within the ornithological community.

[12] Historical accounts of naturalist visual skilling indeed suggest that Linnaeus focus upon observational skills rested upon '*an immediate taxonomy based exclusively on sight'* (Bleichmar, 2007:170).

[13] See Gibson (1979) and Ingold (2000) for further development of Polanyi's ideas on dwelling and 'sentient existence' as co-evolving with modes of cognition.

[14] Johannes Vogel, Keeper of Botany, Natural History Museum, London.

[15] See Grasseni, 2004, 2007, Herzfeld, 2004, 2007 as exemplifying this approach to hegemonic standards in practices of visual apprenticeship.

[16] 'Amateurs as Experts: Harnessing New Knowledge Networks for Biodiversity' was an ESRC funded 3 year project and a collaboration between Lancaster University and The Natural History Museum (The Principle Investigators on the Project were Claire Waterton, Robin Grove-White and Johannes Vogel).

[17] The 'objectives' of the BBS are presented on the society's website (http://rbg-web2.rbge.org.uk/bbs/bbs.htm accessed 29/1/10).

[18] Daston and Park's insights are of a historical nature but resonate with a variety of studies on scientific practice which highlight the affective and aesthetic dimensions of cognition (Keller, 1984; Nussbaum, 2001). See also Raffles (2010) for his celebration of an entanglement of thought and feeling in insect-related natural history pursuits. Florian Charvolin at the University of St. Etienne has been running a seminar series '*Les Passions Cognitives'* since 2005 at which an early version of this paper was presented.

[19] The term 'validation police' is used by many naturalists to refer, sometimes with certain trepidation, to the Vice-County Recorders and data arbiters at the Biological Records Centres. Since I undertook this fieldwork with Angela, she was elected Vice-County Recorder and thus more fully involved in receiving, validating and submitting records from her 'constituency' to the Biological Records Centre.

[20] Angela's actions and descriptions evoked for me Hayden Lorimer's reflections upon reindeer herding knowledge as 'the manual effort of an embodied act, or in the grace of its remembered movements' (2006: 503). As part of his project of 'salvaging of herding memories', Lorimer celebrates the work of John Berger as he describes herders scanning and searching for reindeer in the landscape as an act that is 'not just an intensely visual exercise' but requires prior knowledge, arrangements of memory, expectation, assumptions about season/ light, all of which are woven into the active technique of reading reindeer into the landscape.

[21] David Allen, the eminent British naturalist and social historian. Alfie is a pseudonym for a naturalist who prefers to remain anonymous.

[22] See Jamie Lorimer (2007) for a rarer and less mundane account of the sublime.

[23] From an Interview with Chris Preston, botanist working at the Centre for Ecology and Hydrology, Wallingford (28/04/09).

[24] See Ellis and Waterton (2004, 2005a and b) for a discussion of trust and 'ladders of esteem' as central to sustaining and shaping naturalist communities.

[25] A specific example provided by Chris Preston was of a dispute between a novice and training course leader involving a species of Saxifrage on Crete. This example is echoed by many others which involve some of the famous *cognoscenti* in the UK and will not be specified.

[26] Chris Preston Email (29/12/08)

[27] See also Allen, 1986, MacDonald, 2002, Matless,2001, Nicholson, 1932 for a discussion of 'New Naturalism'.

[28] Whilst this surveillance was most frequent in the more popular world of bird watching, it also occurred in botany (Agar, 2006; Allen, 1986; Secord, 2002). Agar (2006) draws upon the work of social historian and eminent naturalist himself, David Allen (1986), to draw our attention to a notorious historical tension, palpable

at the time, between a desire expressed by those organising the British botanical 'Distribution Maps scheme', for repetition, rigor and routine in the field (required to produce a comprehensive and accurate botanical atlas) and a preference on the part of some enrolled expert botanists to ramble and commune with other humans and with nature.

[29] See Agar (2006) and Allen (1986) for their suggested reasons for the uptake of this military terminology.

[30] Not all naturalists are necessarily comfortable with this kind of language ('blasting the site') but I have decided to include it as it reflects a certain approach to coverage which many naturalists manifest.

[31] See Ellis and Waterton 2005a for a more detailed discussion of (self) exclusion of UK naturalists from particular kinds of recording activities and the associated networks of surveillance of data quality.

[32] Gell argues how a tendency to essentialise agency has obscured the theoretical explorations of previous anthropologies of art and aesthetics (1992, 1998).

[33] Suchman draws upon this dimension of Gell's discussion in her exploration of the affiliative power of objects and associations drawn between objects and persons (Suchman, 2005).

[34] See Ingold 2010 for a recent critique of anthropological approaches to agency (including Gell). Ingold advocates a focus upon the energetic flow or force between relationships as a necessary way of avoiding a reduction of vibrant things emergent through relationship to mere (closed) objects.

[35] The term '*psychic gift'* is used by Coward in his 1922 description of the ability of some naturalists to perceive an organism's *Jizz*.

References

Agar J (2006) 'What difference did computers make?' *Social Studies of Science* 36(6): 869-907.

Allen D (1986) *The Botanists: A History of the Botanical Society of the British Isles through 150 Years*. Winchester, Hants: St. Paul's Bibliographies.

Bleichmar D (2007) Training the naturalist's eye in the Eighteenth Century: Perfect global visions and local blind spots. In: Grasseni C (ed) *Skilled Visions: Between Apprenticeship and Standards*. New York. Oxford: Berghahn Books.

Coward TA (1922) *Bird Haunts and Nature Memories*. London and New York: Frederick Warne & Co. Ltd.

Daston L and Park K (2001) *Wonders and the Order of Nature 1150-1750*. New York: Zone Books.

Daston L (2004) 'Type Specimens and Scientific Memory' *Critical Enquiry* 31: 153-182

Ellis R and Waterton C (2004), 'Environmental citizenship in the making: the participation of volunteer naturalists in UK biological recording and biodiversity policy' *Science and Public Policy* 31 (2): 95-101

Ellis R and Waterton C (2005a) 'Caught between the cartographic and the ethnographic imagination: the whereabouts of amateurs, professionals and nature in knowing biodiversity' *Environment and Planning D: Society and Space* 23 (5): 673-693

Ellis R , Grove-White R, Vogel, J. and Waterton C (2005b), "*Nature: Who Knows?*" English Nature, Lancaster University, Natural History Museum.

Gell A (1998) *Art and Agency: An Anthropological Theory*. Oxford: Clarendon Press.

Gell A (1999 (1992)) The Technology of Enchantment and the Enchantment of Technology. In: Gell A *The Art of Anthropology: Essays and Diagrams*. London and New Brunswick, NJ: The Athlone Press. London School of Economics Monographs on Social Anthropology; Volume 67. (See 1992 original publication in Coote J and Shelton A (1992) (eds) *Anthropology, art and aesthetics*. Oxford University Press)

Gibson J J (1979) *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin

Goodwin C (1994) 'Professional Vision' *American Anthropologist* 96 (3): 606-33

Goodwin C (1997) 'The Blackness of Black: Color Categories as Situated Practice'. In: Lauren B. Resnick, Roger Säljö, Clotilde Pontecorvo, &Barbara Burge(eds) Discourse, Tools and Reasoning: Essays on Situated Cognition (pp. 111-140).Berlin, Heidelberg, New York: Springer

Gosse PH (1902) *The Romance of Natural History*. New York: A. L. Burt Company Publishers

Grasseni C (2004) 'Skilled Vision. An Apprenticeship in Breeding Aesthetics' *Social Anthropology* 12(1): 1-15

Grasseni C (2007) 'Introduction'. In: Grasseni C (ed) *Skilled Visions: Between Apprenticeship and Standards*. New York. Oxford: Berghahn Books

Grasseni C (2007) (ed) *Skilled Visions: Between Apprenticeship and Standards*. New York. Oxford: Berghahn Books

Herzfeld M (2004) *The Body Impolitic: Artisans and Artifice in the Global Hierarchy of value*. Chicago: University of Chicago Press

Herzfeld M (2007) 'Epilogue: Envisioning Skills: Insight, Hindsight and Second Sight'. In: Grasseni C (ed) *Skilled Visions: Between Apprenticeship and Standards*. New York. Oxford: Berghahn Books

Hutchins E (1995) *Cognition in the Wild*. Cambridge, MA: MIT Press

Ingold T (2000) *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill*. London: Routledge

Ingold T (2010) 'Bringing Things to Life: Creative Entanglements in a World of Materials'. ESRC National Centre for Research Methods. NCRM Working Paper # 15

Jay M (1993) 'That Visual Turn. The Advent of Visual Culture' *Journal of Visual Culture* 1 (1): 87-92

Lawrence A and Turnhout E (2010) "Personal meaning in the public sphere: the standardisation and rationalisation of biodiversity data in the UK and the Netherlands" *Journal of Rural Studies* (in press)

Leadbeater C and Miller P (2004) *The Pro-Am Revolution*. London: DEMOS

Lorimer H (2006) 'Herding memories of humans and animals' *Environment and Planning D: Society and Space*, volume 24: pp. 497-518

Lorimer J.(2007) 'Nonhuman Charisma' *Environment and Planning D: Society and Space* 25: 911-932

Lorimer J (2008) 'Counting Corncrakes: The Affective Science of the UK Corncrake Census' *Social Studies of Science* 38 (3): 377–405

Lynch M and Law J (1999) 'Pictures, Texts, and Objects: The Literary Language

Game of Birdwatching'. In: Biagioli M(ed.) *The Science Studies Reader*. London: Routledge

MacDonald H (2002) '"What Makes You a Scientist is the Way You Look at Things":Ornithology and the Observer 1930–1955' *Studies in History and Philosophy of Biological and Biomedical Sciences* 33: 53–77.

Matless D (2001) *Landscape and Englishness*. London: Reaktion Books

Merill L (1989) *The Romance of Victorian Natural History*. Oxford: Oxford University Press

Mol A (2007) *The Body Multiple: ontology in medical practice*. Durham and London: Duke University Press

Nicholson E M (1932) *The Art of Bird-Watching, A Practical Guide to Field Observation*. London: Scribner

Nussbaum M (2001) *Upheavals of Thought: the intelligence of the emotions*. Cambridge: Cambridge University Press

Overing J (1985) 'Today I shall call him 'Mummy': multiple worlds and classificatory confusion'. In: Overing J (ed) *Reason and Morality*. London and New York: Tavistock Publications

Polanyi M (1966) *The Tacit Dimension*. Chicago and London University of Chicago Press

Prentice,R (2005) 'The Anatomy of a Surgical Simulation: The Mutual Articulation of Bodies in and through the Machine' *Social Studies of Science* 35 (6): 837-866

Raffles H (2010) *Insectopedia.* Pantheon Books

Secord A (2002) 'Botany on a Plate: Pleasure and the Power of Pictures in Promoting Early Nineteenth-Century Scientific Knowledge' *Isis* 93 (1): 28-57

Strathern M (1985) *The Gender of the Gift: Problems with Women and Problems with Society in Melanesia*. Berkeley, Los Angeles, London: University of California Press

Suchman L (1987) *Plans and Situated Actions: The problem of human-machine communication (Learning in Doing: Social, Cognitive and Computational Perspectives).* Cambridge University Press

Suchman L (2005) 'Affiliative Objects' *Organization* 12 (3): 379-399

Toogood M (1996) 'Natural States: the culture and ecology of conservation 1949-1973 (PhD Dissertation, Lancaster University)

Toogood M (2011) 'Modern Observations: New Ornithology and the Science of Ourselves, 1920-1945' forthcoming in *Journal of Historical Geography*

Verran H (1998) 'Re-imagining land ownership in Australia' *Postcolonial Studies, 1 (2):237-254*

Verran H and Christie M (2007) 'Using/Designing Digital technologies of Representation in Aboriginal Australian Knowledge Practices' *Human Technology* 3 (2): 214-227