

[The Subject](#)   [Desire](#) [Hegel \(Master/Slave\)](#)   [Death Drive](#)   [Objet a](#) [The Graph of Desire \(phase II\)](#)

---

"the real, the symbolic and the imaginary are the whole of what is, and figuring their connections is a cosmological exercise" (Bowie 195)

"The would-be truth-seeker will find that the imaginary, the symbolic and the real are an unholy trinity whose members could as easily be called Fraud, Absence and Impossibility" (Bowie 112)

The psychoanalytic theory of Jacques Lacan poses some particular problems for explication because it is primarily a synchronic scheme, while it must inevitably be explored diachronically. That is, while Lacan had increasing recourse to topologies depicting everything from the fundamental series of forces that shape and deform subjectivity to the core movement of desire which constitutes the essence of subjective being, even he had to supplement these often enigmatic diagrams with narrative commentary. This pressure is even more inevitable for the commentator at the second or third degree of remove from the original thought. Thus, in the absence of a sudden capacity to produce a full-blown and immediately comprehensible explication on the spot, I will simply begin my diachronic exploration of the fundamental structures of Lacan's psychoanalysis with the *caveat* that unless otherwise explicitly stated, the phenomena I define are to be thought of first as structures and only secondarily (if at all) as processes.

RSI and the Borromean Knot:

[Back to the top.](#)

The fundamental structure in Lacanian psychoanalysis is a tripartite confluence of what Lacan called the real, the imaginary, and the symbolic orders.<sup>1</sup> I will define each of these in turn shortly, but first it is important to conceive of their interrelationship as "the fundamental classification system around which all [Lacan's] theorising turns" (Evans 132). The intersection of the RSI constitutes the whole of the mental life of humans, whether in a cumulative way or in the various effects it produces – "together they cover the whole field of psychoanalysis" (Evans 132). Each of the orders not only constitutes a particular aspect of the mental life of the mature human, but also corresponds roughly to stages in the development of the infant human as it approaches maturity. Nonetheless, while it is tempting to think of the orders as stages through which the individual moves, we must resist this temptation and retain their purity as orders or registers in which, through which, and by which the individual is determined: "The symbolic, the imaginary and the real are not mental forces, personifiable on the model-builder's inner stage, but *orders* each of which serves to position the individual within a force-field that traverses him" (Bowie 91). This insistence on the existence of RSI as orders or forces that traverse the individual allows us to comprehend that though together they comprise a structure, that structure is far from static. Rather, the various orders contained in the RSI configuration constantly act on each other, defining each other and themselves in contradistinction to one another. They are simultaneously mutually interdependent for their definition and utterly incommensurable. "The symbolic, the imaginary and the real pressurize each other continuously and have their short-term truces, but they do not allow any embracing programme for synthesis to emerge inside or outside the analytic encounter. The three orders together comprise a complex topological space in which the characteristic disorderly motions of the human mind can be plotted" (Bowie 98-99). Like

a perpetually stymied dialectic, the three orders define themselves in purely negative relationships to each other yet never come to a point of *Aufhebung* at which each is subsumed by the others to produce a clear, pure, and non-pathological synthesis. The interaction of these three orders produces the analysable human subject even as their encroachment upon each other produces a variety of more or less serious disruptions in that subject.

Perhaps the easiest way to conceive of the interaction of the RSI is to employ Lacan's model of the Borromean knot.

*Figure 1 - a 2D representation  
a 3D representation.<sup>2</sup>*

*Figure 2 -*

The Borromean knot is a topological conceptualisation of the RSI in which each order is depicted as a circle that links each of the other orders. It is "a way of illustrating the interdependence of the three orders of the real, the symbolic and the imaginary, as a way of exploring what it is that these three orders have in common" (Evans 19-20). Its chief value lies in the fact that it "is formed from two separate links joined to each other by a third, and in such a way that if any one of the links is severed the whole thing falls apart"

(Bowie 194). That is, each of the orders is fundamental to the whole in such a way that the separation of any one would automatically result in the collapse of the entire nexus, with catastrophic results for the individual constituted and traversed by it: "each term is sustained only in its topological relation with the others" (Lacan S11 89, qtd. in Evans ix).

This feature of the Borromean knot generates one of the keys to understanding Lacan's quasi-dialectical conception of human being: "that which is excluded from sense-making is that which makes sense hang together; no two agents or qualities or postulates can be coupled or contrasted without a mediating third. Everything that exists ex-sists – has its being in relation to that which lies outside it – and dichotomies and complementarities are no exception to the rule" (Bowie 194). The basic thrust of Bowie's explication of the RSI is that each order defines itself in a negative relation to the other two orders, generating its positive attributes primarily by excluding some aspect of one or both of the other orders. Thus the symbolic is that which utterly excludes the real and which dissolves the imaginary. It relies for its internal consistency on the constant and unwavering exclusion of the other two orders, producing a definitional logic of (b)orders and their impossible/inevitable transgressions: this is the meaning of Bowie's claim that "Everything that exists ex-sists – has its being in relation to that which lies outside it." The location of some incommensurable other against which it can set itself is the fundamental condition for each of the orders to maintain not only its consistency but its very existence. This characterisation points to the fundamental role played by antagonism and aggressivity in the Borromean Knot as each of the orders fights for its supremacy by attempting to annihilate the conditions of its own existence (i.e. the other two orders). The tensions, pressures, and cross-order "cuts" produced by this conflict constitute both the central phenomenon with which we are here concerned, the subject, and the various discontents that plague him or her.

### The Real:

[Back to the top.](#)

The words most commonly used to define the real are "ineffable" and "impossible": "it is impossible to imagine, impossible to integrate into the symbolic order, and impossible to attain in any way" (Evans 160; see also Bowie 95). Indeed, the chief qualities of the real in Lacan's scheme are that it is unsymbolisable and unrepresentable, that it precedes, exceeds, and supersedes any attempt to give it a coherent and comprehensible form. "The undecidability of the concept 'real' is scrupulously preserved. The real is an uncrossable threshold for the subject, and not one that can be sidestepped in the analytic encounter" (Bowie 106). Approachable only asymptotically, the real is most often defined by way of paradoxes; it

lies beyond the network of signifiers, yet causes an uncontrollable upheaval within it. It is firm and obdurate, yet its intrusions upon the subject cannot be anticipated or forestalled. [...] The real is more forcible than anything else in the world, yet it is phantasmal, shallow and fortuitous. [...] The real is inward and outward at once, and belongs

indifferently to sanity and to madness. In all its modes, it successfully resists the intercessions of language. (Bowie 110)

Furthermore, this undecidability is a feature of the real upon which Lacan insisted as its most essential defining feature: "Lacan takes pains to ensure that the real remains the most elusive and mysterious of the three orders, by speaking of it less than of the other orders, and by making it the site of a radical indeterminacy. Thus it is never completely clear whether the real is external or internal, or whether it is unknowable or amenable to reason" (Evans 160). In a realm characterised by the fundamentally negative mode of definition and differentiation (i.e. the RSI), the real stands out as extraordinarily negative and exceptionally undifferentiated.

This very difficulty is, of course, the entire point of the real as it functions both in the RSI and in Lacan's thought overall. The difficulties that arise from trying to define the real point directly to its nature and to the nature of the other two orders against which it is set. Insofar as it is "impossible to imagine" and "impossible to integrate into the symbolic order," the real is utterly unavailable to the very categories of thought and articulation by which humans organise their worlds (both mental and physical). Any attempt to think the real, then, is always already defeated in its perverse effort to make the real conform to the standards of the symbolic (the conceptual and linguistic apparatus by which we consciously perceive and configure reality). Nonetheless, the real persists (it ex-sists without existing) as a necessary component of the RSI nexus, and some attempt to conceive it must be made if we are to understand its role in Lacanian psychoanalysis. Indeed, even though the real is inherently unrepresentable, the very integrity of the Lacanian topology insists that it constitutes a part of all of us and must, therefore, be at least obliquely available to intuitive understanding, if not articulation.

One way in which this effort has been undertaken has been to attempt to think the real in terms of early development, whether of the species or of the infant child. This approach involves thinking of the real in terms of temporal regression to a time which we all, both as members of a species and as individuals, must at one time have experienced and which we all, therefore, must be able of conceiving, however abstractly. Perhaps the most effective way of thinking of the real, comes in Evans's comparison of the real to the Kantian thing-in-itself as "an unknowable x" (205).<sup>3</sup> Like the Kantian thing-in-itself, the real can never be directly experienced, though we can infer its existence from the effects it has both on us as individuals and on the world in which we move. Unlike the thing-in-itself, however, the real is not an abstraction toward which one must turn one's attention if it is to be experienced. Rather, the real insistently makes its presence known through periodic irruptions into the other two orders, unsettling their modes of organising the world and insisting on its equal, if rather more obscure, place in the Borromean topology of subjectivity. Thus, whereas the Kantian thing-in-itself exists always cloaked behind its representations in the epistemological categories to which it is subjected (i.e. whereas its materiality is perpetually cloaked by its abstraction), the real actively solicits the attention of the individual, often through an aggressive insistence on its materiality, making itself felt through the very impermeable border which prevents access to it.

Malcolm Bowie points out this aspect of the real in a series of mundane examples that illustrate the capacity of the real to disrupt the imaginary and symbolic constructs within which we live: "Lacan's *tuché* [i.e. the irruption of the real into reality<sup>4</sup>] is in one sense very simple: it is a tile falling on to the head of a passer-by, a person from Porlock bringing a creative trance prematurely to its end, or, to take one of Lacan's own examples, a knock on the door that interrupts a dream" (Bowie 103). In these examples we can see how the real is never directly present to our experience, but rather makes itself felt in its contingent effects. Thus, the "tile falling on the head of a passer-by" is not a direct intervention of the real, but an event through which the real makes itself felt in its sheer contingency, its materiality, and its disruption of the order imposed on the raw material of the world by the symbolic acts of humans. The deviation from the ordering of the world (i.e. by putting up tile roofs to ward off the vagaries of the weather) captured in the falling tile thus serves two purposes in manifesting the effects of the real: first, it demonstrates the persistent element of contingency and outright danger that lurks in the failure of these ordering practices to be exhaustive and comprehensive (i.e. to take into account all possible eventualities); second, it manifests to the passer-by in a very immediate way the real of his own mortality – it insists on the contingency of human life, however well ordered it may appear.

The extent to which the real is the locus of a profound truth about human being is revealed in the last example, that of the dream that is interrupted by a knock on the door. This is the only example in Bowie's account that is drawn directly from Lacan, and it is telling when we situate it in relation to the example of the falling tile. Whereas the falling tile represents an irruption of the real that seems to violate the normal conscious ordering of the world, the knock on the door that disturbs the dream casts the intervention in precisely the opposite terms, aligning the knock with the falling tile and the dream with the unaware passer-by. The suggestion here is that the passer-by inhabits a world akin to a dream world, utterly unaware of the various contingent effects and threats to the integrity of that world posed by an unanticipated and unpreventable interruption of the real. The knock on the head sustained by the passer-by is thus structurally equivalent to the knock on the door sustained by the dreamer; the passer-by's mortality is equivalent to the finitude of the dreamer's dream. The salient point here is that the real, though never directly encountered (except perhaps in death), is everywhere felt in the radical contingency of daily life, that it forms the lie-giving truth that underwrites both of the remaining orders, the imaginary and the symbolic. In their basis upon and opposition to the real, then, these two latter orders have it built into their very fabric (if only by the vehemence of its exclusion), and we are compelled to read any disruption in either order as potentially an irruption of the real (even if it is masked in some way).

One final distinction that is vital to understanding the real, and which is raised by the examples given above is that between the real and reality. Effectively, this distinction is one of structural effects versus the content through which these structural effects are manifest and detected. It makes no difference, for example, whether what falls on the passer-by's head is a tile or a brick; indeed, nothing need fall on him or her at all – an out of control car could perform the same function. What matters is the structural disruption to the order of the phenomenal world brought about by this experience of sheer

contingency. Our understanding of this relationship between contingency and order is facilitated by the opposition of the real to reality. Simply put, the real is that which is utterly unymbolisable, while what we call reality is that particular order of the phenomenal world imposed by the use of symbolic structures (i.e. language)<sup>5</sup>: "In this opposition, the real is placed firmly on the side of the unknowable and unassimilable, while 'reality' denotes subjective representations which are a product of symbolic and imaginary articulations" (Evans 161); "Canceling out the real, the symbolic creates 'reality,' reality as that which is named by language and can thus be thought and talked about" (Fink 25). reality is the order and organisation imposed on the *hic et nunc* of the phenomenal world, while the real is the insistently undifferentiated flux out of which that order and organisation is carved. This distinction takes us somewhat ahead of ourselves, as it necessarily refers to the nature and powers of the symbolic order; however, it has the dual purpose of clarifying the real in contrast to something more readily graspable than either of the remaining two orders (the notion of "reality" as something more or less discursively and performatively constructed) and exposing the practical difficulties of defining that which by definition exceeds the capacity of language.

#### The Imaginary.<sup>6</sup>

[Back to the top.](#)

The imaginary is the realm of unarticulated (but articulable) identifications and idealisations which are the building blocks of fantasy and ego; it is the most basic level of self-conception, the precursor to subjectivity. The chief difference between the real and the imaginary is that the imaginary is available to symbolisation. The difficulty with discussing the imaginary is that once it has been symbolised it ceases to be imaginary<sup>7</sup>; though the content remains the same, a formal metamorphosis takes place such that the new incarnation is never quite adequate to its fantastic precursor. It is in this sense that "the imaginary is always already structured by the symbolic order" (Evans 82-83) – as soon as it is articulated, elevated into consciousness, it is subject to the structuring imperative of the symbolic order.

This dual nature of the imaginary, its fundamental incompatibility with symbolisation despite its vulnerability to being symbolised, points to its status as the middle ground between the real and the symbolic, both in terms of the individual's development as an infant and in terms of the topology of subjectivity as depicted in the Borromean knot. Generated by the individual's developmental experience of the mirror stage (about which I will have more to say shortly), the imaginary order is the domain of the ego, a realm of identifications (i.e. spurious but necessary) with objects in the world by which the individual ceaselessly attempts to shore up his or her identity. This ongoing process of identification is the result of the trauma of the mirror stage, during which the infants' primary narcissism (or inability to differentiate between himself or herself and any external entity or object) is fractured. The result is the ability to perceive the differences between self and other (which amounts to the advent of the self), inaugurating the lifelong quest to return to the pre-imaginary stage of primary narcissism during which there was no differentiation between self and other.<sup>8</sup> In pursuit of this impossible goal the individual develops fantasised identifications that reassure him or her by imaginatively



reducing difference to identification, producing in the process an imago or ideal ego, the vision of him or herself which he or she takes to be the essence of identity.

a) *The Mirror Stage:*

[Back to the top.](#)

The first significant stage of infant development which Lacan discusses is the mirror stage. Taking place between the ages of six and eighteen months, the mirror stage is not merely a developmental stage which is left behind once it has been traversed, but "represents a fundamental [and enduring] aspect of the structure of subjectivity" (Evans 115). Starting with the notion that "there is a real *specific prematurity of birth* in man" (Ecrits 4), Lacan holds that the lack of motor control observed in human infants is countered by an advanced degree of visual ability. The disjunction between this underdeveloped motor control and advanced visual ability attains a formative status when the infant first beholds his or her own image, whether in a mirror or in the imitative actions of another person (Evans 190). Confronted with his or her own mirror image, the infant recognises it as his or her own. That is, at this point, the infant human undergoes a process of radical recognition whereby he or she projects the contents of his or her own consciousness onto the specular image with which he or she is confronted.<sup>9</sup> In the infant's budding consciousness, this projection results in a doubling whereby the specular image is perceived as recognising the infant in return. The infant recognises the image, but also perceives that the specular image recognises him or her – it opens up a new conceptual territory in its role as an entity that is both self and other at the same time. The traumatic aspect of this recognition comes from the infant's recognition of the organic wholeness of the specular image, which stands in glaring contrast to the perceived fragmentation of his or her own body due to his or her underdeveloped motor ability. He or she recognises the specular image as his or her own, but simultaneously recognises a fundamental incompatibility, one which seems to indicate a wholeness in the specular image which is as yet unavailable to the individual: "this *Gestalt* [...] symbolizes the mental permanence of the *I*, at the same time as it prefigures its alienating destination" (Ecrits 2).

This dual recognition produces two results, both of which are aspects of the same reaction. The first of these is that the infant admires the wholeness of the specular image and desires identification with that image. This is the formation of the ideal ego, which may loosely be conceived of as the unarticulated thought, "I want to be that (in which I perceive an ideal version of myself)." The more detrimental aspect of this dual recognition is linked to this desire insofar as the urge to unite with the image is also a rivalrous urge to dominate and assimilate it. In this regard, the wholeness of the image is perceived as threatening because it points to the fragmented condition of the infant's body. Part of the infant's desire to ascend to the same degree of organic wholeness perceived in the specular image is thus an aggressive tendency to become that image by consuming it, by emptying its content into himself or herself; i.e. by *mastering* it.<sup>10</sup> To resolve the aggression this tension provokes, the infant identifies with the image, suppressing any awareness of its difference and producing the imaginary formation known as the ego (the always illusory and deceptive image one has of one's self which is). This advent of the ego "situates the agency of the ego, before its social determination, in a fictional direction, which will always remain irreducible for the individual" (Ecrits

2). With the advent of the ego the individual enters the imaginary order and undertakes the lifelong series of identifications between ego and imaginary object (i.e. the imaginary attributes of a given object) which constitute the dynamic sense of "self."

The pre-eminent consequence of this accession to the imaginary order is that of the relationship between the newly formed ego and the specular image. Both in terms of the initiation into the imaginary order and the overall integrity of the RSI nexus, it is nearly impossible to overestimate the force of this identification: "The imaginary exerts a captivating power over the subject, founded in the almost hypnotic effect of the specular image" (Evans 83). The primary impact of this hypnotic effect is that it generates (in the very process of producing the ego) a process of alienation and *méconnaissance* (misrecognition) that will both facilitate the individual's accession to the symbolic order and plague him or her with a sense of incompleteness throughout life: "This moment in which the mirror-stage comes to an end inaugurates, by the identification with the *imago* of the counterpart and the drama of primordial jealousy ... the dialectic that will henceforth link the *I* to socially elaborated situations" (*Écrits* 5). In identifying with a specular external image (which is then internalised as the ideal ego), the infant undertakes a paradoxical process that is both irreversible and unsustainable. The conception of the self (ego) as identical with, yet threatened by and aggressive toward, the other (specular image) is at bottom alienation pure and simple; seeing him or herself as the other and other as self makes the very notion of selfhood one typified by a perpetual oscillation between projection and assimilation. The self and other are thus two sides of the same process, at the heart of which is alienation; they are mutually dependent on each other for their definitions, imaginatively existing while in reality merely ex-sisting: "The ego and the counterpart form the prototypical dual relationship, and are interchangeable. This relationship whereby the ego is constituted by identification with the little other means that the ego, and the imaginary order itself, are both sites of a radical alienation" (Evans 82). As Lacan says, although in an inversion of terms which reveals the mutually constitutive relationship of alienation to the imaginary, "alienation is constitutive of the imaginary order" (qtd. in Evans 82). Alienation, the ability to think the self as other and the other as self is thus the defining feature of the I, the basis for the fantasy of selfhood.

b) *Méconnaissance*:

[Back to the top.](#)

The name Lacan gives to this process of identity construction is *méconnaissance*: "self-knowledge (*me-connaissance*) is synonymous with misunderstanding (*méconnaissance*), because the process by which the ego is formed in the mirror stage is at the same time the institution of alienation" (Evans 109). In a typically Lacanian play on words, Evans points to the fundamental constitutive feature of the imaginary order and of all imaginary processes. The logic which lends this pun more weight than simply that of a clever word-play is that of an implicit grammar behind the imaginary identification of ego with specular image. In contrast to the ego-ideal ("I want to be that"), the ego is a version of "I am that."<sup>11</sup> The symbolisation of this identification in this way allows us to see clearly into the irrationality governing the imaginary. The predicate "that" in the ego characterisation "I am that" deprives the subject ("I") of its content; the descriptive verb "am" effectively becomes a transitive that reveals the hollowness of the ego in its attempt



to attain wholeness through the identification with and assimilation of an endless variety of "thats." The illusions of identification produced in the imaginary, "those of wholeness, synthesis, autonomy, duality and, above all, similarity" (Evans 82) thus turn out to be "surface appearances which are deceptive, observable phenomena which hide underlying structure" (Evans 82).<sup>12</sup>

This process of *méconnaissance*, originally conceived of by Lacan as merely a stopping point on the path of psychic development (in his work from 1936-1949), becomes a constitutive feature of the mental life of the individual as the mirror stage loses its temporal focus and takes on a spatial reference (from 1950 on) (Evans 115). The "stade" of the original French formulation "*stade du miroir*" expands its meaning to include not only the temporal "stage" of routine translation, but also the spatial "stage" or "arena" of its secondary meaning (Evans 115). In this expanded conceptualization of the lasting effects of the mirror stage as the inaugurating moment of the imaginary order, the original *méconnaissance* that engenders the ego is compulsively repeated in a series of identifications with (and potentially disabling fixations on) objects in their imaginary capacities (i.e. imaginary objects):

the *mirror stage* is a drama whose internal thrust is precipitated from insufficiency to anticipation – and which manufactures for the subject, caught up in the lure of spatial identification, the succession of phantasies that extends from a fragmented body-image to a form of its totality that I shall call orthopaedic – and, lastly, to the assumption of the armour of an alienating identity, which will mark with its rigid structure the subject's entire mental development. (*Ecrits* 4)

The erstwhile transformative stage of ego development thus becomes an enduring psychic structure which constitutes the unsymbolised interiority of "identity." Coeval with the ego, the imaginary thus persists as the ground on which it thrives, holding its own against the violent encroachments of the real and the divisive incursions of the symbolic.

Perhaps the best example of the concrete instance of the imaginary identification between the ego and imaginary objects is provided by the way in which advertising works to create irrational but compelling associations with objects, even in the face of the obvious incommensurability between the objects and that which is associated with them. Thus most commonly clothing or automobile commercials will use only slim, attractive spokespeople in clean, hygienic, and affluent surroundings as a way of creating matrices of imaginary associations around the objects for which they wish to create a desire. When the individual sees these associations made, he or she "recognises" some aspect of himself or herself in the imaginary field created around the object, identifies with it, and seeks to possess it as a concrete way of declaring his or her identity. The force of these imaginary identifications is manifest in the fact that even though they collapse into insipid manipulations with the least attempt at symbolisation (that is, representation in language, rather than merely by associations of images), they nonetheless persist as powerful determinants of individual ego-formations and behaviour patterns.<sup>13</sup> In more theoretical terms,

the original identificatory procedures which brought the ego into being [i.e. the mirror stage] are repeated and reinforced by the individual in his relationship with the external world of people and things. The imaginary is the scene of a desperate delusional attempt to be and to remain 'what one is' by gathering to oneself ever more instances of sameness, resemblance and self-replication; it is the birthplace of the narcissistic 'ideal ego.'  
(Bowie 92)

The circularity and self-referentiality of this process is abundantly clear in Bowie's articulation, as the ego both constructs an ideal version of itself on the basis of various imaginary features with which it would like to be identified, and then acts as though it unpremeditatedly "recognises" itself in objects that bear an imaginary correspondence to that ideal. Basically, the imaginary is the scene in which the ego undertakes the perpetual and paradoxical practice of seeking "wholeness, synthesis, autonomy, duality and, above all, similarity" through identification with external objects. Each such identification is necessarily illusory, however, as it is but a pale imitation of the originary wholeness that was sacrificed in the primal identification of the ego with its specular image in the mirror stage.

There is, then, no room in Lacanian psychoanalysis for a conception of the self as some essential feature of one's identity to which one must be true, which one must "find," and above all which one must know.<sup>14</sup> The "self" as traditionally conceived is but a monumentalisation of the illusory ego; indeed, Lacan goes so far as to state that this notion of a coherent "self" or ego is in fact a sign of pathology: "The ego is structured exactly like a symptom. At the heart of the subject, it is only a privileged symptom, the human symptom par excellence, the mental illness of man" (Lacan S1 62, qtd. in Evans 51). Part of Lacan's reaction against the line of philosophical thought that descends directly from Descartes, the abandonment of the self or ego as the primary category of individual being is one with his insistence on the illusory nature of the imaginary order and his allegiance to the supremacy of the symbolic order: "Lacan sets out to inhabit the linguistic dimension that the Cartesian *cogito* failed to acknowledge. The subject is irremediably split in and by language, but 'modern man' still has not learned this lesson" (Bowie 77). Picking up where Freud left off, Lacan proposes to make this lesson inescapable.

### The Symbolic:

[Back to the top.](#)

As the realm of images, the imaginary is the site of the half of the linguistic sign designated by Saussure as the signified, the mental image that corresponds to the signifier, the auditory sound or graphic mark that is arbitrarily linked to that image: "Whereas the signifier is the foundation of the symbolic order, the signified and signification are part of the imaginary order" (Evans 83). The other half of the linguistic equation which aligns the imaginary with the signified is the symbolic order, the realm of the signifier, "the realm of movement rather than fixity, and of heterogeneity rather than similarity. It is the realm of language, the unconscious, and an otherness that remains other" (Bowie 92). In contrast to the imaginary, which strives for similarity and identification, the symbolic is the site of constant motion. The illusory halting of the

quest for identification that characterises activity in the imaginary is here replaced by the pure and incessant deferral of meaning through the endless slide of signifiers which refer primarily to each other and only provisionally (and illusorily) to particular signifieds. In terms of the individual's psychic development, the accession to the symbolic is the final step at the end of the mirror stage, the point at which the imaginary identification that defines ego formation gives way to symbolic identification. At this point, the individual who has adapted to the dichotomous configuration of self and other at last identifies himself or herself as the object of the paternal function – the intervention in the infant's enjoyment of the mother's body. This primal "No" linguistically disrupts the imaginary identification of the infant with his or her mother and begins to situate him or her in the symbolic order, the order of the law, of interdiction, and of desire (this process is advanced by the infant's use of language to articulate the concept of absence. See p. 309, below). Whereas imaginary identification posits some ground of shared essence, symbolic identification involves the subject's identification with a prohibition, with that which is not allowed (because impossible), and thus with absence or lack as the truth of subjectivity. From this point on the individual is a subject (as distinct from an ego or a self), an entity created by a linguistic act. This linguistic act is then internalised, making language the primary structuring device of his or her participation in the social world. This process is akin to that which makes individuals in a society into those legal entities called subjects simply by the arbitrary assertion of the unquestionable authority of a particular discourse, in this case the legal discourse.

In terms of characterisations, then, whereas the real was most often equated with the impossible and ineffable and the imaginary with the illusory and deceptive, the symbolic is equated with supremacy and law. Lacan famously maintained in all situations the supremacy of the symbolic, an unequivocal point which draws its force from two justifications. First, the symbolic is supreme over the imaginary and the real because it is the only way in which we can comprehend either one of the latter two orders. Any attempt at definition, understanding, comprehension, or even simply thinking either the real or the imaginary is necessarily governed by the dominance of the symbolic as the only order in which all such efforts can be undertaken. As the only way in which we can express to ourselves the processes and conclusions of our cogitations, the symbolic reigns over any approach to the other orders.

Second, the symbolic is supreme in a more profound structural way in its governance of the other two orders. This governance extends beyond the basic terms of conscious comprehension to the structuration of the psyche itself. That is, as the most sophisticated and complex of the structuration processes of which the psyche is capable, the symbolic is also the most sophisticated, complex and therefore effective at cutting across the other two orders to divide them up in ways that render them useful. Whereas the imaginary order had only to cut across the real in order to create its structure, the symbolic order requires the force to cut across both the imaginary (the central process of analysis) and the real. This supremacy is demonstrated perhaps most clearly in the force with which the symbolic manages to repress those elements of the real and the imaginary which it needs to repress in order to constitute and sustain itself (although of course this repression is never fully successful):

The totalising, all-encompassing effect of the symbolic order leads Lacan to speak of the symbolic as a universe: "In the symbolic order the totality is called a universe. The symbolic order from the first takes on its universal character. It isn't constituted bit by bit. As soon as the symbol arrives, there is a universe of symbols" (S2, 29). There is therefore no question of a gradual continuous transition from the imaginary to the symbolic; they are completely heterogeneous domains. Once the symbolic order has arisen, it creates the sense that it has always been there. (Evans 202)

The transition out of the mirror stage (though never fully beyond it) marked by symbolic identification is thus a radical point of departure at which the imaginary and real are suddenly cancelled, though they are also retained as necessary conditions of possibility for the symbolic. Furthermore, the advent of the symbolic order retroactively structures the preceding orders such that they no longer maintain their originary force and wholeness, but are always already cut across by the powerful divisions of the symbolic order. The diachronic exposition of the RSI here reveals its inadequacy, as it necessitates chronological reversal if we are to retain fidelity to Lacan's synchronic topology of the nexus.<sup>15</sup>

#### The Symbolic Order and Language:

[Back to the top.](#)

Since the symbolic order is necessarily so central to any language-oriented discussion, we need also to be aware of its conceptual genealogy, the sources upon which Lacan drew for his basic formulations of the symbolic's structure and functions. The first of these influences is the structural anthropology of Marcel Mauss and Claude Lévi-Strauss, whose conceptions of society and social functions as symbolic structures and functions form the ground on which Lacan erected his conception of a symbolic order (Evans 201). More than simply borrowing the concept of a symbolic function from Lévi-Strauss and Mauss, however, Lacan adapted wholesale the informing principles of their approach, "prais[ing] Marcel Mauss for having shown that 'the structures of society are symbolic'" (Evans 201) in the body of his most famous collection of work, *Écrits*. This open acknowledgment of Mauss and Lévi-Strauss as influences both broadens our understanding of how Lacan conceived of the symbolic order and opens the way for considering other important points of reference in situating it.

Indeed, it is precisely in Lacan's adaptation of Lévi-Strauss that we find Ferdinand de Saussure, the next major influence on the conception of the symbolic:

Lacan takes from Lévi-Strauss the idea that the social world is structured by certain laws which regulate kinship relations and the exchange of gifts (see also Mauss, 1923). The concept of the gift, and that of a circuit of exchange, are thus fundamental to Lacan's concept of the symbolic (S4, 153-4, 182).

Since the most basic form of exchange is communication itself (the exchange of words, the gift of speech; S4, 189), and since the concepts of

law and of structure are unthinkable without language, the symbolic is essentially a linguistic dimension. (Evans 201)

Lacan's conception of the symbolic as "essentially a linguistic dimension" draws heavily on Saussure's distinction between signifier and signified such that the symbolic is the realm of the signifier while the imaginary is the realm of the signified. The key aspect of Saussure's conception of this relationship is that the link between any given signifier and signified is arbitrary. Signifiers only gain value (i.e. content or a claim to a particular signified) in the process of opposition and relation to other signifiers. Since the connection between the signifier and the signified is arbitrary, the only way any kind of stability can be obtained is if the signifier habitually associated with a particular signified retains its claim through a process of differentiation not from other signifieds, but from other signifiers – it asserts its claim to meaning not by declaring a positive connection to the signified, but by declaring a negative relationship to all other signifiers.<sup>16</sup> And since direct access to the signified (the imaginary) of any given signifier is either impossible or incommunicable, we are restricted to the endless play of signifiers as we try to use language to manage our world, an approach which is surprisingly effective given the arbitrariness of the signifier/signified connection in any given instance.<sup>17</sup> Lacan's conception of the symbolic, though it is informed by this concept in its totality, focuses on the realm of the signifier, locating the signified in the imaginary and that which is excluded from this binary in the real.

a) *Metaphor and Metonymy:*

[Back to the top.](#)

To the overall conception of linguistics he borrows from Saussure Lacan adds Roman Jakobson's distinction between metaphor and metonymy:

On the basis of a distinction between two kinds of aphasia, Jakobson distinguished two fundamentally opposed axes of language: the metaphorical axis which deals with the selection of linguistic items and allows for their substitution, and the metonymic axis which deals with the combination of linguistic terms (both sequentially and simultaneously). Metaphor thus corresponds to Saussure's paradigmatic relations (which hold *in absentia*) and metonymy to syntagmatic relationships (which hold *in praesentia*). (Evans 111)

That is, metaphor can be seen as having a vertical relationship, in which the line between the signifier and the signified is crossed, as the signifier passes over into the signified and a new signifier is produced. For example, in the metaphor "Juliet is the sun" the various signifiers that might have stood in place of "the sun" (glorious, bright, fair, beautiful) thus pass through the barrier between the signifier and the signified, joining that object designated as "Juliet," and become signifieds of the new signifier, "the sun" (this example is drawn from Evans 111). A compression of linguistic space and relations, metaphor is the direct substitution of one signifier for another such that the second signifier ("the sun") supersedes the first (glorious, bright, fair, beautiful) in relation to the signified ("Juliet"). This process is the basic structure of identification as it occurs in the imaginary "since [it] consists in substituting oneself for another" (Evans 113). And insofar as this

process escapes full symbolization (i.e. insofar as it is a compression of language that brings the imaginary into play as an equal partner in the linguistic production of meaning), Lacan reads it as the basic structure of the symptom, as an indicator of a breakdown of the process of symbolising the imaginary: "if the symptom is a metaphor, it is not a metaphor to say so [...] the symptom *is* a metaphor" (Ecrits 175).

The second term which Lacan borrows from Jakobson to fill out his understanding of the symbolic order is metonymy: "following Jakobson, Lacan links metonymy to the combinatorial axis of language, as opposed to the substitutive axis" (Evans 113). If metaphor is a process of substitution, whereby one signifier comes to stand in for another in relation to a given signified, then metonymy is a purely diachronic movement above the barrier separating signifier from signified. In contrast to the vertical motion of metaphor, it is a horizontal movement along the chain of signification, as "one signifier constantly refers to another in a perpetual deferral of meaning" (Evans 114). As the only realm in which meaning is generated, the symbolic's dependence on the metonymic function of signifier relations thus becomes the primary focus of Lacan's concern with language. He emphasises the metonymic deferral of meaning that takes place in the incessant play of signifiers, referring to the ready movement of the chain of signifiers over the signifieds as *glissement* (slippage). This designation of the movement along the signifying chain as a slippage emphasises Lacan's re-writing of Saussure's concept such that the relationship between signifier and signified ceases to be stable (if arbitrary) and becomes profoundly unstable.

*b) Point de Capiton:*

[Back to the top.](#)

For Lacan the link between signifier and signified is so precarious that whereas Saussure saw the whole system as more or less grounded (though the possibility of slippage constituted his great contribution to twentieth-century linguistics), Lacan sees only occasional points of stability. These points of stability are referred to as *points de capiton*, or "quilting points," points "by which the signifier stops the otherwise endless movement (*glissement*) of the signification" (Ecrits 303) to produce "the necessary illusion of a fixed meaning" (Evans 149). Perhaps the most important feature of the *point de capiton* is that the stability it provides is, however necessary, an *illusion*, as is the semblance of deep meaning produced by metaphor and on a larger scale all imaginary identification. Indeed, one precise and readily-comprehensible way to conceive of both metaphor and the *point de capiton* is as instances of imaginary identification disrupting the integrity and rationality of the symbolic order itself. Though these disruptions are strictly speaking inimical to the symbolic order, they are also vital to its existence as a field for producing meaning, for such disruptions serve to anchor the signifying chain and keep it from devolving into a psychotic process of pure linguistic self-referentiality without even the illusion of external reference (Evans 149).<sup>18</sup>

*b) Chain of Signification:*

[Back to the top.](#)

The signifying chain is the privileged site of Lacan's situation of temporality, subjectivity, and above all, desire. It belongs only to the symbolic order, though it has



effects in and is affected by the imaginary as well. It is the locus of the signifier divorced from the signified in its perpetual play of deferral and provisionally generated meaning, sustaining the Saussurean dictum that "meaning is not found in any one signifier, but in the play between signifiers along the signifying chain and is therefore unstable" (Evans 185). Whereas the meaning associated with the interaction between the symbolic and the imaginary (via *points de capiton*) is only a provisional, illusory, and ephemeral function of the link between the signifier and the signified, Lacan's conception of the chain of signification reduces meaning to a product of anticipation and deferral: "the signifier, by its very nature, always anticipates meaning by unfolding its dimension before it" (Ecrits 153).

The signifying chain is, therefore, fundamentally diachronic, perpetually unfolding and perpetually in process: "A signifying chain can never be complete, since it is always possible to add another signifier to it, *ad infinitum*, [...] signification is not present at any one point in the chain, but rather meaning 'insists' in the movement from one signifier to another" (Evans 187-188).<sup>19</sup> None of the individual signifiers which go to make up the signifying chain contains meaning in any positive way, but rather meaning "insists" as a function of their interaction. Lacan clarifies this distinction as one between a conception of the signifying chain in which meaning "consists" in a given signifier and one which recognises the pre-eminence of "insistence" as the production of meaning. Like Hopkins's poetic concept of inscape, the meaning of a given instance of signification can not be readily discerned from the external appearance of a sign, but must be deduced from the outward indications of a meaning that is always elsewhere and incomplete: "it is in the chain of the signifier that the meaning 'insists' but that none of its elements 'consists' in the signification of which it is at the moment capable" (Ecrits 153). In its fundamental incompleteness and differential production of meaning, the signifying chain is perhaps most easily characterised by the Derridean concept of *différance*, to which it bears a close conceptual affinity and intellectual ancestry.

The incorrigible diachrony captured in both Derrida's term and in Lacan's "insistence" of meaning not only challenges traditional conceptions of signification as a process of reference and equivalence between the signifier and the signified (let alone the sign and the referent), but also harbours the profoundly temporal nature of the signifying chain: "the 'signifying chain' which subsumes the language of the unconscious and the language of ordinary speech, is by definition always on the move towards a desired future [...] its temporality seem[s] oddly smooth and characterless – 'pure' displacement, 'pure' continuity, a slippage or a passage that moves ahead with unstoppable fluency" (Bowie 179). So tightly bound up with temporal movement is the signifying chain that any attempt to characterise the *glissement* of signifiers over signifieds immediately evokes a correlative movement through time. Indeed, the only amendment that I would make to Bowie's characterisation of this correlation is that Lacan's conception of the inherent temporality of signification is not necessarily a movement "ahead." Rather, while Lacan certainly does insist on the inescapably temporal quality of the signifying chain, he does not hold that this temporality must proceed in a given direction:

The linearity that Saussure holds to be constitutive of the chain of discourse, in conformity with its emission by a single voice and with its horizontal position in our writing – if this linearity is necessary, in fact, it is not sufficient. It applies to the chain of discourse only in the direction in which it is orientated in time, being taken as a signifying factor in all languages in which ‘Peter hits Paul’ reverses its time when the terms are inverted. (*Ecrits* 154)

The temporal flow of the signifying chain must therefore be reversible at least, if not subject to outright short-circuits that, though they maintain the linearity of temporal progression, violate the strict progression of its moments. Lacan’s variation on Saussure’s linearly conceived signifying chain thus retains its "necessary" linearity, but allows him to posit that the mental structures and operations (notably desire and subjectivity) which are organised by it are temporally reversible. For all intents and purposes, then, the present can actually change the past and a past event can be experienced again in the present not simply as a remembered event, but as a repetition without antecedent and without an intervening lapse of time (or in which the intervening lapse of time can be overcome instantaneously).

Indeed, part of the reason this temporality is so fundamental to Lacan’s conception of the signifying chain is that it allows for the centrality of repetition in the process of signification and deferral. That is, each instance of signification, each manifest signifier, only repeats the action of deferral and flight that extends back to the infant’s first use of language to articulate the binary between presence and absence actualised in the coming and going of his or her mother (whether actual or as symbolised in the father’s inaugural interdiction). As a result of the felt need to articulate the alternating absence and presence of his or her mother, the infant breaks down his or her relation to her into two categories, making her absence a present feature of the symbolic world into which he or she has just stumbled. This ascription of a signifier to hold the place of an absent object by marking its real absence with a symbolic presence is profoundly formative, as it boomerangs back on the subject when he or she discovers that he or she has forgone the full effectiveness of his or her identification with his or her mother in the very process of naming her. By distinguishing between the mother’s presence and absence, the infant thus creates a binary of primal symbolisation that instantaneously removes the immediately experienced body and being of the mother (as an object in the world) to an irretrievable distance. Henceforth, even when the mother is present to the infant, she will always also be partly absent by virtue of her representation in the symbolic order. The infant undergoes the trauma of entering the symbolic order in the primal moment at which he or she (driven by the father’s prohibitory "No" – see below) names absence as something that can be given content and presence (however illusory). This revelation also introduces, however, the fact that presence is always haunted by absence, a feature which is perpetually highlighted through the symbolic order’s insistence on supplying a signifier that (however arbitrarily) marks the incompleteness of all presence –marks it, indeed, as merely a mask for absence. The endless deferral and ephemerality of all signification thus characterises the infant’s relation to not only the mother, but to all other objects in the world, naturalising alienation as an existential condition since all such relations are part

of that perceptual apparatus that is always already organised by the process of symbolisation.

### The Law:

[Back to the top.](#)

In Lacan's theory of childhood development, the traumatic moment of entry into the symbolic is not simply a spontaneous act on the part of the infant. It is also the originary advent of the law as an effect of the father's interdiction. In the infant's experience of his mother's body as a site of enjoyment (producing warmth, food, comfort, etc.), he or she perceives this enjoyment as an integral part of the order of things as they are ambiguously organised through imaginary identifications. At some point, however, the infant becomes aware of the fact that the father has some degree of precedence over the infant's right to enjoy the mother. Classically termed the Oedipus complex, this moment is part and parcel of the infant's entry into the symbolic order, as this apprehension of the father's precedence is conveyed as an originary verbal prohibition of access to the mother's body which forces the infant to devise a compensatory presence, the symbol of the absent mother (the "da!" of the Freudian *fort/da* binary). This inaugural paternal interdiction is thus essential to the symbolic order and makes of it the very fibre of the law itself:

This law, then, is revealed clearly enough as identical with an order of language. For without kinship nominations, no power is capable of instituting the order of preferences and taboos that bind and weave the yarn of lineage through succeeding generations. And it is indeed the confusion of generations which, in the Bible as in all traditional laws, is accused as being the abomination of the Word (*verbe*) and the desolation of the sinner. (Ecrits 66)

"This legal-linguistic structure is in fact no more and no less than the symbolic order itself" (Evans 99). Clearly drawing on structural anthropology and, more obscurely, on speech act theory, Lacan positions the law in its broadest sense as "the set of universal principles which make social existence possible, the structures that govern all forms of social exchange, whether gift-giving, kinship relations or the formation of pacts. Since the most basic form of exchange is communication itself, the law is fundamentally a linguistic entity – it is the law of the signifier" (Evans 98). Growing out of the paternal interdiction that puts an end to the infant's unproblematic imaginary identification with the mother and inaugurates the rivalry between infant and father that grounds the Oedipus complex, the law is coextensive with the symbolic order to such an extent that neither is conceivable without the other.

Insofar as the law is essentially a process for regulating social relations, the symbolic order must henceforth be conceived of as a profoundly intersubjective structure. Just as there can be no need for, or effectiveness of, the law in the absence of something to regulate, so there can be no signification in the absence of someone to whom to signify. That is, the law actually invents that which it regulates, creating a lack by masking the impossibility of the imaginary relation behind the symbolic prohibition: "the law creates desire in the first place by creating interdiction. Desire is essentially the desire to transgress, and for there to be transgression it is first necessary for there to be prohibition

[...] desire is born out of the process of regulation" (Evans 99). By the same process, the symbolic order actually invents the subject as an effect of itself, generating the subject position of the speaking individual at the same moment as that individual seeks to signify the absence of someone or something to which it has suddenly been barred access (or the impossibility of access to which he or she has suddenly been made aware). In this regard, the entry into the symbolic makes of all signification an intersubjective situation as the speaking subject necessarily orients itself in relation to that which it symbolises; to do so, it must hold a position within that symbolic network – it must in essence be a signifier.

The infant's entry into the symbolic is thus a traumatic event in which the original sense of integrity, wholeness, presence, and identification (associated with the primary narcissism of the imaginary order) is lost forever. Even the imaginary compensations of ego formation now recede from consciousness as the irremediable gap between the individual and that which it desires (the ideal-ego, the mother's body, plenitude) comes to the fore as the organising principle of the totalising force of the symbolic order. The repetitive automatism of the signifying chain is thus a compensatory gesture, an obsessive attempt by the symbolic order (and the subjects who live in and by it) to cover over the lack/absence which organises it. The signifying chain must always remain in motion, doubling back on itself and deferring any presence of meaning as content, in order to forestall the terrifying confrontation with this originary and constitutive absence. In effect, the symbolic order achieves a sustained deferral of this confrontation, proffering alternative signifiers as provisional substitutive compensations for the irremediable lack created in its radical reorganisation of the world.

An analogous and consistent way of conceiving this compensatory response to the trauma of entering the symbolic is to consider the occurrence of repetition compulsion in victims of trauma. By repeating an action that is an effect of a traumatic episode, the obsessive neurotic effectively symbolises the traumatic kernel that organises his or her symptoms without ever approaching the truth of the motivating traumatic episode. The repetitive actions of the trauma victim are comparable to the repetition compulsion built into the incessant play of signifiers in the signifying chain. Just as the trauma victim's actions constitute a series of symptoms that represent effects of the traumatic episode without symbolising it, so the series of signifiers in the signifying chain represent the traumatic loss or absence around which the symbolic order is organised without ever being able to signify it directly.<sup>20</sup>

### The Subject:

[Back to the top.](#)

The primary psychic construct produced by the individual's traumatic accession to the symbolic is the Lacanian subject. Just as the real is the realm of undifferentiated consciousness and the imaginary is the realm of the ego (pre-symbolic identity formation), so the symbolic is coeval with and constitutive of the subject (Evans 195). The ego, produced by the process of differentiation first experienced in the mirror stage, is superseded by the subject as the primary psychic structure by which the individual relates to the surrounding world. In a radical departure from both traditional humanist conceptions of the self and the Freudian construct of the ego as the privileged mode of

human existence, Lacan designates the subject as a function of the signifying chain, a linguistic phenomenon produced by the symbolic order which the infant enters in the originary moment of articulating the mother's absence. As such, and given the hollowness of signifiers in the Lacanian signifying chain, the subject is reduced to the status of being merely a signifier for another signifier. It exists not independently of the perpetual flux of signification, but only as one in an endless series of events in that flux:

the distinguishing marks of subjectivity are to be found not in the forces, faculties, aptitudes and dispositions that individuals in varying combinations possess, but in the signifying processes of which they are part. [Lacan's] philosophy of the human subject is self-consciously thin, empty and weightless. He invents a subject without subject-matter. [...] 'The subject' is no longer a substance endowed with qualities, or a fixed shape possessing dimensions, or a container awaiting the multifarious contents that experience provides: it is a series of events within language, a procession of turns, tropes and inflections. (Bowie 75-76)

Lacan's subject is without "subject-matter" because it is a *bona fide* signifier whose "matter" is the irretrievable loss of a sense of wholeness. "Represented by a signifier for another signifier, [...] the subject is an effect of language" (Evans 196) which is unsignifiable: "no signifier can *signify* the subject" (Evans 187); it can be represented as an effect of the signifying chain, but never tied down to any stable content. As such, the subject is a necessary epistemological category made available to humans by virtue of the sophistication of our thought processes. This sophistication allows us to conceive of presence and absence not only as existential conditions, but also as temporally-bound conditions of a given entity. More importantly, this sophistication of consciousness prompts us to articulate this knowledge through a system of signification whose first principle is the absence of that about which we speak.

Though I have laid this relationship out as a diachronic process in which conception precedes articulation, fidelity to the Lacanian model of the symbolic order prompts me to point out that such diachrony is impossible. Rather, the conception of presence and absence as variable attributes of the same object is part and parcel of the accession to the symbolic order; the oscillation between presence and absence is inconceivable outside the symbolic order and the symbolic order is inconceivable without the dialectic of presence and absence. The irony of this situation is that the naming of an object is necessarily also a process of negating it, of insisting on its irremediable inadequacy even in the face of its actuality: "the symbol manifests itself first of all as the murder of the thing" (*Écrits* 104). In adherence to a strictly Hegelian conception of the dialectic, Lacan maintains that the very act of predication (i.e. any symbolisation whatever) is necessarily an act of negation. The process of saying what something is is simultaneously the process of saying what it is not: "P is Q" deprives P of its essentiality as it becomes something other than P; it is negated in favor of one of its accidents. Further, no accumulation of the accidents of P (say, an infinite number of Q's) can ever amount to an exhaustive definition (and hence a full representation) of P. In entering the symbolic, then, the human infant unwittingly abandons the immediate world of objects and re-situates himself or herself in a position of always-already mediated epistemology any retreat from which is impossible.

An inevitable result of the status of the subject in the symbolic order is that it is fundamentally split; it is an effect of signification whose truth is the absence signification seeks to mask: "because the subject is essentially a speaking being (*parlêtre*), he is inescapably divided, castrated, split" (Evans 196). As a speaking being, the subject is not only a *parlêtre* but an entity *par lettre*, one created only by the divisiveness endemic to the process of signification. And as a result of the play of signifiers in the signifying chain, the subject is therefore at base and irreducibly an absence, a lack whose place is determined and whose truth is deferred, delayed, and decoyed by the signifier. That is to say, the subject is no more a present reality, a manipulable object or entity in the world, than is any other signifier. Originating in this discovery that the shadow of absence falls across all presence, the subject is the pre-eminent fiction by which the signifying chain covers up the void which both structures the symbolic and which it strives to preclude. As such, the subject is all the more closely aligned with this organising originary absence, not merely as one signifier among many, but as their truth as well.

This truth is perpetually covered over by the flux of signification, however, enforcing the subject's mobility in the symbolic order, a mobility that thoroughly temporalises the subject and sets the stage for the introduction of the driving force behind its evasive and fleeting existence: "the subject comes into being at the point of intersection between an irrecoverable past and an unattainable future; its structure is that of a ceaseless cross-stitching, in language, between what-is-no-longer-the-case and what-is-not-yet-the-case" (Bowie 184). A version of being in its past and future tenses, the subject is not only always-already elsewhere, but also always-already *elsewhen*. This temporality is both inextricable from existence in the signifying chain and necessary to its perpetuation; it is what allows the subject to organise his or her experiences in the world in such a way as to retain a sense of order, logic, and meaning. Further, it reveals both how the subject compulsively participates in the signifying chain and how it understands its own need to be forever on the move.

### Desire:

[Back to the top.](#)

In the Lacanian cosmology desire is fundamental to every aspect of the psychic life of the individual *and* to the social system in which the individual finds himself or herself embedded. It is endemic to the symbolic order (since it is at base a quest for presence, the possibility of which is precluded by the mechanism of signification), and thus inhabits all signification, providing the subject with its primary motivation and frustration. The chief elements of the Lacanian conception of desire as I will outline it here are its origins in the master/slave dialectic of G.W.F. Hegel (as explicated by Alexandre Kojève), its fundamentally social dimension, its relationship to the death drive, and finally its focus on the chief bugbear of all Lacan's thought, the *objet a*.

#### *a) Hegel:*

[Back to the top.](#)

As with Lacan's conception of the symbolic order, his conception of desire is most fruitfully conceived in light of its antecedents and sources. For desire, Lacan draws almost exclusively on the work of Hegel as it was popularised through Kojève's lectures



in Paris in the 1930s. The central Hegelian text for Lacan is the *Phenomenology of Spirit*, particularly the section which elaborates the master/slave dialectic as a dawning moment of individual self-consciousness: "Hegel [...] provided the ultimate theory of the proper function of aggressivity in human ontology, seeming to prophecy the iron law of our time. From the conflict of the Master and Slave, he deduced the entire subjective and objective progress of our history" (*Ecrits* 26). The connection between aggressivity and desire is so fundamental that Lacan does not even mention it in this passage, though it turns up repeatedly in his work, perhaps most obviously in his formulation of the infant's aggressive rivalrous response to his or her specular image in the very moment of recognising it as an object of desire (as that with which he or she would like to be identified).

The basic steps in Hegel's dialectic of the master and the slave are as follows: In a primal moment and place (not unlike that in which Freud situated the primal act of the originary parricide) before the advent of any human community whatever, two individuals encounter one another. Prior to this encounter each thinks of himself as unique and supreme in his uniqueness – this uniqueness and supremacy is the very foundation of each individual's identity. When the two individuals confront one another, then, each is faced with the apparition of another individual that is seemingly of the same sort. Each experiences the confrontation as a threat to his position of uniqueness and supremacy in the world. Thus faced with the prospect of having the two axes of their identities disrupted, the two individuals are unable to acknowledge each other as creatures of the same order without abandoning their own identities. To do so would be to suspend the desire for recognition which forms the basic motivation of each interlocutor in this situation. Each seeks recognition of his supremacy from the other, but neither will grant it to the other, since to do so would amount to ceding the claims to supremacy.

The next step in this vignette is that each individual sets about asserting his uniqueness and supremacy by attempting to destroy the other. This fight is the Hegelian primal fight to the death which can have only two possible outcomes. In the first and more sterile possibility, neither individual cedes his claim to supremacy and one eventually succeeds in slaying the other. The victor is thus returned to his position of uniqueness and supremacy, at least until he encounters yet another individual and the drama plays itself out all over again. The second possibility is that one of the individuals will succumb to the instinct for self-preservation and surrender to the other. The chief consequence of this surrender is that the loser of the battle agrees to recognise the victor's supremacy and to come under his control. This is the point at which we are now able to speak of the master (the victor) and the slave (the loser). An irony also occurs at this point in the drama, however, in that the only recognition which the master will recognise or accept is that from an equal. The recognition of the slave, falls short of this requirement since his subjection deprives him of the equality vital to a meaningful recognition.

The master thus finds himself in a tautological position of pure self-referentiality, demanding recognition from the slave (as a creature he knows intuitively to be of the same kind as himself) and yet unable to accept the worth of that recognition since it comes from a creature whose innate inferiority he has already established. As a

consequence of his victory, however, the master does not simply execute the slave, but persists in his total domination by putting the slave to work producing objects for his consumption. Thus, for example, whereas the master had previously eaten whatever food may have come to hand, he now demands that the slave prepare the food in such a way as to make it more desirable and more completely consumable. Whereas he may previously have had to eat whatever apples he found, the master now demands an apple pie of the slave, compelling him to produce an object of desire that will be completely obliterated in its enjoyment; the master utterly absorbs that which he enjoys in this fashion, thanks to the work of the slave in transforming the objects in the phenomenal world to render them more assimilable.

The central feature of this domination is the effect it has on the slave. In being forced to prepare objects in the world for the master's consumption, the slave experiences the ultimate abasement of having to defer the satisfaction of his own desire (an unpleasant experience hitherto unknown to the slave) in order to gratify the desire of the master. That is, he is forced to repeat the act of recognition over and over as he concedes the master's right of desire for a given object over his own. Even though he may be just as desirous of the apples as the master, the slave nonetheless must repeat the drama of recognition in recognising the superiority of the master's desire for the apples. The repeated drama of recognition is given its stalemate conclusion each time the master consumes the object of desire prepared by the slave, utterly negating the material evidence of the slave's recognition of the supremacy of his desire and re-setting the conditions for yet another repetition of the whole process.

The slave's deferral of his own desire in preparing objects of desire for the master's consumption is absolutely vital to the development of the slave's consciousness, as he gradually overcomes his fear of nature (the fear of death that led him to capitulate in his battle with the master) by altering nature through the suspension of his desire and the application of his labour. Whereas the master exists in pure self-referentiality, then, the slave learns to interact with his world, elevating that which he finds around him by transforming it, and governing desire by suspending it. As the master becomes more and more dependent upon the slave's production for the gratification of his desire, a dialectical process takes place whereby the slave comes to control the master and each moves beyond his designation in the binary master/slave. As the producer of the master's objects of desire, the slave gradually comes to govern the satisfaction or suspension of the master's desire, and thus to control the master's desire in a roundabout way. Whereas the master remains in an ignorant relation to the natural world in which he moves and desires, the slave has learned to master that world and thus to master desire. That is, in suspending his immediate urge for satisfaction (pleasure), the slave has learned how to increase the value of that desire by deferring it and displacing it. The end result of this drama is that the master expires in a well of self-referentiality, while the slave rises beyond his slavish state to master the very nature of which his fear (i.e. his fear of mortality) led him to surrender in the primal confrontation – human community is born in the repeated suspension and deferral of desire.

This drama sets the stage for our understanding of Lacan's conception of desire and its central role in the formation and function of subjectivity. The first important feature of the master/slave drama is that the nature of the relationship between the master and the slave is only nominally that of establishing a right of precedence over a given object of desire. What is more to the point is that the struggle between the two is a struggle for the other's desire. What makes the master's control over the slave gratifying, beyond the various objects of desire he produces, is that he controls the slave's desire. In forcing the slave to transform a natural object into an object of desire, the master merely succeeds in obtaining a desirable object (an apple pie, to keep with our example). What makes this process existentially satisfying to the master is that he knows that the slave desires the apple pie as much as he does. This knowledge of the slave's desire (whether actual or merely supposed) makes the pie all the more desirable, as it is now an emblem of the slave's (the other's) desire. Moreover, the more the slave must suspend his desire in order to produce a given object for the master's consumption, the more the final product may be said to contain the sublimation of that desire. It becomes more than itself as a result of the process by which it is transformed, effectively absorbing the slave's suppressed and sublimated desire as added value. The model of desire that emerges from Hegel's drama, and which Lacan adopts, is thus one in which desire exceeds both demand and need. Whereas demand and need can both be met, desire is an existential condition which no object or series of objects can ever satiate; it is a "lack of being" as opposed to a "lack of having" (Evans 95).

Returning thus to desire as a constitutive feature of human existence, we find a ready expression of how the desire for the other's desire functions in the mirror stage. As I have shown above, the infant enters the imaginary through a process of identification with a specular image, an "other" with which it longs to be identified. The essential component to such identification, however (and the aspect that renders it impossible), is the necessity for the other similarly to desire identification with the infant. This desire for the other's desire is not a simple matter of mutual desire such as that experienced in erotic love, but a more all-encompassing demand for total recognition; the infant wants not some part (however large) of the other's desire, but all of it – he or she wants to be the be-all and end-all of the other's desire. The impossibility of such a total identification is what keeps subjectivity moving from object to object in its quest for an object that will represent and capture the other's desire and by possession of which the individual can absorb and utterly subjugate the other's desire. Most simply put, desire is always a desire for the other's desire; only the other's desire for a given object transforms it from an object of demand or need into one of desire.

The second aspect of desire which Lacan exploits from Hegel's model is that of desire as an aggressive drive not simply to possess an object, but to assimilate it completely, to negate it beyond all redemption. This aspect of desire is most clearly represented in the case of the apple pie, which the master seeks not merely to possess, but to make a part of his identity by consuming it. The act of negating the pie by eating it is also a display of mastery over the other's desire, since the object is to some degree always also cathected with the desire of the other (whether because he produced the object or simply because he also desires it). And while the process is nowhere near as clear-cut with objects that are

not so literally consumed, the basic dynamic remains the same. Just as the infant in the mirror stage perceives his or her specular image as an object of desire, but also as a rival which must be encountered and vanquished in the process of identification, so all desire is fundamentally aggressive and annihilating. Insofar as desire is a drive to possess, it is also always a drive to obtain the absolute right of life and death (or being and non-being) over the object: "This is my (car, house, plant, book, sno-cone, etc.) and I'll do what I want with it."

Clearly this is an extremely basic version of desire, and one which does not take into consideration such variations on the theme as are generated by the desire for objects that are desirable only because they render a more desirable object attainable or objects which can never be completely possessed by one individual and are thus subject to distribution and distortion. Nonetheless, it provides the basis for our consideration of desire in Lacan's conception of subjectivity, and points to the fundamentally social character of desire: "The most important point to emerge from Lacan's phrase [that "the object of man's desire [...] is essentially an object desired by someone else" (qtd. in Evans 38)] is that desire is a social product. Desire is not the private affair it appears to be but is always constituted in a dialectical relationship with the perceived desires of other subjects" (Evans 39). And while this aspect of desire is certainly important to keep in mind, it is not simply "the perceived desires of other subjects" which motivates desire, but the prohibition on fulfillment of desire which provides the most stimulus for its reproduction.

If we recall Lacan's reliance on the insights of structural anthropology, and the dialectical nature of his thinking on desire, we can see that the establishment of human community and the formalisation of desire is as dependent on its prohibition as it is on the perception of what is desirable. As with the slave's necessary suspension of his desire in the production of objects for the master's consumption, each subject is governed by a series of prohibitions that make desire the ultimate motivational force in subjectivity. Analogous to the master's prohibition of the slave's enjoyment, the law (inaugurated by the paternal prohibition from enjoying the mother's body) actually "creates desire in the first place by creating interdiction. Desire is essentially the desire to transgress, and for there to be transgression it is first necessary for there to be prohibition" (Evans 99). Interdiction effectively seals off certain objects of desire or kinds of desire as unlawful, thus endowing them with a mystique that allows for their conception as the final answer to desire. Tantamount to the curiosity-arousing command not to look in the one locked room in a many-roomed mansion, the law thus participates in the generation of desire as that which circulates endlessly around a prohibited core.

Yet simply to conceive of the core around which desire circulates as prohibited is to miss a vital condition of that prohibition, the fact that it is simply the articulation of a pre-existing impossibility, since desire is by its very nature insatiable. The important aspect of the paternal interdiction that inaugurates the infant's traumatic accession to the symbolic order is that what the word-of-the-father interdicts is in fact an impossibility. The infant's sought-after direct identification with the mother is impossible; the paternal interdiction only formalises this impossibility as a prohibition, covering it over with the compensation of symbolisation. Likewise, the prohibitive aspect of the law is merely a

socially institutionalised form of the fundamental impossibility at the heart of desire. In the name of the social good a society may prohibit certain kinds or objects of desire, but the reality is that no object can ever fulfil desire. The belief that desire is a desire *for* something is perhaps the greatest misperception of all, and one which makes even less sense if we consider the intimate link between desire, subjectivity, and language.

The fact that desire is born at the moment of the infant's accession to the symbolic order (i.e. at the same moment as the infant becomes a subject) leads Lacan to maintain that it is part and parcel of the signifying chain in its essential metonymy: "man's desire is a metonymy. [...] desire *is* a metonymy" ([Ecrits](#) 175). The perpetual reference of one signifier to all others in an eternal deferral of meaning as content, as "consisting" in any one sign, as present in any way, is but another formulation of the ceaseless movement of desire. The full-blown outgrowth of the drive to identification governing the mirror stage, desire is more sophisticated than that drive, bound up with an awareness of the absence at the core of subjectivity and vulnerable to complex strategies of deferral, displacement, and sublimation in ways to which imaginary drives are impervious. Inseparable from the symbolic order, desire is fundamentally metonymic and inheres in signification as such. Just as the signifying capacity of any individual signifier is always subverted by its failure to coincide precisely with that which it signifies, so any attempt to satisfy desire is always undercut by a residue that remains unattainable. "Although the truth about desire is present to some degree in all speech, speech can never articulate the whole truth about desire; whenever speech attempts to articulate desire, there is always a leftover, a surplus, which exceeds speech" (Evans 36). This innate incapacity of language fully to articulate desire extends to subjectivity insofar as it, too, is a function of the symbolic order. The surplus which is left over after every attempt to articulate desire, to bring it to a halt and see it coincide once and for all with some particular object or configuration of objects (or signifier or configuration of signifiers), however frustrating, is also the very lifeblood of subjectivity, as it forestalls the necessary corollary to the fulfillment of desire, the dissolution of the subject.

#### *b) Death Drive:*

[Back to the top.](#)

As with the movement of the signifying chain, which both seeks coincidence with the void which organises it and perpetually misses that *rendez-vous*, desire is simultaneously a drive towards and an evasion of the void at the heart of subjectivity. In this way, both desire and the signifying chain harbour death at their very core; the death drive is

immanent to the signifying chain. The subject comes into being 'barred' by the signifier and thereby injected with a sense of death. [...] The taste for death is not something that the subject acquires through experience, as one might say, or reaches towards as a last despairing manner of delectation, for it has been there from the start as a perilous gift from the signifier, and one that cannot be refused. The drive, as it circles round the excavated centre of being, is pulled outwards towards the objects that promise gratification, but inwards too towards the completest form of a loss that it already knows. (Bowie 162-163)

Desire, subjectivity, and signification are thus inextricably intertwined with the death drive; evacuation of subjectivity on the scale which coincides with the loss that motivates desire would necessitate means death not only for the psychic structure of the individual, but also for the biologically existent being from which it is inseparable. The absence which structures the symbolic and which gives coherence to the subject through the very instability it imparts is thus finally given a name in the appearance of death on the scene: "the death drive is only the mask of the symbolic order" (Lacan S2 326, qtd. in Evans 202).

At this point the incorrigible temporality of the symbolic order rears its ugly head again, establishing the necessity of conceiving of desire as a drive towards death. In actuality, the nature of the death-drive as motivator of desire is nostalgic; it is an urge to return to the plenitude of the pre-oedipal infant-mother relationship before it was disrupted by the specular image and the paternal interdiction: "when we wish to attain in the subject what was before the serial articulations of speech, and what is primordial to the birth of symbols, we find it in death, from which his existence takes on all the meaning it has" ([Ecrits](#) 105; see also Evans 32). And while Lacan insists on the reversible temporality of the symbolic order, he is equally vehement in stating that the symbolic is a universal totality from which there can be only one escape once it has been entered. With the utterance of the paternal interdiction and the infant's entry into it, the symbolic order assumes the status of an always-already totality from which there can be no regression and only one kind of progression. The movement of desire within the symbolic order, then, is necessarily a tendency towards this final transcendence; the desire to return to the pre-oedipal manifests itself in the symbolic the only way it can, as a drive towards death.

c) *Objet a*:

[Back to the top.](#)

The very centerpiece of Lacan's thinking on desire, the *objet a* is most readily defined by the fact that it is not coincident with any particular object at all, but only with the desire for desire: "What makes an object desirable is not any intrinsic quality of the thing in itself but simply the fact that it is desired by another. The desire of the Other is thus what makes objects equivalent and exchangeable" (Evans 38). Absolutely unattainable, then, the *objet a* is little other than the name we give to that absence that structures signification, subjectivity, and desire; it is "the object which can never be attained, which is really the cause of desire rather than that towards which desire tends," *objet a* is 'the object-cause' of desire" (Evans 125). It is the object-cause of desire in that it is not exclusively the one or the other, but a retroactive cause of its own desirability. That is, the *objet a* is the name we give to the lack generated by the infant's entry into the symbolic (at the injunction of the law in its incarnation as the paternal function); it identifies that which is lost as the individual becomes a subject. As such, it is both the object of the subject's desire (and hence, due to the biological constraints of temporality, coincident with the death drive) and its cause. It is the object of desire insofar as the subject compulsively strives toward it. It is the cause of desire in its phylogenetic persistence in the psyche as a trace of that lost plenitude toward which desire tends; without this trace experience, desire would have neither object nor cause – it would not exist.



The result of the *objet a*'s irremediable elusiveness is that the subject proceeds through a series of misrecognitions and near-misses in the lifelong attempt to pin down an object of desire which will render true gratification. Lacan refers to this movement as the asymptotic logic of desire, borrowing a mathematical term that denotes the perpetual progression of an arc toward an axis of a graph. As the arc nears the axis its angle grows increasingly shallow so that its moment of confluence is perpetually deferred. At the same time, the arc never ceases to be an arc by arriving at parallelism with the axis it approaches. The logic of an asymptote is, therefore, that of a perpetual approach that never arrives and yet constantly promises to coincide with that toward which it tends. Desire follows this asymptotic logic as the subject perpetually approaches the *objet a* (not least by the simple teleology of biological lifespan, according to which temporal existence and the fact of mortality bring individual subjects nearer to death all the time) and yet never reaches it.

These approaches manifest themselves in the lives of subjects as particular instances of desire for specific objects. These particular desires are but misrecognitions, however, as the asymptotic logic of desire keeps gratification from being total or absolute no matter how successful an individual is at attaining phenomenal objects of desire. Perhaps the most memorable instance of this logic is that driving Charles Foster Kane in Orson Welles's *Citizen Kane*. Had Kane succeeded in retrieving Rosebud he would nonetheless have found his desire unresolved and been forced to move on to some other object of desire. Individual objects of desire provide at best partial gratifications, but are never adequate to the fundamental psychic motivator of desire. Along with subjectivity, desire is an effect of the chain of signification; specific objects of desire are at best materialisations of the *point de capiton* – they seem to have enduring content but are in fact only necessary illusions. At best they arrest the movement of desire for a time before the tyranny of the symbolic order reasserts itself, the deep connection is broken, and the subject is forced to move on in quest of another, more lasting gratification.

The only way for the subject to escape the perpetual cycle of incomplete identification with its residue of difference (that keeps desire alive) is to achieve complete identification, emptying itself out in a full transference of its content into something other than itself. In other words, the subject would have to undertake the utmost realisation of the logic of predication, not only relating "I" to "that," but emptying "I" into "that" so completely that "I" would cease to signify altogether in an instant of pure subjective negation. If "the *objet a* is the lining of subjectivity" (Bowie 176-177), then we may think of this radical negation as an instance of the subject turning itself inside out, bringing together "the alpha of human experience" with "the omega of death" (Bowie 165). Insofar as desire is always intersubjective and bound by the law we may conceive of it as a drive towards something universal beyond the accidents of individual differentiation, but which is always haunted by the knowledge (built into the symbolic order itself as the site of the unconscious) that what lies behind those accidents is nothing at all, absence, lack as lack, the end of being in its most Heideggerian conception (Evans 31). To attain the *objet a* would be to identify with the *manque à être* that forms the ground of subjectivity, bringing being (as represented in subjectivity) together with the lack of being which prompts the advent of the subject in the first place, eradicating both in a radical negation

that leaves behind no residue from which desire can start anew. As part of an elaborate mechanism whereby the psychic system guarantees its own perpetuity, then, the metonymic substitution of object after object for the real object of desire (*objet a*) functions as a material masking and deferral in full (though unconscious) knowledge that the end of desire is also the end of subjectivity.

The Graph of Desire:

[Back to the top.](#)

### *Figure 3*

Pictured above is Graph II in the series of four graphs that make up Lacan's topology of desire (taken from Žižek The Sublime Object of Ideology 103). Before laying out how the graph depicts the movement of desire, I will first take a moment to define the symbols it uses. On the far left of the graph is the term "Signifier," designating the starting point of the act of signification and proceeding to the "Voice," which is the final outcome of the process of signification. At the bottom left hand corner of the graph is the symbol I(O), indicating the ego-ideal, the imaginary version of itself with which the ego would like to be identified. Further up on the left hand side is "e," designating the ego itself, caught halfway between the signifying chain ("Signifier" to "Voice") and the ego-ideal. On the bottom right hand side of the graph is "S/" (S with a bar through it), designating the barred subject, the subject split by his or her entry into the symbolic and finally never coincident with its own signification. Immediately above the barred S is a delta which feeds directly into the parabolic line which ends at I(O). This delta is the Lacanian algebra for "the prelinguistic mythical subject of pure need" which must "pass through the defiles of the signifier" in the course of producing the barred subject (Evans 76). That is, the delta designates the embryonic subject prior to the intervention of the paternal interdiction ("the defiles of the signifier"), after which time it simply denotes desire, the urge to return to the time and place preceding that

---

[back to text](#)

<sup>2</sup> This date is an error. Paracelsus was born at Zurich in 1493.

[back to text](#)

<sup>3</sup> This is the date of Van Helmont's death; he was born in 1577.

[back to text](#)

<sup>4</sup> Baron du Potet was for years Honorary member of the Theosophical Society. Autograph letters were received from him and preserved at Adyar, our Headquarters, in which he deploras the flippant unscientific way in which Mesmerism (then on the eve of becoming the "hypnotism" of science) was handled "*par les charlatans du jour.*" Had he lived to see the secret science in its full travesty as hypnotism, his powerful voice might have stopped its terrible present abuses and degradation into a commercial Punch and Judy show. Luckily for him, and unluckily for truth, the greatest adept of Mesmerism in Europe of this century--is dead.

[back to text](#)

---

[print version](#)



### "No Religion Higher Than Truth"

Support this site by visiting our store at <http://www.seekerbooks.com/>. Largest selection of Theosophical books with many books up to 30% discount.

## BLACK MAGIC IN SCIENCE

. . . Commence research where modern conjecture closes its faithless wings (Bulwer's *Zanoni*).

The flat denial of yesterday has become the scientific axiom of to-day (*Common Sense Aphorisms*).

THOUSANDS of years ago the Phrygian Dactyls, the initiated priests, spoken of as the "magicians and exorcists of sickness," healed diseases by magnetic processes. It was claimed that they had obtained these curative powers from the powerful breath of Cybele, the many-breasted goddess, the daughter of Cœlus and Terra. Indeed, her genealogy and the myths attached to it show Cybele as the personification and type of the vital essence, whose source was located by the ancients between the Earth and the starry sky, and who was regarded as the very *fons vitæ* of all that lives and breathes. The mountain air being placed nearer to that fount fortifies health and prolongs man's existence; hence, Cybele's life, as an infant, is shown in her myth as having been preserved on a mountain. This was before that *Magna* and *Bona Dea*, the prolific *Mater*, became transformed into Ceres-Demeter, the patroness of the Eleusinian Mysteries.

Animal magnetism (now called Suggestion and Hypnotism) was the principal agent in theurgic mysteries as also in

the *Asclepieia*--the healing temples of Æsculapius, where the patients once admitted were treated, during the process of "incubation," magnetically, during their sleep.

This creative and life-giving Force--denied and laughed at when named theurgic magic, accused for the last century of being principally based on superstition and fraud, whenever referred to as mesmerism--is now called Hypnotism, Charcotism, Suggestion, "psychology," and what not. But, whatever the expression chosen, it will ever be a loose one if used without a proper qualification. For when epitomized with all its collateral sciences--which are all sciences within *the* science--it will be found to contain possibilities the nature of which has never been even dreamt of by the oldest and most learned professors of the orthodox physical science. The latter, "authorities" so-called, are no better, indeed, than innocent bald infants, when brought face to face with the mysteries of antediluvian "mesmerism." As stated repeatedly before, the blossoms of magic, whether white or black, divine or infernal, spring all from one root. The "breath of Cybele"--Akâsa tattwa, in India--is the one chief agent, and it underlay the so-called "miracles" and "supernatural" phenomena in all ages, as in every clime. As the parent-root or essence is universal, so are its effects innumerable. Even the greatest adepts can hardly say where its possibilities must stop.

The key to the very alphabet of these theurgic powers was lost after the last gnostic had been hunted to death by the ferocious persecution of the Church; and as gradually Mysteries, Hierophants, Theophany and Theurgy became obliterated from the minds of men until they remained in them only as a vague tradition, all this was finally forgotten. But at the period of the Renaissance, in Germany, a learned Theosophist, a Philosopher *per ignem*, as they called themselves, rediscovered some of the lost secrets of the Phrygian priests and of the *Asclepieia*. It was the great and unfortunate physician-Occultist, Paracelsus, the greatest Alchemist of the age. That genius it was, who during the Middle Ages was the first to publicly recommend the action of the magnet in the cure of certain diseases.

Theophrastus Paracelsus--the "quack" and "drunken impostor" in the opinion of the said scientific "bald infants" of his day, and of their successors in ours--inaugurated among other things in the seventeenth century, that which has become a profitable branch in trade in the nineteenth. It is he who invented and used for the cure of various muscular and nervous diseases magnetized bracelets, armllets, belts, rings, collars and leglets; only his magnets cured far more efficaciously than do the electric belts of to-day. Van Helmont, the successor of Paracelsus, and Robert Fludd, the Alchemist and Rosicrucian, also applied magnets in the treatment of their patients. Mesmer in the eighteenth, and the Marquis de Puységur in the nineteenth century only followed in their footsteps.

In the large curative establishment founded by Mesmer at Vienna, he employed, besides magnetism, electricity, metals and a variety of woods. His fundamental doctrine was that of the Alchemists. He believed that metals, as also woods and plants have all an affinity with, and bear a close relation to, the human organism. Everything in the Universe has developed from one homogeneous primordial substance differentiated into incalculable species of matter, and everything is destined to return thereinto. The secret of healing, he maintained, lies in the knowledge of correspondences and affinities between kindred atoms. Find that metal, wood, stone, or plant that has the most correspondential affinity with the body of the sufferer; and, whether through internal or external use, that particular agent imparting to the patient additional strength to fight disease--(developed generally through the introduction of some foreign element into the constitution)--and to expel it, will lead invariably to his cure. Many and marvellous were such cures effected by Anton Mesmer. Subjects with heart-disease were made well. A lady of high station, condemned to death, was completely restored to health by the application of certain sympathetic woods. Mesmer himself, suffering from acute rheumatism, cured it completely by using specially-prepared magnets.

In 1774 he too happened to come across the theurgic secret of direct vital transmission; and so highly interested was he, that he abandoned all his old methods to devote himself entirely to the new discovery. Henceforward he *mesmerised* by gaze and passes, the natural magnets being abandoned. The mysterious effects of such manipulations were called by him--*animal* magnetism. This brought to Mesmer a mass of followers and disciples. The *new* force was experimented with in almost every city and town of Europe and found everywhere an actual fact.

About 1780, Mesmer settled in Paris, and soon the whole metropolis, from the Royal family down to the last hysterical *bourgeoise*, were at his feet. The clergy got frightened and cried--"the Devil"! The licensed "leeches" felt

an ever-growing deficit in their pockets; and the aristocracy and the Court found themselves on the verge of madness from mere excitement. No use repeating too well-known facts, but the memory of the reader may be refreshed with a few details he may have forgotten.

It so happened that just about that time the official Academical Science felt very proud. After centuries of mental stagnation in the realm of medicine and general ignorance, several determined steps in the direction of real knowledge had finally been made. Natural sciences had achieved a decided success, and chemistry and physics were on a fair way to progress. As the *Savants* of a century ago had not yet grown to that height of sublime modesty which characterizes so pre-eminently their modern successors--they felt very much puffed up with their greatness. The moment for praiseworthy humility, followed by a confession of the relative insignificance of the knowledge of the period--and even of modern knowledge for the matter of that--compared to that which the ancients knew, had not yet arrived. Those were days of naive boasting of the peacocks of science displaying in a body their tails, and demanding universal recognition and admiration. The Sir Oracles were not as numerous as they are now, yet their number was considerable. And indeed, had not the Dulcamaras of public fairs been just visited with ostracism? Had not the *leeches* well nigh disappeared to make room for diploma-ed physicians with royal licenses to kill and bury a *piacere ad libitum*? Hence, the nodding "Immortal" in his academical chair was regarded as the sole competent authority in the decision of questions he had never studied, and for rendering verdicts about that which he had never heard of. It was the REIGN OF REASON, and of Science--in its teens; the beginning of the great deadly struggle between Theology and Facts, Spirituality and Materialism. In the educated classes of Society too much faith had been succeeded by no faith at all. The cycle of Science-worship had just set in, with its pilgrimages to the Academy, the Olympus where the "Forty Immortals" are enshrined, and its raids upon every one who refused to manifest a noisy admiration, a kind of juvenile calf's enthusiasm, at the door of the Fane of Science. When Mesmer arrived, Paris divided its allegiance between the Church which attributed all kinds of phenomena except its own *divine miracles* to the Devil, and the Academy, which believed in neither God nor Devil, but only in its own infallible wisdom. But there were minds which would not be satisfied with either of these beliefs. Therefore, after Mesmer had forced all Paris to crowd to his halls, waiting hours to obtain a place in the chair round the miraculous *baquet*, some people thought that it was time real truth should be found out. They had laid their legitimate desires at the royal feet, and the King forthwith commanded his learned Academy to look into the matter. Then it was, that awakening from their chronic nap, the "Immortals" appointed a committee of investigation, among which was Benjamin Franklin, and chose some of the oldest, wisest and baldest among their "Infants" to watch over the Committee. This was in 1784. Every one knows what was the report of the latter and the final decision of the Academy. The whole transaction looks now like a general rehearsal of the play, one of the acts of which was performed by the "Dialectical Society" of London and some of England's greatest Scientists, some eighty years later.

Indeed, notwithstanding a counter report by Dr. Jussieu, an Academician of the highest rank, and the Court physician D'Eslon, who, as eye-witnesses to the most striking phenomena, demanded that a careful investigation should be made by the Medical Faculty of the therapeutic effects of the magnetic fluid--their demand fell through. The Academy disbelieved her most eminent Scientists. Even Sir B. Franklin, so much at home with cosmic electricity, would not recognize its fountain head and primordial source, and along with Bailly, Lavoisier, Magendie, and others, proclaimed Mesmerism a delusion. Nor had the second investigation which followed the first--namely in 1825--any better results. The report was once more squashed (*vide* "Isis Unveiled," vol. i, pp. 171-176).

Even now when experiment has amply demonstrated that "Mesmerism" or animal magnetism, now known as hypnotism (a sorry effect, forsooth, of the "Breath of Cybele") is *a fact*, we yet get the majority of scientists denying its actual existence. Small fry as it is in the majestic array of experimental psycho-magnetic phenomena, even hypnotism seems too incredible, *too mysterious*, for our Darwinists and Hæckelians. One needs too much moral courage, you see, to face the suspicion of one's colleagues, the doubt of the public, and the giggling of fools. "Mystery and charlatanism go hand in hand," they say; and "self-respect and the dignity of the profession," as Magendie remarks in his *Physiologie Humaine*, "demand that the well informed physician should remember how

readily mystery glides into charlatanism." Pity the "well informed physician" should fail to remember that physiology among the rest is full of mystery--profound, inexplicable mystery from A to Z--and ask whether, starting from the above "truism," he should not throw overboard Biology and Physiology as the greatest pieces of charlatany in modern Science. Nevertheless, a few in the well-meaning minority of our physicians have taken up seriously the investigation of hypnotism. But even they, having been reluctantly compelled to confess the reality of its phenomena, still persist in seeing in such manifestations no higher a factor at work than the purely material and physical forces, and deny these their legitimate name of animal magnetism. But as the Rev. Mr. Haweis (of whom more presently) just said in the *Daily Graphic* . . . "The Charcot phenomena are, for all that, in many ways identical with the mesmeric phenomena, and hypnotism must properly be considered rather as a branch of mesmerism than as something distinct from it. Anyhow, Mesmer's facts, now generally accepted, were at first stoutly denied." And they are still so denied.

But while they deny Mesmerism, they rush into Hypnotism, despite the now scientifically recognised dangers of this science, in which medical practitioners in France are far ahead of the English. And what the former say is, that between the two states of mesmerism (or magnetism as they call it, across the water) and hypnotism "there is an abyss." That one is beneficent, the other maleficent, as it evidently must be; since, according to both Occultism and modern Psychology, *hypnotism is produced by the withdrawal of the nervous fluid from the capillary nerves*, which being, so to say, the sentries that keep the doors of our senses opened, getting *anaesthetized* under hypnotic conditions, allow these to get closed. A. H. Simonin reveals many a wholesome truth in his excellent work, "Solution du problème de la suggestion hypnotique."<sup>1</sup> Thus he shows that while "in Magnetism (mesmerism) there occurs in the *subject* a great development of moral faculties"; that his thoughts and feelings "become loftier, and the senses acquire an abnormal acuteness"; in hypnotism, on the contrary, "the subject becomes *a simple mirror*." It is Suggestion which is the true motor of every action in the hypnotic: and if, occasionally, "seemingly marvellous actions are produced, these are due to the hypnotiser, not to the subject." Again . . . "In hypnotism instinct, *i.e.*, the *animal*, reaches its greatest development; so much so, indeed, that the aphorism 'extremes meet' can never receive a better application than to magnetism and hypnotism." How true these words, also, as to the difference between the mesmerised and the hypnotised subjects. "In one, his ideal nature, his moral self--the reflection of his divine nature--are carried to their extreme limits, and the subject becomes almost a celestial being (*un ange*). In the other, it is his *instincts* which develop in a most surprising fashion. The hypnotic lowers himself to the level of the animal. From a physiological standpoint, magnetism (Mesmerism) is comforting and curative, and hypnotism, which is but the result of an unbalanced state, is--most dangerous."

Thus the adverse Report drawn by Bailly at the end of last century has had dire effects in the present, but it had its *Karma* also. Intended to kill the "Mesmeric" *craze*, it reacted as a death-blow to the public confidence in scientific decrees. In our day the *Non-Possumus* of the Royal Colleges and Academies is quoted on the Stock Exchange of the world's opinion at a price almost as low as the *Non-Possumus* of the Vatican. The days of authority whether human or divine, are fast gliding away; and we see already gleaming on future horizons but one tribunal, supreme and final, before which mankind will bow--the Tribunal of Fact and Truth.

Aye, to this tribunal without appeal even liberal clergymen and famous preachers make obeisance in our day. The parts have now changed hands, and in many instances it is the successors of those who fought tooth and nail for the reality of the Devil and his direct interference with psychic phenomena, for long centuries, who come out publicly to upbraid science. A remarkable instance of this is found in an excellent letter (just mentioned) by the Rev. Mr. Haweis to the *Graphic*. The learned preacher seems to share our indignation at the unfairness of the modern scientists, at their suppression of truth, and ingratitude to their ancient teachers. His letter is so interesting that its best points must be immortalized in our magazine. Here are some fragments of it. Thus he asks:--

Why can't our scientific men say: "We have blundered about Mesmerism; it's practically true"? Not because they are men of science, but simply because they are human. No doubt it is humiliating when



you have dogmatised in the name of science to say, "I was wrong." But is it not more humiliating to be found out; and is it not most humiliating, after shuffling and wriggling hopelessly in the inexorable meshes of serried facts, to collapse suddenly, and call the hated net a "suitable enclosure," in which forsooth, you don't mind being caught? Now this, as it seems to me, is precisely what Messrs. Charcot and the French hypnotists and their medical admirers in England are doing. Ever since Mesmer's death at the age of eighty, in 1815, the French and English "Faculty," with some honorable exceptions, have ridiculed and denied the facts as well as the theories of Mesmer, but now, in 1890, a host of scientists suddenly agree, while wiping out as best they may the name of Mesmer, to rob him of all his phenomena, which they quietly appropriate under the name of "hypnotism," "suggestion," "Therapeutic Magnetism," "psychopathic Massage," and all the rest of it. Well, "What's in a name?"

I care more for things than names, but I reverence the pioneers of thought who have been cast out, trodden under foot, and crucified by the orthodox of all ages, and I think the least scientists can do for men like Mesmer, Du Potet, Puységur, or Mayo and Elliotson, now they are gone, is to "build their sepulchres."

But Mr. Haweis might have added instead, the amateur Hypnotists of Science dig with their own hands the graves of many a man and woman's intellect; they enslave and paralyse freewill in their "subjects," turn immortal men into soulless, irresponsible automata, and vivisect *their souls* with as much unconcern as they vivisect the bodies of rabbits and dogs. In short, they are fast blooming into "sorcerers," and are turning science into a vast field of black magic. The rev. writer, however, lets the culprits off easily; and, remarking that he accepts "the distinction" [between Mesmerism and Hypnotism] "without pledging himself to any theory," he adds:--

I am mainly concerned with the facts, and what I want to know is why these cures and abnormal states are trumpeted about as modern discoveries, while the "faculty" still deride or ignore their great predecessors without having themselves a theory which they can agree upon or a single fact which can be called new. The truth is we are just blundering back with toil to work over again the old disused mines of the ancients; the rediscovery of these occult sciences is exactly matched by the slow recovery of sculpture and painting in modern Europe. Here is the history of occult science in a nutshell. (1) Once known. (2) Lost. (3) Rediscovered. (4) Denied. (5) Reaffirmed, and by slow degrees, under new names, victorious. The evidence for all this is exhaustive and abundant. Here it may suffice to notice that Diodorus Siculus mentions how the Egyptian priests, ages before Christ, attributed clairvoyance induced for therapeutic purposes to Isis. Strabo ascribes the same to Serapis, while Galen mentions a temple near Memphis famous for these Hypnotic cures. Pythagoras, who won the confidence of the Egyptian priests, is full of it. Aristophanes in "Plutus" describes in some detail a Mesmeric cure--"and first he began to handle the head." Cælius Aurelianus describes manipulations (1569) for disease "conducting the hands from the superior to the inferior parts"; and there was an old Latin proverb--*Ubi dolor ibi digitus*, "Where pain there finger." But time would fail me to tell of Paracelsus (1462)<sup>2</sup> and his "deep secret of Magnetism"; of Van Helmont (1644)<sup>3</sup> and his "faith in the power of the hand in disease." Much in the writings of both these men was only made clear to the moderns by *the experiments of Mesmer*, and in view of modern Hypnotists it is clearly with him and his disciples that we have chiefly to do. He claimed, no doubt, to transmit an animal magnetic fluid, which I believe the Hypnotists deny.

They do, they do. But so did the scientists with regard to more than one truth. To deny "an animal magnetic fluid" is

surely no more absurd than to deny the circulation of the blood, as they have so energetically done. A few additional details about Mesmerism given by Mr. Haweis may prove interesting. Thus he reminds us of the answer written by the much wronged Mesmer to the Academicians after their unfavorable Report, and refers to it as "prophetic words."

"You say that Mesmer will never hold up his head again. If such is the destiny of the man it is not the destiny of the truth, which is in its nature imperishable, and will shine forth sooner or later in the same or some other country with more brilliancy than ever, and its triumph will annihilate its miserable detractors." Mesmer left Paris in disgust, and retired to Switzerland to die; but the illustrious Dr. Jussieu became a convert. Lavater carried Mesmer's system to Germany, while Puységur and Deleuze spread it throughout provincial France, forming innumerable "harmonic societies" devoted to the study of therapeutic magnetism and its allied phenomena of thought-transference, hypnotism, and clairvoyance.

Some twenty years ago I became acquainted with perhaps the most illustrious disciple of Mesmer, the aged Baron du Potet.<sup>4</sup> Round this man's therapeutic and mesmeric exploits raged, between 1830 and 1846, a bitter controversy throughout France. A murderer had been tracked, convicted, and executed solely on evidence supplied by one of Du Potet's clairvoyantes. The Juge de Paix admitted thus much in open court. This was too much for even sceptical Paris, and the Academy determined to sit again and, if possible, crush out the superstition. They sat, but, strange to say, this time they were converted. Itard, Fouquier, Guersent, Bourdois de la Motte, the cream of the French faculty, pronounced the phenomena of mesmerism to be genuine--cures, trances, clairvoyance, thought-transference, even reading from closed books; and from that time an elaborate nomenclature was invented, blotting out as far as possible the detested names of the indefatigable men who had compelled the scientific assent, while enrolling the main facts vouched for by Mesmer, Du Potet, and Puységur among the undoubted phenomena to be accepted, on whatever theory, by medical science....

Then comes the turn of this foggy island and its befogged scientists. "Meanwhile," goes on the writer,

England was more stubborn. In 1846 the celebrated Dr. Elliotson, a popular practitioner, with a vast *clientele*, pronounced the famous Harveian oration, in which he confessed his belief in Mesmerism. He was denounced by the doctors with such thorough results that he lost his practice, and died well-nigh ruined, if not heart-broken. The Mesmeric Hospital in Marylebone Road has been established by him. Operations were successfully performed under Mesmerism, and all the phenomena which have lately occurred at Leeds and elsewhere to the satisfaction of the doctors were produced in Marylebone fifty-six years ago. Thirty-five years ago Professor Lister did the same--but the introduction of chloroform being more speedy and certain as an anæsthetic, killed for a time the mesmeric treatment. The public interest in Mesmerism died down, and the Mesmeric Hospital in the Marylebone Road, which had been under a cloud since the suppression of Elliotson, was at last closed. Lately we know what has been the fate of Mesmer and Mesmerism. Mesmer is spoken of in the same breath with Count Cagliostro, and Mesmerism itself is seldom mentioned at all; but, then, we hear plenty of electro-biology, therapeutic magnetism and hypnotism--just so. Oh, shades of Mesmer, Puységur, Du Potet, Elliotson--*sic vos non vobis*. Still, I say *Palmam qui meruit ferat*. When I knew Baron du Potet he was on the brink of the grave, and nearly eighty years old. He was an ardent admirer of Mesmer; he had devoted his whole life to therapeutic magnetism, and he was absolutely dogmatic on the point that a real magnetic aura passed from the Mesmerist to the patient. "I will show you this," he said one day,

as we both stood by the bedside of a patient in so deep a trance that we ran needles into her hands and arms without exciting the least sign or movement. The old Baron continued: "I will, at the distance of a foot or two, determine slight convulsions in any part of her body by simply moving my hand above the part, without any contact." He began at the shoulder, which soon set up a twitching. Quiet being restored, he tried the elbow, then the wrist, then the knee, the convulsions increasing in intensity according to the time employed. "Are you quite satisfied?" I said, "Quite satisfied"; and, continued he, "any patient that I have tested I will undertake to operate upon through a brick wall at a time and place where the patient shall be ignorant of my presence or my purpose. This," added Du Potet, "was one of the experiences which most puzzled the Academicians at Paris. I repeated the experiment again and again under every test and condition, with almost invariable success, until the most sceptical was forced to give in."

We have accused science of gliding full sail down to the Maëlström of Black Magic, by practising that which ancient Psychology--the most important branch of the Occult Sciences--has always declared as Sorcery in its application to the *inner* man. We are prepared to maintain what we say. We mean to prove it one of these days, in some future articles, basing ourselves on facts published and the actions produced by the Hypnotism of Vivisectionists themselves. That they are unconscious sorcerers does not make away with the fact that they do practice the Black Art *bel et bien*. In short the situation is this. The minority of the learned physicians and other scientists experiment in "hypnotism" because they have come to see something in it; while the majority of the members of the R.C.P.'s still deny the actuality of animal magnetism in its mesmeric form, even under its modern mask--hypnotism. The former--entirely ignorant of the fundamental laws of animal magnetism--experiment at hap-hazard, almost blindly. To remain consistent with their declarations (*a*) that hypnotism is *not* mesmerism, and (*b*) that a magnetic aura or fluid passing from the mesmeriser (or hypnotiser) is pure fallacy--they have no right, of course, to apply the laws of the older to the younger science. Hence they interfere with, and awaken to action the most dangerous forces of nature, without being aware of it. Instead of healing diseases--the only use to which animal magnetism under its new name can be *legitimately* applied--they often inoculate the *subjects* with their own physical as well as mental ills and vices. For this, and the ignorance of their colleagues of the minority, the disbelieving majority of the Sadducees are greatly responsible. For, by opposing them, they impede free action, and take advantage of the Hypocratic oath, to make them powerless to admit and do much that the believers might and would otherwise do. But as Dr. A. Teste truly says in his work--"*There are certain unfortunate truths which compromise those who believe in them, and those especially who are so candid as to avow them publicly.*" Thus the reason of hypnotism not being studied on its proper lines is self-evident.

Years ago it was remarked: "It is the duty of the Academy and medical authorities to study Mesmerism (*i.e.*, the occult sciences in its spirit) and to subject it to trials; finally, to *take away the use and practice of it from persons quite strangers to the art, who abuse this means, and make it an object of lucre and speculation.*" He who uttered this great truth was "the voice speaking in the desert." But those having some experience in occult psychology would go further. They would say it is incumbent on every scientific body--nay, on *every* government--to put an end to public exhibitions of this sort. By trying the *magic* effect of the human will on weaker wills, by deriding the existence of *occult* forces in Nature--forces whose name is legion--and yet calling out these, under the pretext that they are *no* independent forces at all, not even psychic in their nature, but "connected with known *physical* laws" (Binet and Féré), men in authority are virtually responsible for all the dire effects that are and will be following their dangerous public experiments. Verily Karma--the terrible but just Retributive Law--will visit all those who develop the most awful results in the future, generated at those public exhibitions for the amusement of the profane. Let them only think of dangers bred, of new forms of diseases, mental and physical, begotten by such insane handling of psychic will! This is as bad on the moral plane as the artificial introduction of animal matter into the human blood, by the

infamous Brown Sequard method, is on the physical. They laugh at the occult sciences and deride Mesmerism? Yet this century will not have passed away before they have undeniable proofs that the idea of a crime suggested for experiment's sake is not removed by a reversed current of the will as easily as it is inspired. They may learn that if the outward expression of the idea of a misdeed "suggested" may fade out at the will of the operator, the *active living germ* artificially implanted does not disappear with it; that once dropped into the seat of the human--or, rather, the animal--passions, it may lie dormant there for years sometimes, to become suddenly awakened by some unforeseen circumstance into realisation. Crying children frightened into silence by the *suggestion* of a monster, a devil standing in the corner, by a foolish nurse, have been known to become insane twenty or thirty years later on the same subject. There are mysterious, secret drawers, dark nooks and hiding-places in the labyrinth of our memory, still unknown to physiologists, and which open only once, rarely twice, in man's lifetime, and that only under very abnormal and peculiar conditions. But when they do, it is always some heroic deed committed by a person the least calculated for it, or--a terrible crime perpetrated, the reason for which remains for ever a mystery. . . .

Thus experiments in "suggestion" by persons ignorant of the occult laws, are the most dangerous of pastimes. The action and reaction of ideas on the *inner lower* "Ego," has never been studied so far, because that Ego itself is *terra incognita* (even when not denied) to the men of science. Moreover, such performances before a promiscuous public are a danger in themselves. Men of undeniable scientific education who experiment on Hypnotism in public, lend thereby the sanction of their names to such performances. And then every unworthy speculator acute enough to understand the process may, by developing by practice and perseverance the same force in himself, apply it to his own selfish, often criminal, ends. *Result on Karmic lines*: every Hypnotist, every man of Science, however well-meaning and honorable, once he has allowed himself to become the unconscious instructor of one who learns but to abuse the sacred science, becomes, of course, morally the confederate of every crime committed by this means. Such is the consequence of public "Hypnotic" experiments which thus lead to, and virtually are, BLACK MAGIC.

*Lucifer*, June, 1890

---

<sup>1</sup>See the review of his work in the *Journal du Magnetisme*, *Mai, Juin*, 1890, founded in 1845 by Baron du Potet, and now edited by H. Durville, in Paris.

[back to text](#)

<sup>2</sup> This date is an error. Paracelsus was born at Zurich in 1493.

[back to text](#)

<sup>3</sup> This is the date of Van Helmont's death; he was born in 1577.

[back to text](#)

<sup>4</sup> Baron du Potet was for years Honorary member of the Theosophical Society. Autograph letters were received from him and preserved at Adyar, our Headquarters, in which he deplors the flippant unscientific way in which Mesmerism (then on the eve of becoming the "hypnotism" of science) was handled "*par les charlatans du jour*." Had he lived to see the secret science in its full travesty as hypnotism, his powerful voice might have stopped its terrible present abuses and degradation into a commercial Punch and Judy show. Luckily for him, and unluckily for truth, the greatest adept of Mesmerism in Europe of this century--is dead.

[back to text](#)

---

(New Page)

**G**ive a Kodak

## Cameras: 1880 - 1899 | [top](#)



['Le Phoebus' Camera, Etienne Carjat et Cie.,  
circa 1880-1885](#)



[Italian or French Detective Camera, 1880s](#)



[G. Gennert 'Penny Picture' Camera, 1880s](#)



[Putnam Marvel, 1880s](#)



[Scovill Waterbury Detective  
Camera, 1888](#)



[Perry Mason & Co. Harvard  
Camera, 1888-1895](#)



[No. 2 Kodak Camera, 1889-1897](#)



[No. 4 Kodak Camera, 1890](#)



[Scovill & Adams  
Antique Oak Detective Camera, 1890](#)



[No. 3 Kodak Junior Camera, 1890-1897](#)



[Fallowfield 'Facile' Camera, circa 1890](#)



[Blair Camera Co. Hawk-eye  
Detective Camera \(first version\), 1890-1893](#)



[Blair Hawk-eye Detective Camera  
leather-covered first version, 1890-1893](#)



[Blair Camera Co. 'Kamaret', 1891](#)



['B' Daylight Kodak Camera,  
Eastman Co., 1891-1895](#)



['C' Ordinary Glass Plate Kodak Camera,  
Eastman Co., 1891-1895](#)



[Ingersoll Shure Shot Cameras,  
1891-1895](#)



[Vive Camera Company  
'Vive Souvenir Camera', 1895](#)



[Manhattan Optical Company  
'Night Hawk' Detective Camera, 1895](#)



[Edward G. Cone 'Quad' Camera, 1896](#)



[Eastman Kodak No. 2 Bullet &  
Bulls-Eye Cameras, 1896 & 1896-1913](#)



[Adams & Westlake Adlake  
Regular Camera, 1897](#)



[Vive No. 1 Camera & Vive 'Tourist'  
No. 1 Camera, 1897](#)



[Japy Freres & Cie. 'Le Pascal', 1897](#)



[Redding & Gyles, the 'Luzo', circa 1897](#)



[Western Camera Mfg. Co.  
'Pocket Zar', 1898](#)



[Western Camera Mfg. Co.  
No. 2 Magazine Cyclone, 1898](#)



[Eastman Kodak  
Folding Pocket Kodak, 1898](#)



[Rochester Camera Mfg. Co.,  
Tele Photo Cycle Poco B, circa 1898](#)



[Eastman Kodak No. 4 Bulls-Eye  
Camera, 1898](#)



[Eastman Kodak No. 4 Bulls-Eye  
Special Camera, 1898](#)



[Eastman Kodak No. 2  
Eureka Camera, 1898](#)



[Adams & Co. 'De Luxe'  
Hand Camera, 1898](#)







camera collection

eastman archive

advertisements

ephemera archive

darkroom & accessories



[camera collection](#) | [eastman archive](#) | [advertisements](#) | [ephemera archive](#) | [darkroom & accessories](#) | [tintype gallery](#)

[What's New at BoxCameras.com?](#)

**SEARCH** BoxCameras.com >>> [Tips for searching](#)





THAUMATROPE,  
1825



The [smallest](#) and [largest](#) cameras in the BoxCameras.com Collection



*is no more delightful and refined pursuit than the making of pictures by photography.  
it lightens the burdens of life and sweetens existence here below for those who appreciate it rightly..."*

--excerpt from 'Library of Amateur Photography', Vol. 1,  
©1911, American School of Art & Photography, Scranton, PA

## Animation Toys - Page 1

Motion pictures developed from many different traditions, including theatre and magic shows, but also from the Victorian fascination with the phenomenon of persistence of vision. The human brain retains an image for a fraction of a second longer than the eye actually sees it. That is why the world doesn't suddenly go black every time you blink. When you watch a movie, what you are actually seeing are individual still frames of film projected at 24 frames per second. Each of these frames is separated by darkness, so you are sitting in a dark theatre about half of the time. The images are discontinuous; that is, all of the action that happened between the frames is not represented. Because of persistence of vision, what you perceive is one image blending into the next, giving the illusion of movement and continuity. The dark spaces are "ignored" by the brain. Persistence of vision has been known about for a long time, but an article written by Roget (of Thesaurus fame) in the early 19th century spawned popular interest. After this many novelties and popular entertainments were invented based on the principle. (Most with classically based names - the Victorians felt using a Latin or Greek name gave credibility to their inventions. This tradition of naming cinematic equipment and processes lasted much longer; hence Technicolor, Panavision, CinemaScope, and even television.) What follows is a brief description of the principal designs, and notes on constructing models of them. There were many more devices invented than those listed here, which were the major, most influential designs.

### The Thaumatrope

#### Description

Dr. John Ayrton Paris probably invented the Thaumatrope in 1825. It may also have been invented by Sir John Herschel, Charles Babbage, or any of a handful of



others, but Paris is usually considered the originator. It was the first of the toys based on persistence of vision, and was the simplest in design. On one side of a round board was drawn a bird; on the other was a cage. When the board was held at the sides by two strings and spun, both images merged and the bird appeared to be in the cage.

### **Construction**

This is the simplest of all of these devices to build. Cut out a round disc from a piece of fairly thick white paper board (illustration board). Size is not critical; anywhere from 2 to 10 inches (50-250mm) or so will work well. Punch two holes at opposite sides, placing them as nearly exactly opposite as possible. Secure a loop of string through each pair of holes. The loops should be short enough so that you can easily hold the device while it is stretched out. If you want to replicate the original image, draw a bird on one side of the disc, and a cage on the other. The bird should be centered so that it will fit in the cage when the disc is flipped. Hold the string ends one in each hand and "wind" the Thaumatrope by flipping the disc, which will cause the string loops to twist. Once the loops are good and twisted, gently pull them, and the disc should spin, putting the bird in the cage.

### **The Phenakistiscope**

#### **Description**

Joseph Antoine Ferdinand Plateau invented the Phenakistiscope (a.k.a. Fantoscope) in 1832. It is basically a disc fixed at its center so that it can spin freely. Around the edges are regularly spaced slits, and in conjunction with each slit is an image drawn in sequential stages of movement. Like all of the circular animation devices that followed, the animation was drawn in a cycle of sequential movement; there was no beginning or end, but a continuous kinetic flow. The person using the device would hold it between them and a mirror, with the images facing the mirror. When the disc was spun, the images were viewed, reflected by the mirror, through the passing slits. The spaces between the slits let the eye and brain "soak in" the image so that persistence of vision could create the illusion of movement. And, because the slit was narrow, each individual image was seen only in one position and was not blurred.

Modern motion pictures rely on the same principles. The film doesn't simply zip through the projector. Each frame comes to a dead stop, light is allowed to pass through the film, the image is projected, the light is blocked, the film moves to the next frame, which stops dead, and the whole process starts again, 24 times a second. This all gets even more complicated when it is considered that through at least part of its path film must run continuously, without stopping jerkily, in order for the sound track to be read.

Plateau was the first to recognize that the eye and brain required a resting time between images, and also realized that there existed an optimal number of frames per second to produce a moving image (he determined it was 16, which was the standard until the sound era).

The Phenakistiscope was developed separately at the same time by the German inventor Stampfer; he dubbed it the Stroboscope. Many other versions and refinements followed, including a model designed by Stampfer with two discs which moved together, one with the images, and the other with the slits. In 1853 Baron Franz von Uchatius invented a projecting Phenakistiscope using sequentially placed magic lantern slides. This produced the earliest projected moving images.



Variations on the basic idea survived well into the 20th century. Above is pictured a Kinephone, or gramophone cinema, from the 1920's. This was meant to be viewed using a 78 r.p.m. phonograph turntable . The image on this particular disk is of Felix the Cat, a popular cartoon character of the time.

### **Construction**

Cut a disc from illustration or mat board. The disc should be about 10 inches (250mm) in diameter. Divide the disc into 12 equal parts, and cut slots in the edge of the disc at each division point. The slots should extend about one inch toward the center, and should be from 1/8 to 1/4 inch (3-6mm) wide. The animated sequence appears between the slits and slightly beneath them. It may be helpful to lightly draw a circle to line up the base of your animations. Remember that since this is a circular sequence, the motion from one image should blend into another all the way around. Once you are satisfied with your drawings, attach the wheel loosely to a wooden stick with a pushpin. It should be as centered as possible and the drawings should face away from the stick. Hold it up in front of a mirror, spin the disc, and look through the slits. A more durable device can be made with wood or masonite mounted on a wooden axle.

## **The Zoetrope**

### **Description**

The zoetrope, or Wheel of Life, takes the Phenakistiscope's principle of using slits to view the image and folds it into a rotating drum. Invented in 1834 by William George Horner, the image was drawn on a removable strip of paper, so the animations were changeable. The slits were equally spaced around the drum, and the images were spaced along with them. The viewer spun the drum and watched the animation through the slits. This was perhaps the most popular and longest lasting of all of these toys. Horner originally named it the Daedalum, or Wheel of the Devil, but changed it before marketing.



### **Construction**

Once the basic design of the zoetrope is understood, one can be constructed as simple or complex as you want. The wall of the drum has evenly spaced slits (usually from 12 to 20) along the top edge. Each of these is 1/8 to 1/4 inch (3-6 mm) wide. Their length from top to bottom depends on the size of the device, but they usually extend about halfway down. The walls are mounted on a base of wood, illustration board, cardboard or whatever is easily worked and rigid enough. zoetropes were originally built in a wide range of sizes, but anything between about 8 to 12 inches (20-30 cm) in diameter is a good range for a first project.



The trick is getting it to rotate smoothly. A light poster board model can be made to balance on a pin, but a heavier model will need a sturdier rotation point. A phonograph turntable works well. Whatever is used, the axis of rotation should be as dead center as possible. The images are drawn onto a strip of paper that will fit around the inside wall of the zoetrope without covering the slits. They are spaced the same as the slits, and each image should lead into the next, including the first into the last.

To get you started, a [simple zoetrope project](#) has been added that you can print and assemble.

disconnection similar to what we saw with the Capgras patient.

So we have seen several syndromes here which suggest that you can look at neurological oddities, neurological syndrome and learn a great deal about the functions of the normal brain. I would like to conclude with a quotation from my previous book, *Phantoms in the Brain*, "There is something distinctly odd about a hairless, neotenus primate that has evolved into a species that can look back over its own shoulder to ponder its own origins. Odder still, the brain cannot only discover how other brains work but also ask questions about itself, who am I? What is the meaning of my existence, especially if you are from India? Why do I laugh? Why do I dream, why do I enjoy art, music and poetry? Does my mind consist entirely of the activity of neurons in my brain? If so, what scope is there for free will? It is the peculiar recursive quality of these questions as the brain struggles to understand itself that makes neurology so fascinating. The prospect of answering these questions in the next millennium is both exhilarating and disquieting, but it's surely the greatest adventure that our species has ever embarked upon."

So I hope you'll stay with me for all the remaining lectures, thank you very much.

[Back to top](#)

[LISTEN LIVE](#) 

**ON AIR NOW**

09:00 - 10:00

[Home Truths](#)

[Audio Help](#)

## THE LECTURES

Lecture 1:

[Phantoms in the Brain](#)

Lecture 2:

[Synapses and the Self](#)

Lecture 3:

[The Artful Brain](#)

Lecture 4:

[Purple Numbers and Sharp Cheese](#)

Lecture 5:

[Neuroscience - the New Philosophy](#)

## GLOSSARY

[A collection of useful definitions, diagrams and dissections.](#)

The BBC is not responsible for the content of external websites.

## PRINTING IN THE NINETEENTH CENTURY

# INTAGLIO PROCESSES



Until the technological revolution in printing of the nineteenth century, color was added to illustrations by hand. The outline of the design was printed in black using an engraved copper or other metal plate and watercolor was used to add color. Depending on the skill of the artist, the result could range from a crude wash of color to a delicately shaded work of art. Hand coloring was particularly popular for natural history and botanical illustration because the limitless range of paint colors allowed for the accurate representation of plants and animals. Even after color printing was technologically feasible, the highest quality books continued to be hand done until

the middle of the nineteenth century. The disadvantages of this system are readily apparent--to produce high quality illustrations took time and skill. Very few copies of books could be made, resulting in a very high per book cost and very limited sales. Attempts were made to simplify the painting process using stencils and cheap labor (primarily women and children), but quality suffered.

Copper plate engraving is primarily a linear process, as only the lines which are cut into the metal will hold the ink and be printed. Shading could be added by crosshatching lines of varying width, but the lines remain visible. The aquatint method was an attempt to produce gradations of tone in the printing process. Artists were attempting to imitate the effect of a watercolor was, particularly useful in producing landscapes. Aquatint is produced by dusting the copper plate with a resin and heating the plate. As the grains of resin melt, they produce an irregular pattern of a dark network surrounding small white patches of resin. When acid is applied to the plate, it will etch only the spaces around the resin, resulting in an overall textured pattern. Watercolor was then applied over the printing to achieve the colored image. Aquatint came into use in the mid-eighteenth century and was used extensively from the 1770s until the 1830s. The books most noted for aquatint engraving during the beginning of the nineteenth century were caricature or genre works and books of landscapes.

Several attempts were made to print color directly from copper plates. The most common, called *a la poupee*, involved applying the colored inks to the plate's surface and working the inks into the appropriate areas of the design with stabs of cotton fabric, called dollies or, in French, *poupee*. This allowed for color to be printed with a single impression. However, this was extremely time-consuming and required too much skill to be broadly used. Other methods attempted to print color directly by using tint plates, one for each color, which were printed over the outline or key plate. Again these were



successful in the hands of a fine craftsman but were too complex to gain general acceptance.

---

Hand-Colored Copperplate Engraving

---

Barton, William P. C., 1786-1856.

*Vegetable Materia Medica of the United States, or, Medical Botany: Containing a Botanical, General, and Medical History, of Medicinal Plants Indigenous to the United States: Illustrated by Coloured Engravings, Made after Original Drawings from Nature, Done by the Author.* Philadelphia: M. Carey, 1817-1818.

A member of a distinguished Philadelphia family, William Barton was a surgeon and professor of medicine at the University of Pennsylvania and the Chief of the Bureau of Medicine for the U.S. Navy. He did the original drawings for this work and his wife colored the plates.



---

*The Botanical Magazine, or, Flower-Garden Displayed ...* London: Printed for W. Curtis by Fry and Couchman, 1787.

Founded in 1787 by William Curtis and still being published, *The Botanical Magazine* is the oldest continuing scientific periodical of its kind. The early volumes contained colored engravings of ornamental foreign plants grown in the Royal Botanic Gardens at Kew. Kew was seen during the late eighteenth century as the world's storehouse of knowledge about horticulture and continued to be the collecting center for plants and seeds from the far reaches of the British Empire for more than a hundred years.

---

Catesby, Mark, 1679?-1749.

*The Natural History of Carolina, Florida, and the Bahama Islands: Containing the Figures of Birds, Beasts, Fishes, Serpents, Insects, and Plants...* London: Printed for the author, 1731-43.

Mark Catesby, an English botanist, visited the southern American colonies and sent back seeds and plants in addition to his illustrations.

---

Cruikshank, George, 1792-1878.

*The Tailors and Their Cabbage; Being a Particular Account of the Cabbage Extraordinary, Made by Forty-five Tailors, in the Employ of Mr. John Maberley, Contractor for Army Clothing.* London: John Fairburn, 1813.

This is a very early work by Cruikshank, done during the period of his first steady employment as an illustrator for magazines. The trial referred to in the pamphlet concerned seven members of the local guild of tailors who were convicted of stealing or "cabbaging."

---

Curtis, William, 1746-1799.

*Flora Londinensis: or Plates and Descriptions of Such Plants as Grow Wild in the Environs of London: with Their Places of Growth, and Times of Flowering; Their Several Names According to Linnaeus and Other Authors...* London: Printed for and sold by the author [etc.], 1777-98.

Curtis attempted to include life-sized illustrations all of the flowers growing within ten miles of London. The primary artists for the project were James Sowerby, a pupil of the marine artist Richard Wright, and Sydenham Edwards. The text contains a description of each plant, an account of its habitat, and a list of the localities where Curtis had seen it. The two volumes took ten years to produce, in a first edition of 300. The books were not a commercial success because customers who could afford to buy them were not interested in the common wild flowers featured in the book.

---

Jubinal, Achille, 1810-1875.

*Les anciennes tapisseries histories, ou, Collection des monumens les plus remarquables, de ce genre, qui nous soient restes du moyen-age, a partir du Xie siecle au Xvie inclusivement. Texte par Archille Jubinal ... D'apres les dessins de Victor Sansonetti ...* Paris: L'editeur de la Galerie d'armes de Madrid, 1838.

This important work on medieval art reproduces for the first time the Bayeux embroideries and other famous French tapestries. Of the edition of 333 books, only a very few have all of the plates colored by hand. By the late 1830s, the great era of hand-colored engravings was past, replaced by lithographs; but this work remains one of the most beautiful of any era.

---

Pontey, William, fl. 1780-1831.

*The Forest Pruner, Or, Timber Owner's Assistant: Being a Treatise on the Training or Management of British Timber Trees, Including an Explanation of the Causes of Their General Diseases and Defects, with the Means of Prevention, and Remedies...*

Huddersfield [England]: Printed for the author by T. Smart [1805].

William Pontey, one of a family of Yorkshire nurserymen, worked as head gardener to the Grimston family at Kilnwick, near Beverley, England. Under the auspices of the sixth Duke of Bedford, he worked to encourage the replanting of trees and to improve the management of forests on the English estates. The plates are rather crudely colored by hand in only a few shades.



Shaw, George, 1751-1813.

*The Naturalist's Miscellany: or Coloured Figures of Natural Objects; Drawn and Described Immediately from Nature.* London: Printed for Nodder & Co., 1789-1813.



Shaw, who wrote the text for this twenty-four volume work, was a physician, a founder of the Linnean Society of London and Keeper of the Natural History Section of the British Museum. The artist and publisher was Frederick P. Nodder, a botanical painter and engraver, named "botanic painter to her Majesty." Nodder died around 1800 and the illustrations were continued by his son.



---

Sowerby, James, 1757-1822.

*English Botany; or, Coloured Figures of British Plants, with Their Essential Characters, Synonyms, and Places of Growth ...* London: Printed by R. Taylor and sold by the Proprietor, J. Sowerby, 1793-1813.

The multi-talented James Sowerby was a scientist, an artist and an engraver. In his early career, he was a portrait painter and teacher whose students included the author Mary Wollstonecraft Godwin. His drawings appear in the early volumes of *The Botanical Magazine* and in *Flora Londinensis*. For *English Botany* he drew, and probably also engraved, more than 2,500 illustrations over a twenty-year period.

---

Hand-colored Aquatint Engraving



---

Combe, William, 1742-1823.

*Doctor Syntax in Paris, or, A Tour in Search of the Grotesque: a Humorous & Satirical Poem.* London: Printed for W. Wright, 1820.

This is an imitation of *The Tour of Doctor Syntax in Search of the Picturesque*, illustrated by Thomas Rowlandson. The comic adventures of an old clergyman and schoolmaster visiting the sights became very

popular, leading not only to further books, imitations, and parodies but also to Syntax hats, Syntax wigs, and Syntax coats.

---

D.O.C.

*The Art of Drawing Landscapes: Being Plain and Easy Directions for the Acquirement of the Useful and Elegant Accomplishment:* Embellished with Ten Engravings in Aquatint by an Amateur. Baltimore: Fielding Lucas, Jr., 1820.

These plates were done by one of the earliest American engravers, John Hill (1770-1850) who came to the United States in 1816, after training in London.

---

Egan, Pierce, 1772-1849.

*Life in London; or, The Day and Night Scenes of Jerry Hawthorne, Esq, and his Elegant Friend Corinthia Tom...* London: Printed for Sherwood, Neely, and Jones, 1821.

Originally published in twelve monthly parts, with illustrations by the brothers Robert and George Cruikshank, *Life in London* was an instant success, often pirated and leading to sequels, stage versions, and parodies. The story follows two young men through the taverns, theaters, coffee houses, police courts and cockfights of Regency London. Cruikshank's greatest skill was his ability to individualize each character in his drawing, giving a sense of spontaneity and humor.

---



Gilpin, William, 1724-1804.

*A Practical Illustration of Gilpin's Day: Representing the Various Effects on Landscape Scenery from Morning till Night, in Thirty Designs from Nature; by the Rev. Wm. Gilpin. With Instructions In, and Explanation Of, the Improved Method of Colouring, and Painting in Water Colours;* by John Heaviside Clark. London: Priestley and Weale, 1824. Intended primarily as drawing instruction, the book succeeds brilliantly at approximating water color painting through the aquatint process. It contains thirty hand colored aquatints of landscapes from early dawn through bright sunlight to moonlit night. Various techniques were used by the skillful colorists to merge the colors as in a painting rather than just filling in the outlines of the underlying print.

---

J.H. Green.

*The Complete Aquatinter: Being the Whole Process of Etching and Engraving in Aquatinta: the Method of Using the Aquafortis, with All the Necessary Tools Grounds, Varnishes, &C. ...* London : Printed by J. Barfield for J.H. Green, 1804.

This artist's manual for printing in aquatint contains detailed descriptions of the process and materials. This copy contains extensive annotations on recipes and procedures.

---

Pyne, W. H., 1769-1843.

*A Day's Journal of a Sponge* by Peter Pasquin. London: Rowney and Forster, 1824. Peter Pasquin was the pseudonym for William Henry Pyne, a watercolor painter and illustrator, best known for paintings of country scenery and residences. This comic work, however, is similar to Cruikshank as it follows the life of a man-about-town, the "sponge" of the title.

---

Repton, Humphry, 1752-1818.

*Fragments on the Theory and Practice of Landscape Gardening: Including Some Remarks on Grecian and Gothic Architecture, Collected from Various Manuscripts...*

London: Printed by T. Bensley & Son, for J. Taylor, 1816.

Britain's most famous landscape gardener, Repton was a key figure in the development of a more natural style of landscaping. The aquatints in the book are based on his drawings of lawns and gardens done for individual landowners. Many of the plates have flaps which, when pulled back, show the proposed alterations to the scene.

---

### Direct Color from Copperplate Engraving

---



Bigelow, Jacob, 1787-1879.

*American Medical Botany: Being a Collection of the Native Medicinal Plants of the United States: Containing Their Botanical History and Chemical Analysis, and Properties and Uses in Medicine, Diet and the Arts, with Coloured Engravings ...* Boston: Hilliard and Metcalf, 1817-1820.

*American Medical Botany* is considered to be the first American book printed in color. Nearly fifty years after publication, Bigelow in his memoirs, described the process he used to print in color from a copperplate. The plates were engraved in aquatint to which different colors were applied in appropriate areas and then carefully wiped and printed. In this way simple images could be printed directly. Those images requiring small or isolated patches of color would have additional color added by hand. The process may actually have been related to lithography, since current research has shown that Bigelow engraved his images on stone rather than copperplate and wet the stone to repel ink not in the engraved lines, thus increasing the speed of the printing process.

---

Bulliard, Pierre, 1752-1793.

*Herbier de la France, ou, Collection complete des plantes indigenes de ce royaume: Avec leurs details anatomiques, leur proprietes et leurs usages en medecine.* Paris: Chez Garnery ..., 1780-1791.

In one of the earliest examples of true color printing, Bulliard drew, engraved, mixed the inks, and color-printed more than 600 plates of flowers and fungi growing in France. Bulliard line-etched the outlines, veins, and linear shading in black for each plate. He then superimposed three tint plates, each engraved with the individual tones necessary to print separately the green, red and yellow of each image. His accuracy in lining up the plates and the delicacy and accuracy of his color printing, make this an outstanding example of eighteenth century botanical illustration.

---

Chamberlaine, John, 1745-1812.

*Portraits of Illustrious Personages of the Court of Henry VIII. Engraved in Imitation of the Original Drawings of Hans Holbein, in the Collection of His Majesty, with Biographical & Historical Memoirs by Edmund Lodge.* London: Chamberlaine, 1812.

Attempting to produce illustrations that conform as closely as possible to Holbein's original drawings, Chamberlaine used a variety of techniques. The plates were both etched and engraved, using grey or sepia ink. Additional colored inks, in very pale tints, were applied to the plate's surface using the *a la poupee* technique. Pink, buff, or greyish paper was used, reflecting the original choices.

---

## PRINTING IN THE NINETEENTH CENTURY

# LITHOGRAPHY



Lithography was the first fundamentally new printing technology since the invention of relief printing in the fifteenth century. It is a mechanical planographic process in which the printing and non-printing areas of the plate are all at the same level, as opposed to

intaglio and relief processes in which the design is cut into the printing block. Lithography is based on the chemical repulsion of oil and water. Designs are drawn or painted with greasy ink or crayons on specially prepared limestone. The stone is moistened with water, which the stone accepts in areas not covered by the crayon. An oily ink, applied with a roller, adheres only to the drawing and is repelled by the wet parts of the stone. The print is then made by pressing paper against the inked drawing. Lithography was invented by Alois Senefelder in Germany in 1798 and, within twenty years, appeared in England and the United States. Almost immediately, attempts were made to print pictures in color. Multiple stones were used, one for each color, and the print went through the press as many times as there were stones. The problem for the printers was keeping the image in register, making sure that the print would be lined up exactly each time it went through the press so that each color would be in the correct position and the overlaying colors would merge correctly. Early colored lithographs used one or two colors to tint the entire plate and create a watercolor-like tone to the image. This atmospheric effect was primarily used for landscape or topographical illustrations. For more detailed coloration, artists continued to rely on handcoloring over the lithograph. Once tinted lithographs were well established, it was only a small step to extend the range of color by the use of multiple tint blocks printed in succession. Generally, these early chromolithographs were simple prints with flat areas of color, printed side-by-side. Increasingly ornate designs and dozens of bright, often gaudy, colors characterized chromolithography in the second half of the nineteenth century. Overprinting and the use of silver and gold inks widened the range of color and design. Still a relatively expensive process, chromolithography was used for large-scale folio works and illuminated gift books which often attempted to reproduce the handwork of manuscripts of the Middle Ages. The steam-driven printing press and the wider availability of inexpensive paper stock lowered production costs and made chromolithography more affordable. By the 1880s, the process was widely used for magazines and advertising. At the same time, however, photographic processes were being developed that would replace lithography by the beginning of the twentieth century.

---

### Early Lithographic Processes

---

Audubon, John James, 1785-1851.

*The Viviparous Quadrupeds of North America ...* and the Revd. John Bachman. [New York]: Published by J.J. Audubon, 1845-1848.

Although he is best known for his study of birds, Audubon also applied his methodology and artistry to create a record of our native mammals. *The Quadrupeds*, which was a great success on publication, presented many frontier mammals never before seen or depicted. Audubon's son John contributed many of the later drawings; his son Victor drew some of the backgrounds.

---

Currier & Ives.

*Rail Shooting: On the Delaware*. New York: Lithographed and published by N. Currier, 1852.

*The Trout Stream*. Lithographed by Currier & Ives, 1852.

Currier & Ives was the most important lithographic company of the nineteenth century. They produced more than 7000 titles, many in lots of several hundred thousand copies. They charged low prices, maintained dealers in every large American city, and survived longer than almost all of their competitors. Their pictures embody the American popular taste of their era.



---

Guillet, Peter.

*Timber Merchant's Guide. Also, a Table, Whereby, at One View, May Be Seen the Solid and Superficial Measure of Any Square or Unequal Hewed Logs or Plank, from One to Forty-seven Inches...* Baltimore: J. Lovegrove, 1823.

The book is important in both the history of ship building and of lithography. It is the second book illustrated with lithography in the United States. The lithographer, Henry Stone, worked first in Washington D.C. and then in Baltimore. One of the earliest American works on the practical construction of ships, *The Timber Merchant's Guide* explains how best to cut particular ship's timbers out of trees of various configurations.

---

Harding, James Duffield, 1798-1863.

*The Park and the Forest.* London: Thomas Maclean, 1841.

Harding used Hullmandel's lithotint process to produce the soft textured look of aquatints. This picture book of British trees in landscape settings has very little text and could be used as a pattern book for amateur artists.

---

Hill, David Octavius, 1802-1870.

*Sketches of Scenery in Perthshire Drawn from Nature and on Stone.* Perth, Scotland: T. Hill [1821].

David Hill was a painter, lithographer, and book illustrator who produced this book very early in his career. It was his pioneering work in photography, however, that made him famous. With his partner Robert Adamson, he produced a series of portraits using the calotype photographic process which are considered to be the first fine-art photographs.

---

Hooker, Sir Joseph Dalton, 1817-1911.

*The Rhododendrons of Sikkim-Himalaya; Being an Account, Botanical and Geographical, of the Rhododendrons Recently Discovered in the Mountains of Eastern Himalaya, from Drawings Made on the Spot...* Second edition. London: Reeve, Benham, and Reeve, 1849-51.

This book, which is still a standard work on rhododendrons, contains thirty hand-colored plates, lithographed by Walter Hood Fitch from Hooker's field sketches drawn during his extensive explorations in the Eastern Himalayas.

---



Hullmandel, Charles Joseph, 1789-1850.

*The Art of Drawing on Stone, Giving a Full Explanation of the Various Styles, of the Different Methods to Be Employed to Ensure Success...* London: C. Hullmandel [1824].

Hullmandel, an English landscape painter, visited Senefelder in Munich even before Senefelder's book was published in England. He refined the lithographic process, developing a method for producing gradations in tones and creating the effect of a soft wash of color. This allowed for the reproduction of the romantic style of landscape made popular in England by J. M. W. Turner.

---

Hunter, William S.

*Hunter's Ottawa Scenery in the Vicinity of Ottawa City, Canada.* Ottawa City: W.S.

Hunter, 1855.

These plates were each tinted using a single stone and then hand-colored and heightened with varnish. Although the books were published in Canada, the lithography was done by the J. H. Bufford Company of Boston.

---



Reigart, John Franklin, 1813-1884.

*The United States Album: Embellished with the Arms of Each State and Other Appropriate Engravings, Containing the Autographs of the President and Cabinet, Twenty-eighth Congress, Supreme Court, Ministers, and Other Officers of Government.* Lancaster City, Pa.: 1844.

This unusual volume contains both engravings printed in colored ink and lithographs colored by hand.

---

Ritch, John W., b. 1822.

*The American Architect: Comprising Original Designs of Cheap Country and Village Residences, with Details, Specifications, Plans and Directions, and an Estimate of the Cost of Each Design.* New York: C. M. Saxton [1852].

The use of a printed tint in these illustrations, seems purely decorative, to better show off the line drawings.

---

Senefelder, Alois, 1771-1834.

*A Complete Course of Lithography: Containing Clear and Explicit Instructions in all the Different Branches and Manners of that Art: Accompanied by Illustrative Specimens of Drawings.* London: R. Ackermann, 1819.

Alois Senefelder, the inventor of lithography, described with great clarity his materials and methods in this treatise which was first published in Munich and Vienna in 1818. He discusses the possibilities of full color printing with his process, but the illustrations included in the work only include the use of one-color tints.

---

Whittock, Nathaniel.

*The Decorative Painters' and Glaziers' Guide: Containing the Most Approved Methods of Imitating Oak, Mahogany, Maple, Rose, Cedar, Coral, and Every Other Kind of Fancy Wood ...* Third edition. London: Sherwood, Gilbert, and Piper, 1832.

In representing various woods and marbles, the effect of color and polish has been obtained by first painting the lithograph with bright watercolors, and then covering the paint with a solution of gum arabic, used as a varnish. The resulting plates are unnaturally bright, but do give the effect of a shiny surface.



---

Wirt, Elizabeth Washington Gamble, 1784-1857.

*Flora's Dictionary by a Lady*. Baltimore: F. Lucas, jun., 1837.

This is a very early example of American lithography with color for a general audience. The drawings were done by Ann Smith. The hand-coloring was not standardized, various copies of the book have different colors on the plates, many have no plates at all.

---

### Chromolithography

---

Allen, John Fisk.

*Victoria Regia; Or, the Great Water Lily of America*. With Illustrations by William Sharp ... Boston: Printed and pub. for the author, by Dutton and Wenworth, 1854.

Drawn on stone and printed by William Sharp, America's first chromolithographic printer, this was the earliest example of large scale color printing in this country.



---

*Alphabet Comique Artiste Endiable*. France: publisher unknown. Distributed by S.D. Sollers & Co. [circa 1880].

These alphabet cards are actually advertising trade cards. Many chromolithographic trade cards were issued in sets and meant to be collected by children, piece by piece. This one is unusual in being actually issued in a single unit with a box.

---

Audubon, John James, 1785-1851.

*The Birds of America: from Original Drawings*, chromolithography by J. Bien. New York: Roe Lockwood & Son, 1860.

This work epitomizes the highest quality of printed book which results from the collaboration of a great artist and a master printmaker. The original edition of *The Birds of America*, which consisted of 435 life-size, hand-colored aquatints, was hailed as a work of genius. Twenty years later, Julius Bien, a European-trained lithographer and map engraver, attempted to reproduce the quality of the original aquatints using the new techniques of chromo-lithography. The technical problems of transferring the images to stone and recreating the subtleties of hand coloring proved time consuming and



expensive and the project was never finished. The one volume that was completed, however, stands as a landmark of early color printing.

---



Bacon, Mary Ann.

*Winged Thoughts*. Drawn on stone by E.L. Bateman. London: Longman & Co., 1851.

Designed by Owen Jones, this is the very epitome of the Victorian book. The illustrations are brightly colored, a variety of design motifs are used throughout, and the poetry is overly sentimental.

---

*The Book of Ruth, from the Holy Scriptures: Enriched with Coloured Borders, Selected from Illuminated Mss. In the British Museum...* the Illuminations Arranged and Executed under the Direction of H. Noel Humphreys. London: Longman, Brown, Green, and Longmans, 1850.

One of the greatest of the nineteenth century illuminators, Humphreys did not merely imitate religious manuscripts, he created fresh designs in their spirit. His inspiration in this book were the medieval Flemish and Italian masters. He envisioned the book as a whole, with each two-page spread as a unit. In this work pages with softer greys and gold alternate with ones in full color.

---

Byron, George Gordon, 1788-1824.

*The Prisoner of Chillon*. Illuminated by W. & G. Audsley; chromolithographed by W. R. Tymms. London: Day, 1865.

The Audsley brothers were architects who had particular interest in polychromic decoration. They collaborated on a number of books which applied color and design to book decoration.

---



Hovey, Charles Mason, 1810-1887.

*The Fruits of America: Containing Richly Colored Figures, and Full Descriptions of All the Choicest Varieties Cultivated in the United States*. Boston: C. C. Little & J. Brown, and Hovey, 1851-1856.

*The Fruits of America* is the first high-quality chromolithographic book published in America. Its ninety-six plates contain subtle gradations in tone and complex overprinting that were the equal of the best work being done in England at the time. The printer, William Sharp, was the first American chromolithographic printer.

---

Humphreys, Henry Noel, 1810-1879.

*A Record of the Black Prince. Being a Selection of Such Passages in His Life as Have Been Most Quaintly and Strikingly Narrated by Chroniclers of the Period, Embellished with Highly Wrought Miniatures and Borderings...* London: Longman, Brown, Green, and Longmans, 1849.

Focusing on early English history, *A Record of the Black Prince* is an exception to the mainly religious subjects of illuminated books of the period. The decorative borders and illustrations are copied from medieval manuscripts. Showing all aspects of the printer's

art, the illustrations are chromolithographs, the borders and initials are wood engravings, and the type done by letterpress. The binding was one of the most elaborate of the period. Called *papier mache*, it was cast in black plaster made to look like carved ebony and pierced to show a crimson paper background.

---

*Insect Changes: an Illuminated Present for Youth: Forming a First Lesson in Entomology*. London: Grant and Griffith, 1848.

Written and illustrated by Noel Humphreys, the great book artist, this small children's book is an example of high-quality lithography used for an inexpensive popular work.

---

Jones, Owen, 1809-1874.

*Designs for Mosaic and Tessellated Pavements, with an essay on their materials and structure*, by F. O. Ward. London: Pub. by J. Weale, for J. M. Blashfield, 1842.

In this early example of full-color lithography, the color is applied in flat geometric areas, without overlapping. A close look at the plates shows occasional problems with the register, the color running slightly outside of the lines, but the overall look is very interesting.

---

Jones, Owen, 1809-1874.

*Examples of Chinese Ornament Selected from Objects in the South Kensington Museum and Other Collections*. London : S. & T. Gilbert, 1867.

The South Kensington Museum, now the Victoria and Albert Museum, was the newly-created center for the study of ceramics, silver and other decorative arts, whose goal was the improvement of British products through the study of well-designed objects from the past. One of Owen Jones' last works, *Examples* brings together his long-time study of design motifs and the improvements in printing technology not available for his earlier works.

---

*Lays of the Western World*, illuminated by T.W. Gwilt Mapleson. New York: Putnam [1848].

T. W. Mapleson was the best of the American illuminated book designers. He used chromolithography throughout; even the text is done by this method. This type of publication, known as a gift book was meant to be displayed on a table rather than read, similar to today's coffee table book.

---



Moore, Thomas, 1779-1852.

*Paradise and the Peri*. London: Day & Son [1860].

Designed by Owen Jones, *Paradise and the Peri* is taken from a longer work, *Lalla Rookh*, a very popular tale supposedly based on Persian mythology. The story follows a beautiful spirit who travels the world seeking a gift that will allow her to enter Heaven. The exotic tale allowed Jones to use motifs from Egypt and Persia as well as more traditional Western ones.

---

Petit, Victor, 1820?-1874.

*Maisons de campagne des environs de Paris: Choix des plus remarquables maisons bourgeoises nouvellement construites aux alentours de Paris...* Paris: Monrocq freres, ca.1850.

Little is known about this French lithographer. He exhibited lithographs in the exhibits of the Paris Salon and was a contributor to the most famous publication of French landscape prints, *Voyages pittoresques et romantiques dans l'ancienne France*.

---

L. Prang and Company.

*The Prang Examples of Historic Ornament*. Boston : The Company [circa 1890].

Prang brought the elements of historic design to the attention of the American public. These styles could be used for interior decoration, fabric, or furniture design.



---

Prang & Co.

*Prang's Prize Babies: How this Picture Is Made: an Outline of the Process of Chromolithography in General, Illustrated by Progressive Proofs of "The Prize Babies"* ... Boston: L. Prang & Co. [1888].

Louis Prang emigrated to the United States from Germany in 1850 and soon established a commercial lithographic company in Boston. He became the best known printer of popular chromolithography in America, producing maps, cards, books, and artistic prints. He produced thousands of reproductions of popular oil paintings--the chubby children, beautiful women, and pastoral landscapes we identify as Victorian art.

---



*The Psalms of David*, Illustrated by Owen Jones. [London, 1861].

Owen Jones is considered to be the greatest chromolithographic designer of the nineteenth century. His feeling for the design of the book as a whole influenced William Morris and, through him, the Arts and Crafts Movement. *The Psalms* uses a restricted palette of red, blue and gold for all of its decorations. The book was known as the *Victoria Psalter* because Queen Victoria accepted the dedication.

---

Russell, William Howard, Sir, 1820-1907.

*A Memorial of the Marriage of H.R.H. Albert Edward Prince of Wales and H. R. H. Alexandra Princess of Denmark*. Illustrated by Robert Dudley. London: Day and Son [1864]

The text was written by William Howard Russell, the war correspondent for the *Times* newspaper of London. The forty-three color plates pictured the processions and ceremonies of the royal wedding as well as the wedding gifts.

---

Texier, Charles-Felix-Marie, 1802-1871.

*Byzantine Architecture: Illustrated by Examples of Edifices Erected in the East During the Earliest Ages of Christianity, with Historical & Archaeological Descriptions*, by Charles Texier and R. Popplewell Pullan. London: Day & Son, 1864.

Charles Texier, one of the early scholarly leaders in Byzantine art studies, produced the drawings. Of the seventy lithograph plates, thirteen are in full color, the rest are tinted in one shade.

[Color Printing: Introduction](#)

[Intaglio Processes](#)

[Relief Processes](#)

[Nature Printing](#)



---

Ward, Marcus, 1806-1847.

*A Practical Treatise on the Art of Illuminating: with Examples, Chromographed in Facsimile and in Outline, of the Styles Prevailing at Different Periods, from the Sixth Century to the Present Time.* London: Marcus Ward & Co. [1873].

Marcus Ward & Co., the English printing company, is best known for their high quality greeting cards and children's books. *A Practical Treatise* is aimed at the amateur painter. It states that "there is nothing in the whole range of the Illuminating art of the Middle Ages...that the pains-taking student may not equal, or even surpass...by diligent application to its study." To this aim, it includes examples of alphabets and design elements copied from manuscripts.

---

Wyatt, Matthew Digby, 1820-1877.

*The Industrial Arts of the Nineteenth Century: a Series of Illustrations of the Choicest Specimens Produced by Every Nation, at the Great Exhibition of Works of Industry, 1851...* London: Day and Son, 1851-53.

The Great Exhibition of 1851 was the first international exhibition of arts and manufactures, the precursor of the World's Fairs. Matthew Digby Wyatt, Secretary to the Executive Committee of the Commissioners of the Great Exhibition, conceived this publication as a display of the best objects in the Exhibition reproduced by the most modern technology available. With 160 large-sized plates produced in under two years, the project was the most ambitious chromolithographic project of its time.

## RELIEF PROCESSES



The earliest printing process, the woodcut, is produced by cutting away the unwanted part of a piece of wood. The design that is left in relief is inked up with a roller and transferred to paper. The design is drawn directly on the wood which is cut plankwise or along the length of the grain or tree trunk. Cut this way, however, the wood has a tendency to splinter. Artists discovered that they could avoid the problem by cutting on the end grain of hardwood blocks, a

process called wood engraving. By using a burin, the wood engraver could produce a wider range of tones than were possible with a woodcut.

In Europe color was used with woodcuts almost as early as the printing press. The earliest example in a book of printing in two or more colors using engraved woodblocks was the *Psalter* printed by Fust and Schoeffer in Mainz in 1457. More frequent use of color appeared in the sixteenth century, primarily in prints known as "chiaroscuro" which were designed to imitate Renaissance wash drawings. They were usually printed in two or three closely related shades of color and each was printed with a separate wood block. The color woodcut, however, was much more highly developed in Japan, where by the eighteenth century, ten or more colors, each printed with a separate block were used. Full color printing from wood blocks became popular in Europe from about the middle of the nineteenth century. They became particularly popular for children's books which tended to use simpler images with broad areas of color. This required fewer blocks of wood and therefore fewer press runs and less cost to produce. The children's books written by Kate Greenaway, Randolph Caldecott, and Walter Crane remain classic examples.

Attempts were made throughout the nineteenth century to improve the process and bring together the advantages of both intaglio and relief printing. The most successful of these was the "Baxter Process" named for its inventor, George Baxter (1804-67). The process, which he patented in 1835, combined an copper or steel intaglio key plate which printed the main features of the design (usually in aquatint) followed by color applied by a succession of wood blocks. He used oil rather than water based inks, often using up to twenty wood blocks. The process allowed for both the delicate lines and details of copper plate engravings and the freer use of color of the relief processes. Although Baxter sold his patent to a number of other printers, the technique was seldom used after his death.

*The Alphabet of Flowers and Fruit*. London: Dean & Son [1856].

An advertisement on the back cover lists this title as one of a series of "coloured six-penny books" for children published by Dean & Son. Others in the series were *Rhymes about Royalty* and *Story about the Good Son*.



*The Art Album: Sixteen Facsimilies of Water-colour Drawings*.

Engraved and Printed by Edmund Evans. London: W. Kent and Co., 1861.

*The Art Album*, printed by Edmund Evans, the greatest wood-engraver of the Victorian era, was an attempt to reproduce the watercolor paintings of some of the best-known artists of the day. While some of the watercolors convert well into wood-engravings, it is clear in others that this is not the best method for reproducing the soft, transparent look of this medium.

*The Baby's Bouquet: a Fresh Bunch of Old Rhymes and Tunes; a Companion to the "Baby's Opera"* arranged & decorated by Walter Crane; cut & printed in colours by Edmund Evans; the tunes collected & arranged by L. C. London: G. Routledge [1880]. The *Baby's Bouquet* which included nursery songs from France, Germany, and England was a tremendous success with several hundred thousand copies sold. The designs were more sophisticated than most books designed for children at the time and show the



influence of the Pre-Raphaelites, Japanese art and the developing Arts and Crafts Movement.



---

Baxter, George, 1804-1867.

*The Pictorial Album, or, Cabinet of Paintings*. London: Chapman & Hall [1837].

*The Pictorial Album*, a selection of Baxter's color reproductions of paintings, was the first English book fully illustrated by pictures printed in colors intended to appeal to a popular audience. The richly colored plates are beautifully done, requiring between ten and twenty printings. However, the original paintings are examples of the trite, overly-sentimental style of the period.

---

Browning, Robert, 1812-1889.

*The Pied Piper of Hamelin*. Illustrated by Kate Greenaway. London: Frederick Warne and Co. [1880].

Kate Greenaway's simple use of color and somewhat childlike designs show up well in wood engraving. *The Pied Piper* was strongly influenced by Pre-Raphaelite art and by Greenaway's teacher and mentor, John Ruskin.

---

Chatto, William Andrew, 1799-1864. *A Treatise on Wood Engraving, Historical and Practical*. London: C. Knight & Co., 1839.

This survey of wood engraving became the standard work on the subject for much of the nineteenth century. It contains early examples of the original processes of color wood engraving done by George Baxter and Charles Knight, pioneers of the process.

---

Goldsmith, Oliver, 1728-1774. *The Poems of Oliver Goldsmith*. Edited by Robert Aris Willmott. With illustrations by Birket Foster and H.N. Humphreys. London: G. Routledge, 1859.

Birket Foster, a well known landscape and watercolor artist, made his drawings for this directly onto the woodblocks. After they were engraved, a paper copy was sent to him which he colored as he wished the final copy to appear. The engraver and printer, Edmund Evans, bought the same pigments that Foster had used and ground them himself to produce inks that matched the original coloring. The printing was done on a hand-press and required nine or ten press runs to produce.

---



Mudie, Robert, 1777-1842. *Spring, or, the Causes, Appearances, and Effects of the Seasonal Renovations of Nature in All Climates*. London: T. Ward & Co., 1837.

This title, one of a series on the seasons, is one of the earliest examples of relief printing with oil based inks, developed by George Baxter.

---

Savage, William, 1770-1843. *Practical Hints on Decorative Printing, with Illustrations Engraved on Wood, and Printed in Colours at the Type Press*. London: For the Proprietor, by Longman, Hurst, Rees, Orme, and Brown; T. Cadell; J. Booth; J. Major; R. Triphook; and R. Jennings, 1822.

This pioneering work in color printing covers Savage's experiments with inks, types, and presses. He developed colored printing inks using resins and soaps that avoided the

problems of earlier oil-based colors. The book illustrates his process of wood block printing using as many as twenty-nine different colors in one image. While the plates are not as attractive as the later works of George Baxter or Edmund Evans, it was Savage's experiments that made their work possible.

---

*Treasures of Art, and Beauties of Song: Embellished with Eight Facsimiles of Water-colour Drawings and Other Illustrations.* Engraved and printed by Edmund Evans. London: Ward, Lock, & Tyler [1865].

Designed as a gift book, *Treasures of Art* brings together wood engravings of well-known



## First steps

The telephone was discovered almost by accident. What people thought they were looking for was a way to make the telegraph work faster and more profitably - by sending distinct musical notes or tones simultaneously along the wires with a separate message sent on each frequency.

But they soon realised it could also include the human voice - a speaking telegraph. And if you could talk down a wire, wouldn't that be an entirely new and better way of communicating?

The individual parts of the telephone were discovered and developed by different people at different times.

Someone needed to take all those connections and draw them together into one working instrument. In the end that someone was Alexander Graham Bell - but he only just won the race.

### **Reis's telephone (1860) : the diaphragm man**

Who really invented the telephone? There are quite a few candidates, and the leading one is a German science teacher called [Philipp Reis](#).

Reis began work on the telephone in 1860, inspired by an 1854 paper by a French investigator named Bourseul, who suggested: 'Speak against one diaphragm and let each vibration 'make or break' the electric contact. The electric pulsations thereby





produced will set the other diaphragm working, and [it then reproduces] the transmitted sound.'

His idea was a little shaky. To send sound, the transmitter diaphragm shouldn't completely make or break an electrical contact but instead should vary the current of electricity flowing. His transmitter was a make-and-break device but Reis's receiver (earpiece) used a vibrating rod (a knitting needle in fact) that was magnetised to varying degrees by an electric coil.

Reis was let down by his apparatus - it could reproduce continuous musical notes well but produced indistinct speech. His telephone was shown in demonstrations all over Europe, including one in Scotland while Alexander Graham Bell was there, visiting his father.

### **Gray's telephone (1876) : close, but no cigar...**

Timing is everything. [Elisha Gray](#) knew that all too well. On February 14, 1876, the day that Alexander Graham Bell applied for a patent for his version of the telephone, Elisha Gray applied for a caveat - a document indicating that he intended to file his own patent claim within three months.

But Gray was a few hours too late - Bell had already filed an actual patent application - and the courts later ruled that this took precedence.

Even so, Gray's claim has its merits - Bell first transmitted the sound of a human voice over a wire, using a liquid transmitter of the microphone type previously developed by Gray and unlike any described in Bell's previous patent applications. He also used an electromagnetic metal-diaphragm receiver of the kind built and used publicly by Gray several months earlier.



### **The first telephonic sound (1875) : that elusive twang**

One summer afternoon, as Bell was working in his workshop in Boston, he heard an almost inaudible twanging sound from his prototype telephone - a sort of crude harmonica with a clock-spring reed, a magnet and a wire. This was connected to a similar device in another room where his assistant Thomas Watson was working.

Watson had snapped the reed on one of the instruments and from the other device Bell had heard exactly the same sound. It was the first time in the history of the world that a complex sound had been carried along a wire, and reproduced perfectly at the other end.



### **The first telephone call (1876) : "Mr. Watson, come here, I want you"**

After hearing their telephone first transmit a sound in June 1875, Bell and Watson spent the next 40 weeks making their telephone



actually speak. Finally, on March 10, 1876, Watson heard Bell's voice distinctly in the receiver saying: "Mr Watson, come here, I want you."

Watson, who was in another room, dropped the receiver and rushed with wild joy across the hall to tell the glad tidings to Bell. "I can hear you!" he shouted breathlessly. "I can hear the WORDS."

America's telegraph companies saw right away that Bell's telephone posed a powerful threat to their businesses and they tried to fight back. The Western Union company called on Thomas Alva Edison to develop an alternative to Bell's invention. The American Speaking Telephone Company in New York (a Western Union subsidiary) then went head-to-head with The Bell Telephone Company of Boston.

Within months, Bell sued Western Union for infringement of his patents. Western Union argued that it was Elisha Gray who had invented the telephone - but lost the court battle and had to hand over Edison's telephone rights and withdraw from the telephone business.

The Bell company absorbed the American Speaking Telephone Company and re-emerged as the American Bell Telephone Company in April 1880.

### **The first telephones arrive in Britain (1877) : 'greatest by far of all the marvels'**

Sir William Thomson (later Lord Kelvin) exhibited Bell's primitive telephone before the British Association for the Advancement of Science assembly at Glasgow in September 1876, describing it as "the greatest by far of all the marvels of the electric telegraph".

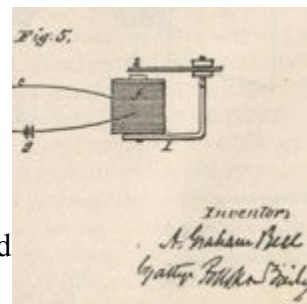
The first pair of practical telephones seen in Great Britain arrived in July 1877, brought here by William Preece, Chief Electrician of the Post Office. A few months later, Bell's 'perfected' type of telephone was exhibited at another meeting of the British Association in Plymouth.



### **Bell forms his company (1877) : but sales are slow ...**

Within a year of making the first telephone call, Bell and his financial backers - Thomas Sanders and Gardiner G Hubbard - had formed the Bell Telephone Company in the United States. Unsurprisingly, early demand for the telephone was not great and prior to forming their company Bell and his partners had struggled in their attempts to promote the new invention. At one point they even offered to sell the Bell patents to the Western Union

Telegraph Company - Elisha Gray's employers - for \$100,000. The offer was spurned - a decision the Western Union was soon to regret bitterly.



### **First British long distance calls (1878) : a royal introduction**

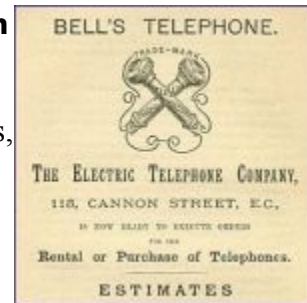
Alexander Graham Bell demonstrated his telephone to Queen Victoria on January 14, 1878, at Osborne House on the Isle of



Wight. During the demonstration Bell made calls to London, Cowes and Southampton. These were the first publicly witnessed long-distance calls in the UK.

### **Bell's British company is founded (1878) : from south to north**

Less than six months after making his first British demonstrations, the UK rights to the Bell patents had been taken up by a new British company, The Telephone Company (Bell's Patents) Ltd. One of the first telephone lines to be erected was from London's Hay's Wharf, south of the Thames, to Hay's Wharf Office on the north bank



### **grooved recordings**

*Gilles St. Laurent et al 1995*

#### **1. Introduction**

Disc and cylinder recordings are machine readable artifacts; they are documents whose physical well being is essential to preserve the integrity of the information that they contain. Many recordings, particularly those not produced for the commercial market are of unique historic value and should be treated with great care.

Since the majority of sound recordings are made of polymers (commonly called plastics), conservation must be treated as a polymer degradation problem, requiring a different approach to that used for the conservation of paper. As with paper, the life expectancy of a disc or cylinder is finite. The processes of chemical degradation are at work in all existing forms of sound recording and cannot be stopped. The rate of degradation can, however, be speeded up by poor handling and storage of recordings.

To preserve sounds for longer than the life of the disc or cylinder, the material will have to be copied. This can be a complex task, particularly for older or fragile recordings. In particular, seek expert advice if the collection includes cylinders, instantaneous (acetate) discs or any discs showing physical signs of decay. The basic message to remember is "If in any doubt, get advice". It is easy to damage these recordings but very difficult to restore them.

#### **2. History of Cylinders and Discs**

The first known sound recording was made by Thomas Alva Edison in 1876 using a sheet of tin-foil wrapped tightly around a cylindrical metal former with the basic groove pattern cut into it. The cylinder was turned by hand and a stylus attached to a diaphragm at the end of a pickup horn indented the pattern of the sound waves into the tin-foil. Initially,

Edison envisaged the cylinder recording being used primarily as a dictating machine. It was only later that the idea of mass producing prerecorded cylinders became commercially feasible. Cylinders were made until 1929 and were used both as a home and office recording system and, using prerecorded music, as a form of entertainment.

The development of the gramophone disc involved more people. Although Emil Berliner, a German immigrant to the United States of America, patented the idea in 1887, several other people had been working on the same concept. The earliest description was written in 1876, just before Edison's Phonograph recording, by the Frenchman, Charles Cros, who deposited a sealed envelope with the Academie de Sciences in Paris. This was almost identical to the patent obtained later by Berliner. Alexander Graham Bell, the inventor of the telephone, and his colleagues also developed a form of disc recording. The crucial developments of quieter, more crackle free recordings and of the clockwork motor were made by Eldridge Johnson in 1896-7.

The commercial use of gramophone discs started in 1894 with discs produced by Emil Berliner. The earliest players were manually driven; either by turning a handle or by a foot operated treadle. It was not until 1897 with the introduction of quieter recordings and the clockwork driven machines that the gramophone became popular. From the start, the gramophone disc was used to distribute prerecorded music and songs. Although disc recording machines were made, they were primarily aimed at the professional market and not the home or the office.

### **3. How Sounds Are Recorded And Played Back**

All grooved recordings physically retain information in the same fashion and are recorded in a similar manner. Acoustic recordings, (made prior to the use of microphones, ca. 1925), recorded sound by capturing and channelling changes of air pressure through a horn to a diaphragm with a cutting stylus mounted on it. The diaphragm would transform the changes of air pressure into an analogous mechanical motion while the cutting stylus etched the groove. Similarly, with the more modern electrical recordings, when the voltage generated by the microphone (which transforms changes in air pressure into changes in electricity) is applied to the cutting stylus, the stylus is moved in one direction when the voltage is increased and in the opposite direction when the voltage is decreased.

Cylinders and early Edison discs move the stylus vertically (hill-and-dale) and not from side-to-side (laterally) as with other discs. Examples of coarse groove discs that play from the centre outwards can also be found.

To retrieve information from a disc, a stylus is used to track the groove. The cartridge will convert the movement of the stylus to an electrical voltage (in the same fashion that a microphone converts mechanical motions to an electrical voltage) that can then be amplified and used to drive speakers. The movement of the speaker will be parallel to the movement of the stylus.

To play a cylinder, it first has to be mounted on the mandrel of a phonograph. Many cylinders have distorted central mounting holes and can easily crack if placed on a mandrel. The recording surface is very soft and, unless a modern, lightweight pickup is used, the recorded information can easily be scraped off by the playback stylus.

Careful examination of all old recordings is strongly advised before attempting to play them. If there is any visible sign of decay, seek expert advice. It is strongly recommended that cylinders and instantaneous discs be only played by an expert using a modern machine. If regular access to a collection of old recordings is required, then tape or CD-R copies should be made to avoid unnecessary playing of the fragile originals.

## **4. The Chemical Degradation Mechanisms Of Grooved Recordings**

### **4.1 General**

The life-span of a polymer is largely determined at the manufacturing stage. Variables such as basic resin, the materials added to the basic resin to alter its properties, the lamination of materials with dissimilar properties, and the manufacturing process itself, all directly affect the life-span of the polymer. Post-manufacture environmental factors such as storage conditions, temperature, humidity, and handling also contribute to the long-term stability of the polymers.

Polymers can be divided into two main classes: thermoplastic and thermosetting. Thermo-plastics soften and flow when heated and are normally shaped by heat and pressure. They will soften and flow again when re-heated. Vinyl, used in the manufacturing of LP's, is a thermoplastic.

Thermo-setting polymers are moulded under heat and pressure. A chemical reaction occurs so that once molded they do not soften when re-heated and will normally char before melting. Most 78s are made of thermosetting polymers.

### **4.2 Mass Produced Coarse Groove Discs**

#### **4.2.1 General**

Several types of mass produced discs have been manufactured during the past 100 years. The commonest are the shellac or 78. The other types are comparatively rare. If, however, you have some of these other varieties in your collection, or you are not sure what type of disc they are, seek specialist advice.

#### **4.2.2 Shellac Discs**

The first shellac discs date from the early 1900s. Although they are known as "78s", many of the early ones were designed to be played at other speeds. Speeds of between 60 and 100 rpm are known.

Shellac is a composite word; it's a combination of shell and Lac. The word "Lac" is the Hindu name of an insect that infests certain types of trees. The Lac draws sap from these trees, processes it through its digestive system and secretes the sap as a resin to form an attached protective shell around its body. The shell is generally smaller than a grain of rice and harvest involves scraping off the encrusted shells from twigs and branches.

After World War II, resins such as Vinsol, Valite, vinyl chloride acetate and other commercial resins replaced organic shellac as the main binder. These polymers are slightly more stable than organic type discs and it is often difficult to distinguish between shellac and shellac type discs by visual inspection.

Determining the causes of shellac disc degradation is difficult because a very wide range of qualities of shellac and "fillers" have been used by manufacturers. One cannot, therefore, expect consistent behaviour from stored shellac discs. The disc properties are as much a function of the filler as they are of the cementing agent. The fillers used run the gamut of natural cellulosic materials as well as of minerals. Record manufacturers would introduce scrap as filler into new mixtures. It was not uncommon for the scrap to include soft drink bottles, litter, pieces of masonry or other unwanted material, all of which were ground up and mixed in with the next batch of compound. The manufacturers would also recycle returned, unsold shellac discs.

In general, shellac discs are relatively stable. The curing process of shellac during disc manufacturing generates a chemical reaction where certain simple molecules such as water and ammonia are eliminated. Curing causes shellac to shrink, increasing its density and its brittleness. This shrinkage continues at a much slower rate after the disc is manufactured. The speed at which shrinkage occurs is a function of storage temperature, storage humidity and completeness of cure. Storage stabilities of the fillers vary widely. Organic materials in the aggregates are susceptible to fungus attack, while shellac itself is resistant to fungus attack.

In a proper storage environment, these discs suffer a slow, progressive embrittlement of the shellac. This embrittlement causes a fine powder to be shed from the disc after each play-back. The behaviour of the other aggregate components is unpredictable, due to the wide combinations and variety of materials (and of material quality) that were used.

#### **4.2.3 Vulcanite (hard rubber) Discs** (early Berliner records)

Vulcanite was the first material used commercially by Berliner and provided the necessary basis for the exploitation of the flat disc. Vulcanite is a rubber based composition and is stable in the dark. It retains its



appearance and properties very well. In response to light and/or heat the material loses sulphur then becomes brittle and loses its shine. The degradation can be demonstrated when playing an afflicted Berliner. The surface of the disc is shaved off by the pressure of the stylus against the groove wall.

#### **4.2.4 Columbia Discs (laminated discs)**

In 1906 Columbia introduced the Marconi Velvet Tone developed by Giulemino Marconi. The manufacturing technique involved using a craft paper core cut to approximate record size. After the core was carefully flattened and dried, it was covered with a powdered shellac compound of a thin uniform thickness. The dust-coated core was put in an oven and the dust fused to the core. For two-sided records, the operation was repeated for the other side. The advantage of this construction was that the amount of surface material needed to carry the music grooves could be kept very small. This economy allowed the use of the best polymer available at that time. Edison was to use this idea in 1912/13, in the manufacturing of his Diamond Disc.

In 1922 Columbia returned to the laminated record, this time with a coarser compound for the powder core that was bonded between two discs of craft paper.

#### **4.2.5 Edison Diamond Discs**

The Edison Diamond Disc has the distinction of having been made of the first completely synthetic polymer, a material called phenol (phenol was also used in the manufacture of Bakelite). The Edison Diamond Disc is a laminated disc made up of a thick core and thin varnish layers covering each of its sides.

Prolonged contact with moisture or severe changes in humidity may cause damage to the surface through moisture absorption. In general, phenol is very stable and presents no serious degradation problems, neither is it prone to attack by bacteria, fungi or insects although, occasionally, under humid conditions moulds may grow and cause some surface attack on a nutrient filler such as wood or cotton, or be supported by a nutrient contaminator on the surface.

### **4.3 Instantaneous Discs (Acetate Discs)**

Prior to the advent of magnetic tape, instantaneous recordings were made on disc. The chemical make up of these discs had to be a compromise between ease of engraving and the quality of the recording that resulted. Since the 1930s, most blank instantaneous discs have been manufactured with a base, usually aluminium (although glass and steel were used during the war years and cardboard for inexpensive home recordings), that was

coated with nitrocellulose lacquer plasticized with castor oil. Because of the lacquer's inherent properties, these acetate discs are the least stable type of sound recording and expert advice must be sought before attempting to play these discs.

The gradual loss of plasticizer causes progressive embrittlement and the irreversible loss of sound information. Because the coating is bonded to a core which cannot shrink, internal stresses result, which in turn cause cracking and peeling of the coating. In addition, nitrocellulose acetate decomposes continuously and over time reacts with water vapour or oxygen to produce acids that act as a catalyst for several other chemical reactions. As with most chemical reactions, these reactions are accelerated with elevated temperature and humidity levels.

Other materials were used to make instantaneous discs. Examples may be found with a gelatine coating or made of uncoated zinc. As with acetate discs, these are usually unique recordings and fragile. Seek expert advice before attempting to play them.

#### **4.4 Vinyl Discs (LPs)**

Thus far, vinyl has proven to be the most stable of the materials that have been used in the manufacture of sound recordings. However, although stable, its life is not indefinite. Pickett and Lemcoe, in *Preservation and Storage of Sound Recordings*, state that "failure by chemical degradation of a vinyl disc in ordinary library environments should not occur in less than a century".

Vinyl discs are made of polyvinyl chloride (PVC) and a small percentage (usually less than 25%) of fillers, stabilisers, pigments, anti-static substances etc. Internal plasticization, through a copolymerizing of vinyl acetate with vinyl chloride, is needed to achieve the required properties for the desired application.

Polyvinyl chloride degrades chemically when exposed to ultraviolet light or to heat. Phonograph discs are exposed to high temperatures during moulding and pressing. Unless stopped, this heat would be a catalyst for on-going dehydrochlorination, which is the release of hydrogen chloride (HCl, which, when combined with water, makes hydrochloric acid) from the PVC as a result of thermo-degradation. Stabilization is therefore achieved by adding a chemical to the resin during manufacture. This does not prevent the degradation but controls it, mainly by consuming the free HCl. Sufficient effective stabilizer remains in a plastic phonograph disc to protect it for several decades after pressing.

#### **4.5 Cylinder Recordings**

Early cylinders, both the blanks used for home recordings, and the prerecorded, were made by coating a solid core, often made of plaster, with one of several types of natural polymer. One form of coating material was a type of wax hence the commonly used description "wax cylinder".

Later types, such as the "Blue Amberol" series of recordings, were moulded from polymers without using a plaster core.

All cylinders are now very fragile. The polymers, both coating and monolithic, and the core materials are decaying and irreversibly breaking down. Urgently seek advice if you have any cylinders in your collection.

### **5. Preservation of Sound Recordings**

A good definition of preservation put forward by the International Institute for Conservation; Canadian Group and the Canadian Association of Professional Conservators is that:

*"Preservation encompasses all actions taken to retard deterioration of, or to prevent damage to, cultural property. Preservation involves controlling the environment and conditions of use, and may include treatment in order to maintain a cultural property, as nearly as possible in an unchanging state."*

There are essentially only three concerns to consider when handling and storing discs:

- \* That they be kept free of any foreign matter deposits.
- \* That they be kept free of any pressure that might cause deformations.
- \* That they be stored in a stable, controlled environment.

## **5.1 Foreign Matter Deposits**

### **5.1.1 The Dangers of Dirt**

Dirt can be classified into two categories:

- \* Foreign matter deposits which are not part of the original object, such as grease from fingerprints, soot, stains, adhesives, etc.
- \* Alterations of original object material through chemical reactions (whether internal reactions or reactions with environmental agents). Metal corrosion products, palmitic acid from acetate discs, or a gummy substance on tapes are examples of alteration in the state of the original.

Dust is commonly a mixture of fragments of human skin, minute particles of mineral or plant material, textile fibres, industrial smoke, grease from fingerprints, and other organic and inorganic materials. There are often salts such as sodium chloride (carried in from sea spray or on skin fragments), and sharp gritty silica crystals. In this chemical mixture are the spore of countless moulds, fungi and micro-organisms which live on the organic material in the dust (fingerprints, for example, serve as good culture media). Much of the dirt is hygroscopic (water-attracting) and this tendency can encourage the growth of moulds, as well as increase the corrosiveness of salts, hydrolysis and the release of acids.

Dust (including fingerprints) will negatively affect disc preservation in a number of ways. Dust is abrasive, and combined with the pressure exerted on the groove walls by the stylus, can permanently etch the walls. Worse, dust can also be embedded permanently into thermoplastic substances.

Only a small point of the stylus is actually making contact with the groove walls. A force of 15 mN (milliNewtons) or 1.5 grams from the stylus on such a minute surface translates to several tonnes of pressure per square centimetre. The resulting drag generates enough heat for the polymer to partially melt (though not enough to deform), causing a microscopic flow around the stylus into which dust can be embedded permanently.

### 5.1.2 To Minimize Foreign Matter Deposits

- \* Never touch the grooved surface of a disc. Handle by the edges.
- \* Remove a disc from its outer sleeve by bowing the sleeve open by holding it against the body and applying slight pressure with one hand. Pull out the inner sleeve and the disc by holding a corner of the inner sleeve with the other hand. Avoid pressure on the disc itself: this would press any dust trapped inside the inner sleeve into the record surface.
- \* Remove the disc from the inner sleeve by bowing the sleeve and letting the disc slip gradually into an open hand so that the edge falls on to the inside of the thumb knuckle joint. The middle finger should be extended to reach for the centre label of the disc. Never reach into the sleeve.
- \* To hold a disc, place a thumb on the edge of the disc and the fingers of the same hand on the centre label for balance. Use both hands on the edge to place the disc on to a turntable.
- \* Discs should not, unnecessarily, be left exposed to open air. Return items to their sleeves when not in use.
- \* Do not use paper or cardboard inner sleeves and do not store records without inner sleeves.
- \* Use soft polyethylene inner sleeves. Do not use sleeves made of PVC.
- \* Do not place discs near sources of dust including paper or cardboard dust.
- \* Keep the surrounding area clean. Do not consume food or beverages in the area in which discs are handled.
- \* Keep storage facilities as clean and dust-free as possible. The air conditioning system should be equipped with dust filtering equipment.
- \* Do not use carpets in the storage or work areas. They create and hold dust which is blown into the air by vacuum cleaning. Carpets can also build up static electricity charges. Use a washable flooring material which does not build up static electricity.

### 5.1.3 Cleaning

*Please Note - Refer to manufacturer safety data sheets for information on the use of any chemicals mentioned herein.*

Since dust is usually held in place by electrostatic attraction, dry wiping does not work effectively. The friction of the wiping action will increase

the electrostatic charge and attract dust back to the surface - often in increased quantity.

Distilled water is commonly used because:

- \* Its precise chemical composition is known.
- \* It will not leave deposits behind
- \* It is safe and non-toxic.
- \* It is inexpensive.
- \* It disperses static charges and counteracts the increase in conductivity from the pick-up of salt deposits from finger prints.

Water alone cannot, however, dissolve grease. A surfacant additive is necessary, therefore, to break the grease surface bonds and to allow the water to penetrate and disperse the grease. Discs are best cleaned by using a machine such as the Keith Monks, VPI or Nitty Gritty using a surfacant in distilled water. These machines evenly disperse the liquid over the surface of the disc and then vacuum clean the surface leaving it clean and dry. Records should be cleaned before each playback.

An airgun or aerosol of compressed air should be kept handy to blow light dust off surfaces.

Berliner Vulcanite discs showing signs of acid build up (loss of surface shine and slight groove damage causing dust when played) should be cleaned with a standard cleaning solution.

Acetate discs showing signs of palmitic acid deposits (a white, greasy substance on the disc surface) should be cleaned the same way as vinyl discs. Add two parts of ammonia to 100 parts of the standard cleaning solution. UNDER NO CIRCUMSTANCES SHOULD THIS AMMONIA SOLUTION BE USED ON SHELLAC BASED DISCS.

## **5.2 Surface Deformations**

Since the surface of a disc is the information carrier, it is critical that the surface is well cared for. Physical deformations such as warping of discs or shock caused by dropping them, will directly affect the integrity of the sound information.

### **5.2.1 To Minimise Deformations**

- \* Never leave discs near sources of heat or light (especially ultraviolet light) as polymers are adversely affected by both.
- \* Do not place heavy objects on top of discs. Discs should never be placed on top of each other.

- \* Shelf discs vertically; do not stack at an angle or horizontally.
- \* Do not use shelving units with supports that put more pressure on one area of a disc or with supports more than six inches apart.
- \* Do not use PVC coated shelves. The plasticisers in the PVC may soften the polymers of the discs.
- \* Do not file discs of different sizes in the same shelf area. Smaller items may get lost or damaged and larger items subjected to uneven pressures.
- \* Completely remove any shrinkwrap on LPs. The shrinkwrap continues to shrink and can lead to warping of the disc.

### **5.3 Environment**

A proper environment for the storage of sound recordings is essential to retard the degradation mechanisms. The temperature and humidity must be controlled to provide the correct storage environment. Elevated temperature and humidity can affect the chemical properties of the polymers and can also encourage the growth of fungus. Wide or rapid fluctuations in the storage environment will also accelerate degradation mechanisms.

#### **5.3.1 Shellac Discs**

High humidity levels accelerate the embrittlement of shellac discs. This embrittlement causes a fine powder to be shed from the disc after each playback, effectively scraping away groove information. The severity of the embrittlement is unpredictable because of the wide variety, combinations and quality of materials used during production of the discs. The average shellac content in a shellac disc is about 20% with the remaining 80% composed of aggregates or fillers. Organic materials in the aggregates are susceptible to fungus attack but the shellac itself is said to be fungus resistant.

#### **5.3.2 Acetate Discs**

Shrinkage of the lacquer coating due to loss of plasticiser is the primary destructive force of these discs. This leads to cracking of the coating without any warning and, in extreme case, delamination of the disc. These discs must be copied as swiftly as possible by an expert. Excess moisture will accelerate the plasticiser loss. Acetate discs decompose continuously and, over a period of time, react with water vapour or oxygen to produce acids that in turn act as catalysts for several other chemical reactions. One of these is the release of palmitic acid, a white waxy substance that is deposited on the surface of the discs. Acetate discs are very susceptible to



fungus growth. Excess heat will probably accelerate the loss of adhesion of the coating.

### **5.3.3 Vinyl Discs**

Vinyl discs are adversely affected by ultraviolet light and thermal cycling (heat fluctuations). The consequence of thermal cycling is that each cycle of temperature change results in a small, irreversible deformation. These deformations are cumulative. Vinyl discs are resistant to fungal growth and are unaffected by high humidity levels.

### **5.3.4 Correct Storage Environment**

- \* Store discs at a stable, maintained temperature of between 15EC and 20EC. The fluctuation of temperature should not slowly vary more 2EC in a 24 hour period.
- \* The relative humidity should be maintained at between 30% and 40% with a slow fluctuation of no more than 5% in a 24 hour period.
- \* Maintain proper ventilation and air circulation of the storage stacks at all times to avoid localised variations from the optimum storage conditions (Microclimates).
- \* Keep discs in darkness when not being accessed. Fit light fixtures that do not produce ultraviolet radiation in excess of 75mW/1m (microwatts per lumen).

## **6. Conclusion**

Over the past century, recorded sound has become an intrinsic part of our culture. Upon hearing an early sound recording in 1888, Sir Arthur Sullivan declared "I was astonished and somewhat terrified at the result of this evening's experiments - astonished at the wonderful power that you have developed and terrified at the thought that so much hideous and bad music may be put on record forever! "

Unfortunately, sound recordings are not "forever". These are ephemeral documents, both in their physical composition and, consequently, in the means by which the sound is ultimately retained. They can have their lifespans shortened considerably by both internal and external forces. By undertaking certain precautionary measures, custodians of the heritage of sound can considerably lengthen their collection's lifespan and, thus, preserve a rich and invaluable world

# **Indian Gramophone Records**

## The first 100 years

The first voice of an Indian person was recorded by the Gramophone Company in 1899 in London. In 1902, first gramophone disc was cut at Calcutta. [Kinnear, 1994] While celebrating centenary of these historical events from 1999-2002, it will be interesting as well as instructive to review the achievements. During this long period, many record manufacturing companies have recorded Indian music. Although HMV - *His Master's Voice* - continues to enjoy their monopoly in this field, about half million gramophone records have been manufactured and marketed in India under variety of banners and labels. Large number of artists have recorded various musical forms and styles from different regions of Indian subcontinent. Of course, a major portion of these recordings belong to Indian film songs. However other forms like classical, light classical, folk, religious music etc. have been recorded extensively.



Due to the advancement in science, new technologies have emerged in the last hundred years. This has led to variety of formats of sound recording and reproduction ranging from cylinders to compact discs and from talking machines to laser disc players. Of these formats, gramophone records have stayed for almost eighty years and have played a significant role in preserving the musical heritage of India. Although Indian musical culture is inscribed in the microgrooves of these records, very little attention is paid in preserving it for posterity. This paper attempts to present an overview of gramophone records in India with special emphasis on 78 rpm and EP/LP records. Some aspects of collection, promotion, preservation and research of gramophone records are discussed. Efforts towards documentation and archiving have been noted.

### Cylinders and sound recording/reproduction

November 29, 1877 - 'The Invention Factory', located at Menlo Park, some 25 miles away from New York City. John Kruesi, an expert technician was busy making a novel machine as per the drawing given by his master, Thomas Alva Edison. The cost of the machine was mentioned around - \$18 with the remark - 'This should talk'. Many colleagues laughed while watching John working on this machine made up of brass and iron cylinders, diamond styli and arrangements made for rotating these cylinders. Most funny thing was a metal cone (like a horn) with tiny needle at the narrow end. Soon the machine was ready and Edison entered the laboratory for its inspection. He was very pleased with the workmanship of his technician. He wrapped a tin-foil around the curved surface of the cylinder tightly, placed the diamond stylus gently at one end of the foil. Using the handle on right, he began to rotate the cylinder gently but at somewhat uniform speed. Ensuring that the needle is cutting uniform groove in the tinfoil, he then shouted in the horn - reciting the famous nursery rhyme:

"Mary had a little lamb, its fleece was white as snow  
And everywhere that Mary went, the lamb was sure to go"

Everyone was watching breathlessly. Edison was pleased to see that his shouting has produced zig-zag grooves in the tin foil of one foot long cylinder. He then brought the

horn and the needle in the original starting position, changed the stylus, placed the needle in the newly formed grooves and began to rotate the cylinder as before. Initially, lot of noise came out of the horn. As the needle began to pass through the zigzag groove, feeble voice of Edison came out distinctly reciting back the same nursery rhyme that he had shouted (due to his partial deafness since childhood) in the horn a minute ago.

All the persons present in the laboratory were stunned. Edison himself could not believe, since it was a rare occasion that the experiment was successful in the very first attempt. With great enthusiasm and vigor, they worked very hard, made improved versions of the machine and repeated the experiment number of times for confirming its reproducibility. On 6th December 1877 he rushed to the Patent office in New York with his machine and filed claim for the patent. On December 22, 1877 he demonstrated this machine in the office of *Scientific American* and this journal reported this discovery to the rest of the world. Once again, Edison had proved himself to be what some journalist used to call him - 'The Wizard of Menlo Park'. On January 19, 1878 he received the patent for the invention of his cylinder phonograph. Edison wrote in his diary 'The machine does not have much value'.

The invention was shelved for over ten years and in June 1888, he worked for seventy-two hours without sleep working on his improved model of phonograph which had a battery operated motor for attaining the uniform speed. [see the picture]. Later until 1911, he improved upon the models, founded Edison Phonograph Company but never liked his invention used for the entertainment purposes. Around the same time, Hester Bell and Charles Tainter did some improvements in Edison's tin-foil phonograph. These were the evolutionary changes to make machine more suitable for storing messages, letters etc. Nobody including Edison realised the hidden commercial and entertainment potential in this invention at that time.

When did the first cylinder phonograph came to India ? There are several stories and a detailed account has been given by Amitabha Ghosh in *The Record News* - TRN - 1999. pp.73-97. As per this article, the first demonstration of the cylinder phonograph was around December 1878 (within a year of its invention) at Calcutta. The oldest dealer of HMV in Delhi, Maharaj Lal & Co was founded in 1895. At that time they were selling cylinder records. These looked like a stack of bangles worn by women, and hence common man named them as 'Bangles' and the music from the records as 'sound from bangles'. Professor H Bose, the renowned businessman of Calcutta, entered into this new business of cylinder records under the banner of 'H Bose Records' and later 'Pathe-H Bose Records'. His catalogue of 1906, lists number of cylinder recordings of Rabindranath Tagore. Most of these have been lost to history except the *Bande Mataram* sung by Rabindranath Tagore. Cylinder records were in market until 1906-10, even at the same time as the single and double side flat discs of the Gramophone and Nicole companies. Although there is no systematic catalogue found so far, it is believed that several hundreds of cylinders were recorded both privately and commercially. Unfortunately, no working cylinder machine or cylinder is found with any collector in India so far. Some of the museums and archives have stored broken, worn out machines and cylinders in the showcases as antique pieces.

### **Sound from flat discs**

Several young people were fascinated with the Edison's tinfoil phonograph of 1877 that had practically reached everywhere in next ten years. One such person was in Washington city - an emigrant twenty years old young man, Emile Berliner from Hanover, Germany. He made his living as a draper's clerk but devoted his spare time to solve the electrical problems connected with telephones and phonographs. For his patent on telephone transmitter, he received \$75,000 in cash from the Bell Telephone Company and this helped him in experimenting with the phonographs. He had an idea of using flat disc in place of a cylinder. F W Gaisberg has written an interesting story about this invention in his book *Music on Record*:

It was Bill Golden who asked me one day in 1891, if I would go with him to see a German who had started experimenting with a flat-disc talking machine record and make some trials. We found Emile Berliner in his laboratory, moving up and down in his small studio buzzing on a diaphragm, "Hello, hello!" and in his guttural, broken English, "Tvinkle, tvinkle little star, how I vonder vot you are". I was introduced to the inventor and invited to witness the making of the *first gramophone record*. Berliner placed a muzzle over Golden's mouth and connected this up by a rubber hose to a diaphragm. I was at piano, the sounding box of which was also boxed up and connected to the diaphragm by a hose resembling an elephant's trunk. He asked, "Are you ready?" and upon our answering yes, he began to crank like a barrel organ, and said, "Go." The song finished and Berliner stopped cranking. He took from the machine a bright zinc disc and plunged it into an acid bath for few minutes. Then taking it out of the acid, he washed and cleaned the disc.

Placing this disc on a reproducing machine, also operated by hand like a coffee grinder, he played back the resulting record from the etched groove. To our astonished ears came Billy Golden's voice. He explained to us how this method was superior to the phonograph. I was spellbound by the beautiful round tone of the flat gramophone disc. Before leaving, I exacted a promise from Berliner that he would let me work for him when his machine was ready for development.

Soon Berliner invited Gaisberg and their association lasted for several years. They did everything possible to promote, popularise and market this new invention. Improved machines with clockwork motors and springs were made. They found financiers, recording artists and, most importantly, a simple method of stamping endless copies from the master disc. In order to cash in on his European rights before rival inventors could steal his market, Emile Berliner sent his agent W B Owen to London and subsequently Gaiseberg went to London in 1898 for taking the recordings. Berliner sent his nephew Joe Sanders to Hanover to build the record pressing plant.

This was followed by series of recording expeditions in Europe, Russia and Asia - including India. Michael Kinnear has given detailed history in his *book The Gramophone Company's First Indian Recordings [1899-1908]*, Popular Prakashan, Mumbai, [1994]. The first ever Indian voice was recorded in London in 1899. These

were 7" diameter records with recording on one side only. These 44 records were by Captain Bholanath, Dr Harnaamdas and Ahmed who sang or recited in various languages. None of these records have been found by the collectors but these were listed in gramophone company's 'foreign' lists upto 1904.

In 1901, J W Hawd came to Calcutta and soon a branch office was opened. F W Gaiseberg arrived in 1902 for his first recording expedition and recorded about five hundred songs. These were then sent to Joseph Berliner's pressing factory at Hanover in Germany. In order to have recorded documentation, for making paper labels, the artists

were asked to announce their names in English at the end of singing. This helped the technicians in Germany in making the final records ready for sale. Hence, several records of that period have words 'Made in Germany/Hanover' printed on label and the announcement at the end. Initial recordings were taken from 'Nautch Girls' (dancing girls) and 'Baiji's' or 'Kothewalis'. Later on celebrities like 'Gauhar Jan of Calcutta', 'Jankibai of Allahabad', 'Peara Sahib' recorded prolifically for the company. This continued for two more recording expeditions and about 3000 wax records were made, pressed in Germany and brought back to India for marketing. F W Gaisberg writes:



'All the female singers were of course from the caste of the public women, and in those days it was practically impossible to record the voice of a respectable woman. The songs and dances were passed by word of mouth from mother to daughter. They began public appearances at the age of ten to twelve years. The clever ones went up to the top and sometimes travelled all over the country in great demand at the wedding feasts of the wealthy. As they began to make names for themselves many of them insisted that the word 'amateur' should be printed on record label. Fees as a rule, were very reasonable in comparison to those paid in Europe, but recording expenses were heavy, since most of the artists had to be trained over long periods before they developed into acceptable gramophone singers.



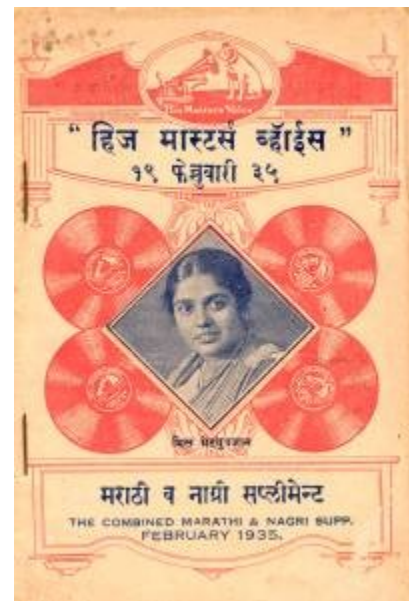
By this time, the recording medium changed from zinc to wax and the record copies were pressed in lac. Lac, Lacca, Lakh or Laksha is a hardened resin secreted by the tiny lac insects that settle closely on the twigs, suck up the plant sap and grow to form an encrustation. These are then scraped from the twigs of host plants. This raw lac called 'sticklac' is crushed to small grains, sieved, winnowed, washed and dried. This semi-refined product is the 'seed-lac' which is further processed by

hot melting system, filtered and stretched into thin sheets called shellac. This shellac is non-toxic and is used in many different applications including base for the gramophone records. Annual 'stick lac' production of India is about 15,700 metric tons which is about 75% of world lac production. Bihar, Madhya Pradesh, West Bengal are the major centers for the lac production. During the first world war (1914-1919), the gramophone record industry depended largely on India for the supply of shellac. Due to high demand from gramophone record companies, India faced an extensive export orders and was the single largest supplier for about 75 years.

Availability of plenty of lac/shellac was one of the reasons for setting up a record pressing plant at Sealdah, Calcutta in 1908. As the complete factory was built there was no need to send the wax masters to Germany and as a result announcements at the end of the song also disappeared. Common workers employed in this factory called it "Bajakhana", as if it was a gymkhana of sound. In this factory, baja (harmonium) was the main instrument used in accompanying the singers and the product was the pressed record. This name sounds like 'Davakhana' (medical dispensary), 'Chhapkhana' (printing press), 'Darukhana' (ammunition store). Incidentally, Michael Kinnear's web page address on internet contains this word 'Bajakhana' as -

[www.bajakhana.com.au](http://www.bajakhana.com.au) and it gives a detailed history of sound recording in India in last one hundred years.

Considering the enormous market in India, several rival gramophone companies from Germany, France and England entered the market [like the present multinational companies]. Until 1916, about 75 different record labels/brands were seen in Indian market, the important ones being - Nicole, Universal, Neophone, Elephone, H Bose, Beka, Kamla, Binapani, Royal, Ram-a-Phone (Ramagraph), James Opera, Singer, Sun, Odeon, and Pathe. With time, all these companies either disappeared or got merged with Gramophone Company. The name His Master's Voice (HMV) and the label first appeared in 1916 and soon established their monopoly in the market.



### Sound on vinyl discs

Sound recording and reproduction technology was constantly changing. Initially everything was mechanical and was termed as 'Acoustic' era. Around 1925, 'Electrical' technique using a carbon microphone was introduced. Around the second world war came the magnetic heads and tape recorders. In 1931, Gramophone Co and Columbia Graphophone Companies were merged to form Electrical and Musical Industries Ltd (EMI). In 1952, EMI launched its first 33 1/3 rpm microgroove Long Playing record, along with 7" diameter 45 rpm microgroove singles of both classical and pop music. In 1954, first 7", 45 rpm extended play (EP) record was launched.

Soon, these vinyl records appeared in India too. The first microgroove record from Gramophone Co was introduced in 1958. These were 45 rpm 7" extended play (EP) records. Of the early releases, one by Ustad Ali Akbar Khan's (no.7EPE 1201) *sarod*





recital record became very popular. In 1959, an LP record plant was established at the Dum Dum factory of Gramophone Company and it was inaugurated by Pt Ravishankar in May. The first LP record was released in June. In the first year about 125 LP records were issued. In the LP/EP era, HMV released lot of records concerned with social issues. A set of lectures by Pt Jawaharlal Nehru, was issued on ECLP 2302. It's mother shell was presented to President of India for preserving it as a national heritage. *A Battle Not For Seeking* (ECLP 2315) had lectures by Dr S Radhakrishnan, Dr Zakir Hussain and Lal Bahadur Shastri. Around 1965, the first stereo LP was issued in India and EMI released its first pre-recorded cassette in 1966.

Unbreakable, long lasting and long playing records became very popular and slowly superseded the shellac 78s. Ultimately, the production of 78s was discontinued in late '70s. Thus, a long era of 3.5 minutes music on a gramophone record came to an end. Audio and Video music cassettes took over LPs and EPs for about twenty years until the Compact Disc was produced in EMI factory in 1986. The 'disc' and 'the groove' returned with new optical technology that employed Semiconductor Lasers. A new era has begun at the turn of the century and the millennium which will probably lead to a 'World library of sound and pictures' which could be accessible to anyone through internet in the cyberspace.

#### **Preservation Documentation, Archives and Research**

During last one hundred years, over half million records were issued, spanning all musical styles in all Indian languages. Although the recording activity began with the cylinder recordings, the major portion of the records was issued on breakable shellac 78rpm format. Towards the end of this century, we find that not a single recorded cylinder is available in India. Same is the fate of early shellac records and soon LP/EP and cassettes will disappear. Thanks to several individuals and few institutions who have preserved some of these records. An attempt is made here to collect the information of such efforts. Section four lists some of the known collectors of Indian gramophone records. The largest collection of about 35,000 records rests with Mr V A K Rangarao, at Chennai (Madras). There are at least 100 collectors in India who possess records form few hundreds to few thousands. These individual collections reflect the taste and the liking of the collector. Majority (almost 95%) of these collectors have records of film music. The major source of collection is a junk or flea markets located in various townships and big cities. Delhi, Mumbai, Bangalore, Kanpur, Madras have large numbers of music shops and stores who trade and sell old records. Besides, old records from the family friends and relatives also enrich the collector's mini-archive. Of course, with time, this number is becoming small. Since 1980, large number of young music lovers have also begun to collect audio and video cassettes. Similar collections of CDs will also commence soon. Unfortunately these collectors are not organised.

Ten years ago, some of the collectors in Mumbai came together to form a group of record enthusiasts. With the help, support and guidance of Mr Michael Kinnear (discographer and researcher of Indian records) from Australia, the *Society of Indian Record Collectors* was founded in Mumbai. Monthly listening sessions are held and a magazine titled *The Record News* is published. The Society has over 150 life members from all over India and abroad, and its units at Nanded, Solapur, Tuljapur and Baroda are functioning very

well with the aim of preserving this treasury for posterity. This is probably a unique organisation in India.

These small efforts may not be sufficient and archival tasks involving large number of individuals and institutions will have to be taken up. Of course, the gramophone company should be the prime mover. However in an interview (*Songs From Records*, Shibashis Bandopadhyaya, "Desh", Bengali weekly C.1994 ?) the then Chairman of HMV, Mr Pradeep Chandra, said, "For reissuing our own records we have to approach private collectors. Yes, we ought to have collected and saved our properties properly. Our archive, though not very old, have some old records, may not be all. Firstly, we have to look into the state of business. The condition is very bad! Due to the government's apathy, the business of fake/pirated cassettes is increasing at alarming rate and we are facing grimmer situation. In these financial circumstances, it is impossible for the company to build the archive from the scratch."

While this is true for the manufacturers who still hold the copyright of their products, it is interesting to note such archival efforts in Europe and in America. In addition to individual collections and depositories, France (Phonothèque), England (British Library, National Sound Archive and EMI Archive) and Germany have their own archives. The Internet lists over 2000 such sites giving details about the archives of gramophone records in various countries in world, from whole continents like Africa to small Scandanavian nations like Norway.

As Indians, where do we stand ? Well, as yet a National Sound Archive is a distant dream like a mirage. There are several institutions, music departments of various universities, *All India Radio* stations, Sangeet Natak Academy, American Institute of Indian Studies, New Delhi, Sangeet Mahabharati and National Center of Performing Arts, Mumbai (NCPA) have large collections of gramophone records with adequate listening facilities. These are accessible to music lovers and researchers. Unfortunately, these institutions prefer to work in isolation and there is a lack of communication between them.

In last 20/30 years, a sizeable number of books and periodicals related to gramophone records have been published. Section five lists some of these. So, with the help of written, audible and visual matter available in the country, it might be possible for a researcher of 21st century to take the initiative in writing history of sound recording in India.



### **Historical events in sound recording**

- 1877 - Thomas Alva Edison's discovery of sound recording and reproduction. Early recordings were taken on wax coated cylinders. [cylinder records]
- 1888 - Emilie Berliner, (a German emigrant in America) invented flat disc format for sound recording. The first trial disc was 5" diameter made of rubber. Later,

7" diameter zinc and lac records were commercially released and were known as E Berliner Records.

- 1898 - Foundation of Gramophone and Typewriter Co (G & T) in London. The Gramophone Company officially registered by William Barry Owen with provisional arrangements made to manufacture gramophones, records and assembly of machines in Germany. The famous 'Recording Angel' trademark, devised by Theodore Birnbaum, first appears on the company's record label.
- 1899 - Recording of first Indian artists in London - Dr Harnamdas and Mr Ahemad - songs from Ramayan and Aayats from Kooran. In the same year, Francis Barraud's famous painting of a dog listening to the horn - *His Master's Voice* - was purchased by the Gramophone Company and first used in the *Record Supplement* of January 1900.
- 1900 - Manufacture of Lambert typewriters also taken up. Hence the name of the company changed to 'The Gramophone and Typewriter Ltd'. This name also appeared on record labels. [Later, in 1907, as the typewriter line was discontinued the word 'typewriter' was dropped both from the name of the company and the record label.]
- 1902 - First recording expedition of F W Gaisberg at Calcutta.
- 1902 - 1908 - Three recording expeditions in India taking about 5000 recordings.
- 1908 - Establishment of record pressing plant at Calcutta - announcements at the end of the songs stopped. In the same year, the Hayes factory in England also became operational. Around 75 different record companies were operating in India until about 1910.
- 1910 - A gramophone and records were sent with Captain Scott on his Antarctic Expedition. The gramophone was brought back to Britain and is now part of the EMI archives which houses about 5 million items.
- 1915/16 - Nipper, the Gramophone Dog, makes first appearance on Indian record label. [In Britain it appeared in 1909]
- 1925 - 'Electrical' recording replaced 'Acoustic' recording. Electrical recording introduced in Britain using the Western Electrical System.
- 1931 - The Gramophone Company Ltd and the Columbia Graphophone Company Ltd merge and register a holding company - Electrical and Musical Industries (EMI). Stereo recording and reproduction patented.
- 1930/31 - Bombay radio became operational. sound entered into Indian films.
- 
- 1952 - EMI launches first LP & EP/SP microgroove vinyl records.
- 1958 - EMI launches first stereo LP.
- 1960 - The last 78rpm record on EMI labels is issued in Britain - *Rule Britannia / Royal Event* by Russ Conway.
- 1966 - EMI releases its first pre-recorded cassettes.
- 1971 - EMI changed to EMI Ltd.
- 1973 - The Gramophone Company changes its name to EMI Records Ltd.
- 1970-80 - Production of 78 rpm records reduced and ultimately stopped. Indian Television entered the entertainment scene.
- 1986 - EMI opens its first-ever CD factory in England.

- 1980-90 - Market flooded with hi-fi equipment, audio/video cassette recorders / players. [Two in ones, VCRs and VCPs].
- 1997 - EMI celebrates its first centenary.
- 1990-2000 - Records began to slowly diminish turning into decorative pieces and antique items or 'collector's items'. Compact audio/video discs and related reproducing equipment flooded the market. CVD and DVD along with computer floppy discs took over all kinds of reel tapes - both in audio and video world. Satellite television with multiple cable networks changed the whole concept of personal recorded music and its collection.
- 21st Century - World library of music - sound and pictures - accessible to anyone through a Personal or a lap-top computer or through Cable network.

### **Records and Recordings**

Material used - wax, zinc, tinfoil, cardboard, plastic (vinyl), aluminium, brass, copper metal plates and thin films. Lac was used for 78 rpm records for almost 80 years. India was the major source for the raw material of lac. Regions around Calcutta and Bihar had large number of deposits of lac and this might be one of the reasons for the establishment of the first record pressing plant at Sealdah in 1908. Thickness of the flat discs of these materials varied from a few millimeters to now few micrometers [in Compact Discs]. Sizes, speeds and play times - flat disc records were made in sizes varying from 5" to 16" diameter with thickness of about 3-5 mm. Large size records were made for the transcription and studio recordings of *All India Radio*. The speeds at which these records play are - 16 2/3, 33 1/3, 45, 78, 80 and 100 r.p.m. The play time varied from few seconds to about one hour depending on the size and the speed of the record. Usually one side of a standard 78 rpm record played for 3.5 minutes, 45 for 3-4 minutes, EP [Extended Play] for 6-7 minutes and the LP [Long Play] for 20-30 minutes. More than 98% of the 78 rpm records were in the 10 inch diameter size. A few, mostly classical, were in the 12 inch format. The early discs were one sided. They had only the matrix number-the number given at the time of recording. After about 1910, double sided records were issued. These records had different matrix number on either side and a common catalogue number printed on the label on both sides. This catalogue number was referred by manufacturers, suppliers, dealers and customers.

### **Recordings / Reproductions**

Recordings of Indian music in various languages - Hindi, Urdu, Bengali, Gujrathi, Gurumukhi, Marathi, Marwari, Nepali, Bhojpuri, Sindhi, Canarese (Kanadi), Telugu, Tamil, Malayalam, Sanskrit etc. Method was used for the recording also changed - Acoustic/mechanical (1877-1925), electrical (c.1926), magnetic (c.1940) and optical (c.1960/70).

### **Various types of machines**

Edison Home Phonographs were used for playing cylinders, whereas 78 rpm records were played on hand-cranked machines with huge metal horn. Around 1920, these were replaced by the box type gramophones with spring wound motors. Later on, compact

size electrically driven motors were used for uniform and reliable speeds. These players and the record changers, large sized phonograms with radio and the juke boxes were very popular both at public places and in the individual houses. In old machines, steel or brass needles were used and these were available in needle tins. The gramophones used diaphragm type heavy sound boxes fitted to the machines and the needle would become blunt after playing the record for few times. Later, lightweight small size pick ups with diamond / sapphire needles (styli) became very popular and replaced the old heavy sound boxes. The new needles had very little wear and tear and hence could be used for playing the record almost any number of times.

### **Types of the recordings**

The earliest record of Indian music was recorded in 1899 in London whereas the first records were cut at Calcutta in 1902. [Kinner Michael, 1994]. 'Gauhar Jan of Calcutta', 'Jankibai of Allahabad' were some of the professional entertainers who recorded prolifically for the gramophone company. These wax masters were then sent to Germany/Britain for making singlesided records and exported back for the Indian market. These records invariably contain an announcement at the end in English - like "My Name is Gauharjan". While this may sound amusing now, it was a very useful announcement for the engineer who would design the paper label for pasting on the pressed record.

Some of the styles of recordings - film songs (Hindi and regional), classical music (vocal and instrumental in both Hindustani and Carnatic style), folk and religious music, imitations, educational, mimicry, popular, speeches, announcements and advertisements, anthems, descriptions, bird/animal sounds, sound effects, readings and recitations, self-hypnosis, laughing, professional weeping, drama sets. The oldest and longest drama set is K M Mitter and party's *Jaydev* in Bengali, recorded around 1910, in 30 parts and duration is almost two hours.

Although majority of 78 rpm records were made using lac and EP/LPs using vinyl, there are some special records. These were in translucent plastic (Film-o-Phone), bendable and non-bendable card-board (Durium, Nicole), in various colours - brown (Young India), yellow and red (Bulbul). There are records that play from inside to out (Pathe). These have grooves cut differently and recorded at 100 rpm. So they need a special turntable that rotates at 100 rpm and special needles for playing. These records have etched labels as against paper labels used by the records of other companies.

The 'puzzle' records were introduced around 1910 and continued till fifties. Each side had three different songs (of about one minute duration) not one after the other but in three separate, concentric grooves. With a slight variation of the start point, a different song would come out each time, astonishing (or, as the name suggests, puzzling) the listeners. These were produced in small numbers. Early puzzle records were on Zonophone labels and featured voices of Jankibai, Mohd Hussain and instrumental music by Talim Hussein (Shahanai). Puzzle records of films *Awara* (Hindi), *Amar Bhoopali* (Marathi), were produced and are found listed in HMV catalogues but it is extremely difficult to find the copies of these records now.

A standard 10 inch diameter 78 rpm record, which plays for about three and a half minutes will have a groove length of about 1.5 Km. Its speed will be 26 Km per hour and it will revolve 273 times.

**Estimated number of songs / records** – The total number of films produced in the last 100 years is about 35,000. The ratio of Hindi to Regional films is 1:2-3. Average of 8/10 songs per film gives about 320,000 / 350,000 film songs, out of which 100,000 Hindi film songs and rest from the regional language films. Besides film songs, about 200,000 songs of non-film music have been recorded. Old 78 rpm records had two songs per record. Hence about 250,000 titles produced. This is a rough estimate and a good starting point for the researchers in 21st century.

**Record manufacturing companies in India**

<b>Company, Period, Size, Special features etc.</b>	<b>Approx output</b>
Gramophone Company, England & Calcutta. [1899-08] / 7, 10, 12" single/double side shellac records	5000
Nicole Records, England. [1905-09] cardboard single/double side records	1000
Beka Records, Germany [1908-10]	1500
Pathe, H Bose/Pathe Records. France & Calcutta [1908-14] Shellac [10-12"] / cylinders center start - 100 rpm records	1000
Odeon Records, Germany [1906-37] 10-12" North/South indian music	3000
Zonophone Records, England, India [1910-20] / 10" low priced records	1000
Singer, James Opera, Sun Disc records [1907-10] Bombay based records	1000
Ramaphone / Ramagraph records [1905-30]. Bombay based German company	1000
Broadcast / Jay Bharat records [1930-40] British company with business at Bombay and Madras / 8, 10, 12" records	1000
Hindustan / Megaphone, Senola records Calcutta based company [1930-]	5000
Young India, Bombay. [1940-50] films, educational, various subjects	2000
The Gramophone Company of India Ltd	500,000



Calcutta, Bombay, Madras.[1908-]  
HMV, Columbia, Twin, Odeon etc.

Total output of gramophone records is about half million records [titles]. The number of copies of any given record varied from minimum of 500 to few lakhs, depending upon the popularity / sale.

Although number of gramophone companies were established in India until about 1910, HMV (Gramophone Company of India Ltd) survived through long years and virtually took all other companies under its wings. Some of the interesting record labels that collectors often come across are:

Gramophone Concert Record, Gramophone Monarch Record, Beka, Beka Grand Record, Zonophone, Nicole, Odeon, Royal, Rama-o-phone, Ramagraph, James Opera Disc Record, Singer, Sun Disc record, Kamla, Binapani, Cinch, H Bose and Pathe, The Twin, HMV, Columbia, Jien-o-phone, Broadcast, Jay Bharat, Young India, Aerophone, Bande Mataram, Bharat, Diamond, Dilruba, Excelsior, Megaphone, Film-o-Phone, Hindustan, Senola, Maxitone, Parlophone, Victoriaphone, Kid Kord, King, Limophone, Kohinoor, Hutchins, Movietone, New Theaters, Prabhat Records, Nishan, Nizam, Noor-E-Islam, Pioneer, Phoenix, Marwari, Regal, Rameshwar, Senola Sangeet, Saraswati Cinetone, Shahenshai, Surbharati, Swarganga, Taj, Tansen etc.

Complete alphabetical list of the record labels during 1899-1908 is published in the book *Gramophone Companies First Indian Recordings (1899-1908)*, Kinnear, 1994] Magazines /



## Case Three:

# Somanath Vyas, Hindu Savant

**Professor Richard Fox Young**

*Princeton Theological Seminary*

Once again, my lecture focuses on a particular individual, Somanath Vyas - an individual whose name will hardly register, even among Indologists. In recent years, however, Somanath's work has elicited interest among scholars in the region of Central India where he lived, especially the *Kalandikaparakasha*, an ambitiously encyclopedic treatise in ,*wissenschaftliches* and *religionswissenschaftliches* Sanskrit, if I may so describe it, on the whole range of knowledge, scientific and religious, that the author, a traditionally-

educated Hindu pandit - a *savant*, as it were - deemed worthy of knowing, including a knowledge of Christianity. I find fascinating, because this was still the era of interreligious apologetics and polemics, and Somanath himself had at one time endeavored to counteract the exclusivistic claims that Christians were making on behalf of their religion.

Over the years, my research has often involved the reconstruction of microrelationships between missionaries and the indigenous scholars who tutored them in the languages of India and the fine points of Hindu belief and practice. For better or worse, such scholars became implicated in, or enmeshed with, the faith of their Christian counterparts and their evangelistic projects. I know of some, like Ram Ram Basu, a Vaishnavite Kayastha who brought down upon himself the wrath of the Baptist William Carey, whom he tutored in Bengali and for whom he even authored tracts and hymns, because he resisted Carey's demand that he declare himself a Christian. Dismissed from the Serampore Mission, Ram Ram then faded into oblivion, despised by all, by Christians for being too much a Hindu and by Hindus for being too much a Christian (YOUNG 1987). But there were others, like the Shaivite Vellala from Jaffna in Ceylon, Arumuka Navalar, who assisted the Wesleyan missionary Peter Percival in a renowned but ill-fated translation of the Bible into Tamil, only to launch a revival movement of his own, which swept across the island and the Indian mainland. Navalar declared himself grateful for the missionaries, convinced that God - Shiva - had "providentially" sent Percival to Jaffna to "chastise" the Tamils and make them better Shaivites (YOUNG and JEBANESAN 1995). And there were others yet, others who fell between these two extremes, like Ramachandra, about whom I spoke in the first lecture, who was somehow ineffably touched, if not altogether transformed, by Jesus the Christ, the *Shabdavatara*, the Incarnation of the Word. And then the rarest of the rare, at least among those in the higher echelons of the caste hierarchy, who, like Nehemiah-Nilakanth Goreh, embraced the Christian faith in a way that made it authentically *theirs*, as we saw in the previous lecture. Instances like these could be multiplied.

Were encounters such as these on the edges between Hinduism and Christianity, which were rife with friction and incongruity, always enabling? Merely by virtue of having occurred at the point of tangency between religions, were the experiences of these individuals transformative? Could the individuals involved really see each religion more clearly than if they had remained at the center of either one? Not necessarily. I feel warranted in saying this much, however, that, were you a Hindu of the era under review in these lectures, your encounter with a Christian missionary would leave its mark on you; you could not be diffident about it, for, as often as not, these were individuals who were indefeasible; as a people of *the Way*, they might show you the way, *theirs*, or they might simply get in the way, *yours*; but that the Christian religion they exemplified might simply be *a* religion worth knowing about for its own sake, that is to say, as a religion notwithstanding its claim of being *the* religion, seems an unlikely response to the frictions and incongruities that the missionary propagation of Christianity almost invariably produced. That, however, is precisely the kind of response to Christianity that my subject Somanath Vyas, exemplifies - a response that interests me because of its *religionswissenschaftliches* features and because of its being the kind of response to Christianity that we hear so little about because missions studies scholars, myself included as the "chief of sinners," pay an inordinate, although understandable, amount of

attention to those individuals who converted to Christianity, as I did in my previous lecture, overlooking the many others who didn't, but who nonetheless allotted at least a niche to it in their understanding of things religious, as we shall now see. To see it, however, we will need to go beyond the routine boundaries of mission studies into India's larger intellectual encounter with Europe, especially its sciences. Because science leaps more easily across cultural barriers than religion, it was with empirical truth that the dialogue with Christianity about *transempirical* truth most often began - but also rarely ended.

Somanath Vyas (1807-1885), a Nagar brahmin, hailed from Shajapur near Gwalior in Central India (now in Madhya Pradesh), to which his ancestors had migrated from Gujarat. Somanath's father, Omkar Vyas, by whom he was educated, had become a *sannyasi*, a world-renouncer, as Somanath eventually would too, under the name of Brahmatarakatirtha, in the time-honored pursuit of knowledge, although the knowledge worth knowing was for him worldly and empirical as well as salvific and transempirical. The surviving fragments of Somanath's past are very few, however, until the year 1839 when he left Shajapur for Sehore, a small town (also in Madhya Pradesh) where the East India Company's "Resident" (or "political agent") responsible for affairs with the nearby Muslim state of Bhopal resided. Somanath made the move to Sehore because he had been invited to teach Sanskrit in a school that had been privately established less than a decade earlier by the former Resident, a Maj. Hendly, but at the time was under the care of Hendly's youthful successor, Lancelot Wilkinson of the Bombay civil service, who would become Somanath's enabler in a variety of ways.

Wilkinson (1804-1841), one of those much-maligned monsters, the Orientalists, was a pragmatic visionary, an inveterate do-gooder whose improvement projects were deeply suffused with Christian values and Enlightenment ideals. Wilkinson had gone out to India after passing through the East India Company's training college at Haileybury, to which he was sent from the quiet Cumbrian village of Crosby-Ravensworth where he had been reared. Sehore, it turned out, was a much livelier locality, on which more in a moment. The first trace of Wilkinson in India I find is from the first year of his service when, as a lowly *kaccheri* clerk, he affixed his signature on a proposal by Thomas Best Jervis, the Collector of South Konkan and himself one of the foremost advocates of providing India with "useful knowledge," to establish a local school society. Throughout his career, vernacular education was Wilkinson's great crusade, and Wilkinson was one of its last and most ardent advocates at a time when the Anglicizers had the upper-hand with William Bentinck, the Governor-General. As he moved from post to post, Wilkinson mingled with local scholars, those especially who were conversant with the exact sciences of Indian antiquity, astronomy (*jyotishshastra*) in particular. Such individuals had never been numerous and in those days were fast-becoming an endangered species, but from them he acquired a knowledge of certain astronomical texts, especially the 12th-century *Siddhantashiromani* [The Crest Jewel of Astronomical Systems] of the astronomer Bhaskara, an extraordinary exemplar of Indian science at its most mathematically sophisticated, whose treatise, historians of science tell us, was the equal of Ptolemy's *Almagest*.

Wilkinson became convinced that the distance from Bhaskara to Copernicus, from Geocentrism to Heliocentrism, was but a hop, skip, and a jump - a transition which the rational traditions of Indian antiquity could easily affect. Standing in the way, however,

were the imponderables of religion, faith, and theology, just as dogma had dogged the progress of astronomy in Europe; for in India the obstacles were the same: the cosmology of the exact sciences differed diametrically from the cosmology of the people at large, whose opinions were shaped by revealed and otherwise authoritative texts, the *Puranas* especially, which, besides being geocentric, perpetuated the notion of earth as a flat, circular plane. Bhaskara *redivivus*, the revivification of Bhaskara and the tradition of Indian rationality he exemplified became Wilkinson's driving obsession - and the indications are that his endeavors were stunningly successful. Since my own knowledge of the exact sciences is embarrassingly inexact, let me bypass the technicalities of how Heliocentrism explains the retrograde motion of the planets better than Geocentrism. Instead, allow me to concentrate on the religious and cultural dynamics engendered in Sehore by Wilkinson's project, since these dynamics had very few parallels elsewhere. Going back for a moment to Sehore itself, it needs to be said that this was hardly a somnolent backwater; for sure, it was distant from the great metropolitan centers of colonial India where we usually think the action most worth watching was occurring. But Benares and Mathura were close by in the east and Ujjain and Jaipur were a short distance to the west, all of which in antiquity and as recently as the 18th century under Sawai Jai Singh had been noteworthy for patronizing learned communities that cultivated the exact sciences. An in-between-somewhere-and-somewhere-else sort of place, Malwa, as the area surrounding Sehore is called, was a crossroads on the Indian information highway (BAYLY, 1996: 259-60), as it were, in all sorts of ways, scientifically and otherwise. When Wilkinson was assigned to Bhopal in 1832, however, Sehore was nearly deserted; with the collapse of Maratha power in the previous decade came depopulation and civil unrest. Maj. Hendly, Wilkinson's predecessor, had founded a school for the few children who remained, but the school was dysfunctional by the time Wilkinson arrived. This was the opportunity he had yearned for, I would surmise, since he took the situation in hand with avidity and dispatched his *kaccheri* accountant and court clerk, both Muslims, to teach Urdu, Persian, and Arabic at the school in their off-hours, while he himself, when he wasn't suppressing banditry or adjudicating property disputes, sat with the students and taught them the rudiments of mathematics, astronomy, and geography. And if he wasn't actually teaching, he busied himself promoting the interests of the Sehore school in petitions to the General Committee of Public Instruction in Calcutta for financial assistance, which seems to have tired of hearing from him and finally granted a small subsidy. With some diplomatic arm-twisting Bhopal and the smaller Rajput principalities of Narsingarh, Rajgarh, and Khilchipur agreed to make up the deficit. The Sehore school still exists and in hushed tones the locals refer to its foremost patron reverently as "Lar" (Lord) Wilkinson.

A report to the Committee in Calcutta, filed by Wilkinson, tells us that 159 students were enrolled in 1836, of which only 8 studied the exact sciences of Indian antiquity, while the others devoted themselves to the languages of Islam. Although in its heyday the Sehore school was perceived by outsiders as a Sanskrit *pathashala*, a traditional academy of Hindu learning, in certain respects it was closer to being a Muslim *madrassa* - and to top it all off the school had as its headmaster, or *guru*, an avowed Christian. It was not for its ecumenism, however, that the Sehore school is remembered, but for its revitalization of the exact sciences and especially the integration of Indian and European astronomy. In his pursuit of these ends, Wilkinson was pedagogically imaginative but also, on occasion,

politically ruthless, and his actions give some credence to the ideologically-driven discussions of "colonial science." A case in point would be the dismissal of a "teacher of Hindoo mathematics" because the individual proved to be

wholly ignorant of the true bearing and shape of the sciences he professed. He knew how to calculate an eclipse, but he had learned the calculations by rote and believed the earth to be an immense circular plane 400,000 miles in width and that the moon was twice as far from earth as the sun is, as asserted by the Poorans. This entailed upon me the trouble of teaching him *the rationality of his own science from his own books* and as much of our system as he could be made to comprehend. (05/06/1836, Sehore School, Board's Collections, f/4/1635, no. 65465, Oriental and India Office Collections, British Library.)

Here we have a symptomatic instance of a certain pedagogical maxim that I think emblematic of Wilkinson's pragmatic Enlightenment Orientalism if I formulate it this way: *to affect modernity one must first invoke antiquity.*

Over the decade that Wilkinson tinkered with the Sehore school and turned it into a clearing house for the Copernicanized exact sciences of Indian antiquity, he exercised enormous influence over the magisterial institutions in the region, including the Benares Sanskrit College. To that institution he eventually sent one of his own graduates, Bapu Deva Shastri, to become the first professor of Indian *and* Western astronomy. When candidates for the professorship in astronomy at the Pune Sanskrit College were being screened, essays had to be submitted in reply to questions on Bhaskara's *Siddhantashiromani* that Wilkinson evaluated. Knowledge *is* power and Sehore wielded so much that pandits were wary of getting on Wilkinson's bad side, knowing that his blessing or his curse could affect their livelihoods. Then there are the hard sayings of Wilkinson, as it were, the intemperate criticisms of the semi-sacrosanct *Puranas*. It might be politically correct to dismiss all this as "colonial science," but that would be to overlook how much actual science was being done at Sehore dialogically, with no other coercive power than India's own time-tested traditions of rational enquiry for the testing of hypotheses in the exact sciences: is the heliocentric model, for instance, a better explanation for the retrograde motion of the planets (*kaksakrama*) than the geocentric model?

Especially in the early years, "conversions" to Copernicanism - if I may call the radical consequences of a paradigm shift a conversion - were never abrupt but always gradual, in some cases occurring over a period of years. That was the case with Soobajee Ramachandra Bapoo, the preeminent advocate of Heliocentrism in the circle of traditionally-educated pandits that Wilkinson assembled in Sehore. Soobajee was an Alladi brahmin from Andhra who had officiated at a temple in Chandrapur (Chanda, in Maharashtra) where the recitation of the *Bhagavata Purana* had been performed by his Vaishnavite forebears for generations. Knowing nothing of the exact sciences of antiquity until he met Wilkinson, but being intimately familiar with the popular cosmology that the *Bhagavata* perpetuated, Soobajee was able to "touch every prejudice" of his coreligionists "with the soft hand of a friend" when he finally embraced the new paradigm and composed a widely-disseminated commentary on Bhaskara's

*Siddhantashiromani*, demonstrating its updatability and compatibility with Copernicanism (Wilkinson to General Committee of Public Instruction, 10/06/1836, Sehere, Misc. Vols., 1834-40, West Bengal State Archives). In contrast to the "soft hand" of Soobajee, there was the "iron fist" of another Sehere pandit, Omkar Bhatt, an Audambar brahmin whose forebears had migrated into Malwa from Gujarat. Very much over-awed by Europe and its sciences, Omkar denounced the *Puranas* in his treatise on terrestrial geography, the *Bhugolsar*: where empirical matters are concerned, he claimed, the *Puranas* are full of lies (*jhut*).

Whether it was the "soft hand" or the "iron fist," the revisionistic, demythologized, and detheologized science propagated by the Sehere advocates of Copernicanism provoked a firestorm of protest from traditionalists who perceived, rightly or wrongly, that transempirical verities were being endangered by the differentiation of science from religion. Wilkinson's pandits were threatened with expulsion from caste, their books were banned, public debates were held, and the anti-Copernicans of Pune and Benares engaged in a desperate and doomed campaign to defend the non-contradictoriness of the *Puranas* and the exact sciences of antiquity. In the frictions and incongruities that the ensuing brouhaha evinced, however, there was nothing essentially new; India's own domestic dialogue over religion and science had been conducted from deep antiquity in ways that were both adversarial and agonistic. Although it was India as its own "other" that India was confronting as much as Europe itself, standing at the point of tangency between the two traditions of rational inquiry enabled the Sehere circle to see both the exact sciences of India and Europe better than if they had remained in the center of either one, for what they saw was that science is essentially the same, whatever its cultural context.

Something must be said, however, for the anti-Copernican reactionaries who bedeviled Sehere's radicals. They were astute at least in recognizing that transempirical verities are indeed affected when paradigm shifts in science occur. Let's be clear about it, Wilkinson's agenda went beyond empirical matters to faith, morality, and the spiritual reform of Hinduism. In short, the whole Sehere project was deeply implicated with Christian values and Enlightenment ideals, as I mentioned earlier. Even his inner circle could go only so far with him in this respect. Wilkinson crusaded tirelessly for the abolition of female infanticide, which was common in Malwa among the Rajputs, and enlisted Omkar Bhatt in his campaign, who in his characteristically "iron fist" fashion, composed a tract that lampooned the Rajputs, saying they could never compensate by "penance or pilgrimage" for "their avarice in killing their daughters to save the expense of giving a dowry" (W.H. Wathen, Secretary to Gov't, undated memorandum, Bombay Political Proceedings, 1834, Z/P/3347, Oriental and India Office Collections, British Library). When Wilkinson turned his attention to another gender iniquity, constraints upon widow remarriage, Soobajee fired off a broadside in favor of it for girls who had not yet reached the age of puberty. But when it came to attacking caste, Soobajee balked. Wilkinson had put into circulation an anti-brahminical tirade attributed (wrongly) to the Buddhist Ashvaghosha, the *Vajrasuchi*, which had been around for centuries, because he envisioned a science-induced leveling of society that would insure access for all communities to the knowledge emanating from Sehere. Let the non-brahmins have all the science they want, Soobajee argued; science won't make anyone a brahmin, any more than neighing will make a donkey a horse. And with this disappointing bit of sarcasm from an otherwise fascinating figure, I return to Somanath Vyas who, better than any other Sehere pandit,

exemplifies the resistance that Wilkinson's more overtly religious projects could engender, for it was one thing to measure India's sciences by Europe's, but quite another to measure the Dharma by Christianity. To appreciate the re-entry of Somanath into this discussion, a few more things about Wilkinson need to be said first.

There is one respect in which I have been less than forthright about Wilkinson, because even though he interacted with his pandits in a remarkably egalitarian manner, the entire Sehere project was riddled with a certain hubris. After all, India's antiquity was being invoked to affect Europe's modernity. There were some who bought into this and were overawed by Europe, while others kept their distance and registered their dissent. Nevertheless, Wilkinson's efforts were rewarded with so much success - he was called by his Sehere circle the *yavanacharya*, the "barbarian teacher," a backhanded compliment that evoked associations with the Greeks savants of antiquity whose sciences had influenced India's - and his influence over institutions and appointments was so far-reaching that as the years passed he aspired to become a *dharmacharya*, a teacher of religion and morality whose invocation of Hinduism might affect its conversion to Christianity. As you might suppose, Wilkinson was not an Evangelical; he was a Christian Theist whose concerns were not salvation-oriented but ethical. Whatever label fits him best, he was a gradualist who envisioned a Christianization of Hinduism from within, without invoking Jesus, just as the astronomy of antiquity had been Copernicanized without invoking Copernicus: "The strange things we [Christians] teach, not also taught in their own books," he once declared, "are but few"; "I [therefore] always argue as far as possible within the range of Hindu comprehension." And the following quotation tells us what Wilkinson would have invoked from India's spiritual heritage to affect its spiritual regeneration (10/06/1836, Sehere, to General Committee for Public Instruction, Misc. Vols., 1836-40, West Bengal State Archives):

*The works of Kubeer, of Dadoo Punth, of Ramdas, Soor Dur Das, Nanuck and Gobind Singh and other sectarians ought to be more studied by gentlemen having the moral improvement of our Hindoo subjects at heart, than they are. They give us exactly that assistance in the moral department which the Siddhants do in the intellectual and mathematical departments. They decry rituals and ceremonies and pilgrimages and the ordinance of caste as Christ did and attach merit only to that which deserves the name - universal charity ... - a code of morality, the Christian's code, might and ought to be formed, from Hindoo authorities - old or new - and used as a schoolbook.*

That book was never written, insofar as I know. If it had, it might have altered the course of events at Sehere. Instead, a classic compendium of anti-Hindu Christian apologetics in Sanskrit, the controversial *Examination of Religions* of John Muir, discussed in the previous lecture, was put into the hands of the Sehere pandits. Muir's *Examination* exemplified even better than Wilkinson's "hard sayings" the classic "civilizing mission" justification for colonialism. Because Europe's scientific progress and technical prowess were the by-products of Christianity, India's development in these respects was impeded by Hinduism, which was collapsed into Muir's Orientalized version of Vedanta, a philosophy characterized by him as denying reality to the world of empirical transactions



inhabited by humanity. In short, the *Examination* conjured up an image of India as a madhouse of naked, ecstasy-seeking gymnosophists, unlike industrious Britain where people prospered because they were Christians and worked hard. In short, Christianity had "practical utility," Hinduism didn't.

To Somanath, who in his first year at Sehore had already enrolled in Wilkinson's Copernican advocate corps and had put into quick circulation several texts, including a drama propagating Heliocentrism, this was all very risible. To rebut Muir's contentions, Somanath composed the *Mataparikshashiksha* [A Lesson for the *Matapariksha*], which upheld *dharma* as the foundation of a people's identity, not their machines. As a religion, Christianity might be a good fit for the average "skilled mechanic," the engineers and entrepreneurs who went out to India from England to build steamships to ply the Ganges and hot-air balloons to float through the air; it might be a match for people in public administration (*niti*) - a dig, I suppose, at Wilkinson and Muir - but it was ill-suited for Hindus like himself who discerned in all religions, including Christianity, an overarching, transempirical unity (*mataikya*) and non-contradictoriness (*matavirodha*).

That is to say, where Muir saw only a discord of doctrine, Somanath saw a concord of function; and on the capacity for being able to discern that higher, transcendent concord Somanath staked his claim to Hinduism's superiority.

Standing at the point of tangency, this was how Somanath reduced the frictions and incongruities between Hinduism and Christianity to insignificance. Some of you may associate this way of resolving the dilemma of religious plurality with the Neo-Hinduism of a later era - and that would not be off the mark because the resolution does indeed anticipate subsequent developments - but what intrigues me here is the same thing that intrigues me about all forms of Neo-Hinduism: Somanath evinces no interest at all in the particularity of Christianity. Indeed, his energies are entirely invested in demonstrating the very opposite, that Christianity is merely a form without a specific content that one needs to know in order to understand it. His concern is only to deflate its exclusivistic claims inclusivistically and subordinatingly, the better to put this pushy, queue-cutting religion into its proper place behind and below Hinduism, *the Eternal (sanatana) Religion (dharma)*.

Somanath nonetheless retained a residual respect for Wilkinson as a *bhakta* (devotee) of the Lord Jesus Christ, as he referred to him in a generously ecumenical gesture in the colophon of one of his treatises on the revolution of the earth around the sun. What is more, over time, he began to find a knowledge of the particularity of Christianity itself worth knowing. How one accounts for this, however, is a question that I cannot answer unambiguously. Was it because of his long acquaintance with a Christian *bhakta* who had widened the horizon of his awareness in many other respects? Or was it because Christianity seemed somehow less threatening and the Dharma more resilient? Whatever the reason, this was a stunning and intrinsically interesting *volte face*. To my knowledge, no one else went so far in presenting Christianity in its own way, on its own terms, without succumbing to it, ridiculing it, or finding in it a basis for a thorough-going reconceptualization of Hinduism (as Ram Mohun Roy, for instance, did).

To illustrate this reversal, I adduce Somanath's magnum opus, the *Kalandikaprakasa* (SHARMA 1993), an encyclopedia of empirical and transempirical knowledge, which allots a sizeable niche to Christianity, along with several other non-Indic religions. I would like to cite at length the passage that deals with Christianity, but one must first be

clear on what kind of text the *Kalandikaprakasa* is. In its own idiom, the text purports to be a *vidyachakra*, that is to say, a circle drawn around all knowledge worth knowing at the time. In our own idiom, one might call it a treatise in systematics, but more is involved here than theology because the sciences of Indian antiquity are there and those of Europe too. At the center of Somanath's circle are the revealed, transempirical verities of the Veda, but as one works one's way outward toward the periphery, the more empirical the knowledge becomes, which is where one finds the sciences. Structurally, one might say that knowledge at or near the center *saves* (*paramarthikavidya*), while knowledge at or near the periphery *edifies* or *improves* in being *useful* (*samsarikavidya*). Where, then, in the *Kalandikaprakasa* would one find Christianity? Far from its Vedic core, at the outermost limits of transempirical knowledge, following a discussion of the heresies of the Buddhists, Jains, and Materialists, under the rubric "Religious Beliefs of the Barbarians" (*Mlecchamata*). The context of the passage I extract should be understood to include not only Christianity but also Judaism, Islam, and Zoroastrianism, which Somanath regarded as emerging from a common prophetic matrix. I enter his discussion at the point where he describes Judaism's transformation as it spreads through the Roman empire and interacts with Mediterranean religions, giving rise to new forms of belief (*mata*):

*In every part of the Roman empire there were wise men learned in all forms of religious belief. But, seeing the contradictions between these beliefs, they were unable to distinguish truth from falsehood. Atheistic materialists became prevalent throughout the land. There was a hope, however, that the Messiah (Masiha) would descend into the world to make the way of salvation (mokshamarga) known. [...]*

*Without delay, then, Jesus descended into the world and was conceived in the miraculous womb of the young maiden Miriyam. Saying "I, Son of God (ishvarasya putrah), teacher of the way of salvation, King of the Jews, will make atonement (prayashcitta) for sin with my own body," he began propagating his own beliefs among the people. When these beliefs began spreading, the Jewish authorities, thinking him opposed to Judaism out of envy, put him on a cross. On the third day, he went to heaven (diva), having revealed his form (rupa) to his disciples in that country, saying "I will return to judge [the world] with your help."*

*From the form of the Almighty God (vishvesha), one can discern a Trinity (trika): God the Father (pita), his Son Jesus Christ, and the Holy Spirit (sadatma). The substance (vastu) of the Trinity, however, is godhood (ishvaratva). Godhood is absolutely unitary, in the same way that Brahman is.*

*In the Christian religion, two rituals are performed. One is called Baptisma, the distinctive feature of which is immersion in water (varmajjana) of the body of the convert (svikara) to Christianity. The other is called Yukarista, meaning "Our salvation will come from Jesus," from*

*which one also gets the idea of "gospel" (harshavarta). Originally, it was food and drink given by Jesus before he ascended the cross. It is understood as eating the flesh (mamsa) and drinking the blood (rudhira) of Jesus. It is the Christians' teaching that the Yukarista should be taken when one enters their religion and at other times when Christians assemble. One should, moreover, always pray to God as follows: "Give each of us our food and drink. Forgive our sins (aparadha). May we be diligent in performing our worldly duties," and so forth.*

*[...] As time passed, a number of discrepancies arose between the paths (patha) being propagated by the many followers of this religion. The Greeks among them say that Jesus is the Buddhi [lit., mind, intellect, reason; = Logos] of God. They add to this, however, that neither the Buddhi nor the Self (atman) are superior to, or identical with, God.*

Not only is the language apropos for discussing Christianity, it comes close to being *religionswissenschaftliches* Sanskrit, a Sanskrit symptomatic of a descriptive, empathetic approach to religion as a datum of human experience worth knowing on its own terms and in its own way. Consider, for example, that Somanath ascribes to the Christian God the very same names Christians themselves had appropriated to their own vocabulary of faith, for these terms are indicative of the highest divinity in Hinduism: *parameshvara*, *paresha*, *ishvara*, *prabhu*, *jagadishvara*, etc. The terms for salvation, *moksha* and *mukti*, likewise signify Somanath's recognition that Christians present themselves as aspiring to nothing less than the highest felicity that Hinduism - or his version of it - offers: absolute (*paramarthika*) liberation, not merely a brief reprieve in heaven before another rebirth in the world of human transactions. I submit, therefore, that even though Christianity was relegated to the outer reaches of Somanath's circle of knowledge, it had become for him a religion worth knowing in its particularity. How things had changed! - from, say, the 16th century when the Vedantic systematizer, Madhusudana Sarasvati, explicitly excluded the religions of the barbarians from his treatise called the *Prasthanabheda* on the grounds that being outside the Veda (*vedabahyatva*) disqualified such religions from serious attention, for they could neither be conducive to worldly happiness (*purusharthanupayogatva*) nor salvific - which is to say, *extra vedos nulla salus*. As one who somehow instinctively understood that *religionswissenschaft* should be differentiated from "normative" theology, Somanath knew that his beliefs should not impinge upon his descriptive discussion. Once that discussion ended, however, the *Kalandikaprakasa* moved from the "scientific" study of religion into theology to address the problem of religious plurality. This was resolved in one bold stroke: "The possibility that even barbarians (*mlecchas*), heretics (*pashanda*), and others can be saved is not so strange if we consider that they - like us - worship Him [viz., Vishnu or Rama] whose powers (*shakti*) are infinite and unfathomable, who is their God (*ishvara*) and their *Atman*." In short, salvation outside the Veda is possible, although unlikely! I say this because Somanath's discussion ends unexpectedly on a note of discord: "Glory to Him, Lord Vishnu! By taking refuge in Him, even sinners such as the *Kiratas*, *Hunas*, *Andhras*, *Pulindas*, *Pushkasas*, *Abhirakankas*, *Yavanas*, and *Khasas* are purified!" These names are those of the castes and tribes customarily considered debased and fallen by the

brahminical elites of Somanath's era - the corollaries of the "pagans" and "heathens" of the Christians. Anyone can be saved, even Christians - that's the point.

But to put the point more finely, and conclude, Somanath recognizes in Christians the capacity for *bhakti*; Christianity therefore elicits his empathy and imbues his quest for understanding of its particularity with a certain urgency. Did this happen because Somanath recognized in Lancelot Wilkinson a kindred spirit - a *Christian bhakta*? As much as I would like to offer a definitive answer to that question, I can't. All I can do is remark again on the transformative possibilities of being situated on the edges between religions, because it was there, at the point of tangency, that many individuals - not only Somanath but also William Hodge Mill, Nilakanth-Nehemiah Goreh and others too - found that they could understand Hinduism and Christianity better than if they remained in the middle of either one.

### **Jagadish Chandra Bose**

Physicist turned plant biologist Jagadish Chandra Bose was born on 30 November 1858 in Mymensingh, India (now in Bangladesh) to a well-to-do family. His father Bhagabanchandra Bose was a Deputy Magistrate. A distinguished student, he began attending St. Xavier's College, Calcutta in 1875 and received the BA degree from Calcutta University in 1877. In 1880 the twenty-two-year old Bose left India for England. For a year he studied medicine at London University, England, but had to give it up because of his own ill health. Within a year he moved to Cambridge to take up a scholarship to study Natural Science at Christ's College Cambridge. One of his lecturers at Cambridge was Professor Rayleigh, who clearly had a profound influence on his later work. He graduated from there in 1884 with a Natural Science Tripos (a special course of study at Cambridge). That same year Bose also received the BS degree from London University. Just one year later Bose became a Professor of Physical Science at Presidency College of Calcutta, where for the next 30 years he taught and conducted research. As a teacher Bose was very popular and engaged the interest of his students by making extensive use of scientific demonstrations. Many of his students at the Presidency College were destined to become famous in their own right - for example S.N. Bose, later to become well known for the Bose-Einstein statistics.

In 1894, J.C. Bose converted a small enclosure adjoining a bathroom in the Presidency College into a laboratory. He carried out experiments involving refraction, diffraction and polarization. To receive the radiation, he used a variety of different junctions connected to a highly sensitive galvanometer. He plotted in detail the voltage-current characteristics of his junctions, noting their non-linear characteristics. He developed the use of galena crystals for making receivers, both for short wavelength radio waves and for white and ultraviolet light. Patent rights for their use in detecting electromagnetic radiation were granted to him in 1904. In 1954 Pearson and Brattain gave priority to Bose for the use of a semi-conducting crystal as a detector of radio waves. Sir Neville Mott, Nobel Laureate in 1977 for his own contributions to solid-state electronics, remarked that "J.C. Bose was at least 60 years ahead of his time" and "In fact, he had anticipated the existence of P-type and N-type semiconductors." In 1895 Bose gave his first public demonstration of electromagnetic waves, using them to ring a bell remotely and to explode some gunpowder. In 1896 the Daily Chronicle of England reported: "The inventor (J.C. Bose) has transmitted signals to a distance of nearly a mile and herein lies the first and obvious and exceedingly valuable application of this new theoretical marvel."

During the years 1894-1900, Bose performed pioneering research on radio waves and created waves as short as 5 mm. Bose's work actually predates that of Guglielmo Marconi who is most often associated with the development of radio. Unlike Marconi who sought to commercialize his work with radio waves, Bose was purely interested in radio waves as a scientific endeavor. Bose also developed equipment for generating, transmitting, and receiving radio waves and used it to demonstrate conclusively the waves' properties such as reflection, total reflection, refraction, double refraction, and polarization. Bose also experimented with galena to form an early type of semiconductor diode, which may be used as a detector of electromagnetic waves. Bose's demonstration of remote wireless signalling has priority over Marconi; he was the first to use a semiconductor junction to detect radio

waves, and he invented various now commonplace microwave components. Outside of India he is rarely given the deserved recognition. Further work at millimeter wavelengths was almost nonexistent for nearly 50 years. J.C. Bose was at least this much ahead of his time. Research into the generation and detection of millimeter waves, and the properties of substances at these wavelengths, was being undertaken in some detail one hundred years ago, by J.C. Bose in Calcutta.

After about 1900, Bose began pursuing another longtime interest—animal and plant physiology. This included studies of the effects of electromagnetic radiation on plants, a topical field today. His contributions to this field were pioneering. He introduced many delicate and sensitive instruments, such as the Chrestograph, which was used for recording plant growth. It could magnify a small movement as much as a million times. Another device he developed demonstrated the effects of electromagnetic waves on living and nonliving matter.

Bose retired in 1915 and was appointed Emeritus Professor, Presidency College, Calcutta, for a period of 5 years. In 1917 he founded the Bose Research Institute in Calcutta which was the first scientific research institute in India. That same year a knighthood was conferred on Bose. In 1920 he became the first Indian scientist to be elected to Great Britain's prestigious Royal Society.

Bose traveled frequently to Europe and the United States on various scientific missions and gave lectures on electromagnetic waves, the effects of electromagnetic waves on living and nonliving matter, and plant physiology. On a personal level, Bose believed in the free exchange of scientific knowledge and strongly believed that knowledge grows by sharing it with fellow scientists. Bose died on 23 November 1937 at the age of 78.

#### **Personalities :: Painting**



**Abanindranath Tagore**

Regarded as the father of India's modern art, Abanindranath was born at Jorasanko on 7th August, 1871 at the Jorasanko residence of the Tagore family. He is the youngest son of the late Gunendranath Tagore and grandson of Girindranath Tagore, the second son of Prince Dwarkanath Tagore. His eldest brother Gaganendranath was also an artist of repute, and the next brother is Samarendranath Tagore who is of a studious and retiring disposition. Girindranath, Abanindranath's grandfather, was himself a painter of considerable merit and used to paint portraits and landscapes after the European style.

Abanindranath made use of his father's paint-box to paint rural scenes with cottages and palm trees. He gradually acquired considerable skill in drawing similar interesting pictures with his father's red and blue and other colored pencils. He was then about nine years of age. His beloved father died when Abanindranath was only ten years of age.

While at the Sanskrit College (1881-1890) Abanindranath took a few lessons in Art from his class-mate, Anukul Chatterjee of Bhawanipur whom he still remembers clearly and the beautiful pencil outline drawings that he used to make. Although he was not very strong in

his English, Abanindranath somehow managed to get promoted to the first class, being exceptionally well for his age in the Sanskrit language and literature.

In 1889 he married Srimati Suhasini Devi. At this time he left the Sanskrit College after nine years of study and studied English as a special student at St. Xavier's College, which he attended for about a year and a half. At this institution he greatly enjoyed lectures of Father Lafont on scientific subjects.

About the year 1897 when Abanindranath was about twenty-five years of age, he took private lessons from Signor Gilhardi, an Italian artist, (then Vice-Principal of the Calcutta Government School of Art) on cast drawing, foliage drawing, pastel and life study. Later he began to attend the studio of Mr. Charles L. Palmer who had arrived from England. After undergoing a severe training under Palmer for three or four years Abanindranath attained such a proficiency in portrait painting in oils that he could finish a picture within two hours. During this period he painted many subjects in oils.

Abanindranath devoted his life to painting and he was the Guru to a number of artists. He was the Vice-Principal of the Government Art School and was working under E. B. Havell. Havell freed Abanindranath from European influences. He drew his attention to Moghul and Rajput styles. The influence of these styles can be seen in his later work. Later on, Abanindranath learnt about Japanese art from Okakura. Okakura was a great Japanese artist and art-critic who had come to India with Swami Vivekananda. Okakura declared that the spirit of a nation expresses itself in its art. He also said that from the point of view of art, all Asia is one. After he returned to Japan, Okakura sent to India two other Japanese artists, Taikoan and Hilsida. Abanindranath studied Japanese art under their guidance.

Painting and Sculpture are but two of the many attainments of this versatile genius, Abanindranath Tagore. His manifold and valuable contributions to literature in some of its important branches would rank him as one of the greatest litterateurs of the time. Children's literature specially has received his devoted and affectionate attention. The more important of his works on juvenile literature are "Raj-Kahini", "Sakuntala", "Kshirer- Putul", "Bhutapatri", "Nalaka", "Nahush" "Buro-Angla" which please the old and the young alike.

Abanindranath's paintings were exhibited in London and Paris in 1913, followed by another international exhibition in Japan in 1919. His appreciative audience included Rodin and Rothenstein. The influence of Abanindranath on modern Indian art is profound and under his guidance a new generation of painters- Nandalal Bose, Asit Halder, Kshitindranath Majumder and Jamini Roy - brought about a revival in Indian art. The largest number of paintings by Abanindranath- over 500 - forms a part of Rabindra Bharati Society's collection at Jorasanko, Calcutta.

Abanindranath Tagore died in 19

## Eadweard Muybridge (1830 - 1904)



A re-creation of Muybridge's original experiment. ©

Born Edward Muggerridge in Kingston-upon-Thames, he changed his name to Eadweard Muygridge and later to Eadweard Muybridge believing it to be the original Anglo-Saxon form. He emigrated to America and became a celebrated landscape photographer. This he might have remained, but for meeting Leland Stanford, the railway magnate and governor of California.

Stanford's passion was racehorses, and controversy raged over the movement of horses' feet when trotting or cantering, as it was too fast for the human eye to see. An often repeated story is that Stanford commissioned Muybridge to photograph his horse so it would settle a bet. That's likely to be a myth - but it was a commonly held Victorian belief that when a horse galloped it always maintained one hoof in contact with the ground. He thought that photography could help to prove the point, and hired Muybridge. The first efforts used a single camera, but his real success came when his 'special exposing apparatus' was connected to a series of still cameras.

Muybridge's subject was Stanford's horse, and he used a number of exposing apparatus, some mechanical and others electronic, usually fired by a trip-wire. He calculated that he needed 12 cameras 22 inches apart to record the separate parts of the horse's stride. As it ran across the trip wires, the horse pulled out a pin allowing the shutter to move and take a picture. It sounds easy but there were complications. First, the whole point of the experiment was to capture a fast movement sharply - which on a modern camera would translate to a fast shutter speed - about 1/2000th of a second. That makes it difficult to separate the movement from a background. Muybridge's answer was to build a massive wooden back screen and paint it white, so the contrast of a dark horse against a white background was clearly defined.

In most 19th century cameras, a picture was taken when the photographer manually exposed the film in a large box camera. Making a fast shutter mechanism was another challenge for Muybridge. He built a cunning system which relied on a plank with a drilled hole sliding down past the lens. When a pin was pulled out from under the plank, it fell with gravity, and as the hole went past the lens, the film in the camera was fleetingly exposed. Then came the remote shutter. Each pin was attached to a piece of string stretched across the runway. As the galloping horse ran through the string, it tugged the pin and took the picture.

Muybridge came to the Royal Institution in March 1882 to lecture



Tennyson, using his own complicated projector - the zoopraxiscope - with counter rotating discs. The results were stunning. The pictures clearly showed the horse with all four legs off the ground at the same time.

This was the first time that the motion could be properly analysed, and was the forerunner of all the slow-motion replays used today. He moved from horses to other animals, and then on to humans, publishing his photographs as a portfolio, *Animal Locomotion*, in 1887.

YOU CAN H  
Click her

Presented by The Fisher Center for Alzheimer's Research Foundation Alzinfo.org • 1-800-7

## The Raj at it's Height (1858-1905)



*Because of the East India Mutiny, the British Raj was conservative. It realized how dangerous the reforms before 1857 were. The British supported the conservative elements of society such as the princes and landlords. The mutiny widened the rasion prejudice of the English for they couldn't see how they could trust the Hindus and Muslims again. This called for a conservative government.*

*The ideas of the British government were put on India and the India Civil service became the way of administrating India. The system was lead by a Viceroy who lead for around five years and under him where governors of different provinces. Most Viceroy's didn't introduce any important new measures because the feared it would lead to disagreement.*



*Queen Victoria was proclaimed the Empress of India in 1877. The idea, which was given by the conservative Prime Minister Benjamin Disrael, was that the title would make the Indian Princes more loyal to the Raj. The princes ruled around one third of India. The idea was mainly all for show, for Queen Victoria never once visited India and all which really changed was that the princes received new coats of arms made of heavy brass and Chinese satin. The title gave the impression the Britain would now care for and maintain India and therefore have the power to mettle in state affairs.*

*India was very important to Victoria's Empire. Without it, the empire would not be the superpower that it was. The basic job of the Raj was to keep law and order, improve public health and education, to advance irrigation, and to help with huge problems such as famine control and agriculture.*

*Famines happened frequently in India, which affected millions of people. Obviously it was up to the Raj to provide relief, but the Famine Commission said the relief would stop the growth of the people by not letting them help themselves. Lord Curzon disagreed and argued that this idea sense and that Britain should learn from its mistakes and sometime when all the Empires' projects were done, the people would be able to help themselves.*

*The government tried to improve India's agricultural system. Agriculture was important because seventy percent of the population made their living off of it. The government of India is not only head of the government but chief landlord. The British used irrigation to help farming and developed Railroads and roads to ship the goods on (which was convenient for them, the ones making money).*

*In 1887 the cotton industry was developed with a cotton mill which opened in Nagpor. It provided many jobs and the Indigo industry flourished.*

*Although the Raj made economic, legal and educational improvements in India, it didn't have plans to help India in the long-term by giving it its independence. India was too much of an asset to their empire. The British didn't want the natives to get too powerful for then they would rule the country so the dismissed ideas such as the Ilbert bill. This bill suggested that qualified natives should have the right to act as magistrates. The British were cruel to the natives and their servants and had been seen to slap or hit them in public.*

*When Queen Victoria's reign ended in 1901, the Viceroy was one of the most powerful people in the world. He had 300 million subjects and one of the finest armies in the worlds (the Indian army). The strange thing was that the India army and the India Civil service was paid for by the taxes of India, so it was the Indians who were paying to remain part of the empire.*

---

## Photographer Information from the OIOC Photographic Database

**Cousens, Henry** (b. 13 Sep 1854; d. Tunbridge Wells, 1933).

**Areas:** India [Find all photographs by this photographer](#)

**Notes:**

Listed as having joined Archaeological Survey Department, 16 Nov 1881; in fact a letter written by James Burgess in 1883 (see below) indicates that he had worked for the survey since (July?) 1875; non-

gazetted appointments until 1890; Archaeological Surveyor, Western India, Poona, 1 10.1890; Superintendent, Archaeological Survey, Bombay (Poona), 24.6.1891; on deputation to Hyderabad State, 1 Dec 1894-31.8.1895; Superintendent, Archaeological Survey, Bombay (Poona), 1.9.1895; Superintendent, Archaeological Survey, Western Circle (Poona), 11.2.1906; officiating as Director General of Archaeology, Simla, 14.4.1906 Civil engineer. Superintendent of the Archaeological Survey of India, Western Circles and photographed sites for the survey (particularly Gujarat). After 1886 he supervised and trained Indian draughtsmen; retired 13.9.1910, after 'three months short of 35 years service.' Toured Northern Gujarat in 1886-7 and 1889-90, surveying and photographing.

Works by Cousens at: SW 266/12; SW 196/46; X 373; SW196/32; V 7970; SW 196/37. IOR/V/12/11; Brief obituary in the Journal of the Royal Asiatic Society, 1934 Author: (with James Burgess), The architectural antiquities of Northern Gujarat, more especially of the districts included in the Baroda State (vol. IX of The Archaeological Survey of Western India, London, 1903, IOL pressmark SW 196/32). Will of H. Cousens of Tunbridge Wells in Times of 30 December 1933, p. 13e. Left gross assets of £1,200.

**Letter from James Burgess, Archaeological Surveyor, Western and Southern India to the Madras Government, dated Ahmadabad, 15 December 1883. Madras pub. proc., 24 December 1883, No. 2420, p.107, IOR/P/2118).**

In order to secure the best possible photographs of the Amaravati sculptures for my report on these remains, I have arranged to send Mr H. Cousens, my First Assistant in the Bombay Survey, to take them. Mr Cousens has been 9 years in the survey, and knows exactly what to do and how to do it, securing the photographs to scale and attending to details which the mere ordinary professional photographer is not accustomed to. Moreover besides being better it will be much cheaper.

Mr Cousens salary is Rs. 300 a-month, and he will be allowed the usual travelling and other contingencies while in Madras for gharry hire, and for his peon. He will also visit some other places in the Presidency to obtain photographs for the survey...

1889-90.

'The programme of work for the season 1889-90 comprised, chiefly, the completion of the survey of the remains within His Highness the Gaikwad's territory in North Gujarat which was commenced during the season of 1886-87. In addition to this it was arranged that any work claiming the attention of the Survey, that might exist in the Palanpur Agency, should be done at the same time; and, if time permitted, as much of the unsurveyed remains in Kathiawad as could be taken in hand towards the end of the season, the party working from north to south through Northern Gujarat.' Cousens' party arrived at Ahmadabad, en route for Palanpur, on 5 December 1889. This city was chosen as a starting point, and his party remained there until 11 December, 'in order to get certain additional photographs required by Dr Burgess for his forthcoming volume on the archaeological remains in that city; so, whilst the photographic assistant and myself were engaged in getting these necessary photographs, the draftsmen were occupied in finishing off the bulk of the Dharwar Chalukyan drawings which Dr Burgess had specially called for.' This work necessitated remaining at Palanpur from 11-23 December, 'as it would otherwise have been difficult to get them packed and sent away after we had left the line of the rail and had travelled inland.' Set off for Roho, north of Palanpur Agency, on 23 December, where 'we found an old step-well, with a short Sanskrit inscription, constructed entirely out of white marble...Not far from it are the ruined remnants of a white marble Jaina temple, and close to this again are the crumbling walls of a very substantially built railway bungalow...This bungalow appears to have been an engineer's or contractor's, and it is more than likely that the old Jaina temple that stood near was despoiled of its materials for railway purposes...' Sarotra, about 4 miles southwest of Roho, was also visited, and photographs and drawings of the desecrated Jain temple were made. While camped at Roho, on 26 December, Cousens visited Chandravati, about 15 miles to the north-east. This once-famous city, described in Tod's Travels in Western India, had by now been thoroughly despoiled: 'Save portions of the basement of one temple and a few blocks of the back wall of another, nothing now remains, in 1890, of these beautiful shrines, discovered in 1824, excepting one solitary column, which, by its loneliness, rather accentuates the desolation around it. A

short walk from here discovers one of the chief causes of this, for there, under the railway bridge, upon either side of the stone piers, lie, in heaps in the river bed, upwards of a hundred cart loads of sculptured fragments and images, the unused portion of the vast amount of marble carried there from those temples. The site of the old city, and its extent, is still indicated in great measure by the mounds of old brick work which formed the foundations of these old temples...An estampage of an old inscription of Samvat 13?? found here, was made, and two photographs were taken.' From Roho Cousens travelled via Palanpur to Ranpur, in the mistaken expectation of finding a 'very fine old temple', but this was apparently in error for Ranakpur. He then moved camp to Bhilri, 12 miles south-west of Disa, 'but found that the temple that existed here had not only been razed to the ground, but its foundations had even been dug out and the whole of the material carted away to be converted into lime. This was the case, too, at Mundeta and Kemana...where a few forgotten fragments, lying near the pits, out of which these temples had been rooted, were sufficient to show that the architecture was of the same high class that once adorned Chandravati...' Getting correct information about remains continued to be a problem, 'it being the most difficult thing possible to make the ordinary native officials understand that we are far more interested in an old ruined structure of bygone days than in the more new-fangled gingerbread structures of the present time. Their minds hardly rise above whitewash, plaster, and red lead. The consequence is that almost all the lists of remains received from various sources abound with entries of these newer structures, and often totally ignore the more ruinous, but genuine, examples of the purer style.' At Kasera he found 'a small, but very old, triple-shrined temple dedicated to Siva, Brahma, and Vishnu'. This had been much desecrated by Muslims and was being used as a cattle pen; Cousens had it cleaned out and, 'being a very good specimen of its class, some time was devoted to it in making drawings and taking photographs.' The survey party remained at Patan from 23 January to 12 February 1890, and 'added a few more drawings and photographs to those already made there in January 1887. Its remains of old work are so scattered about the town and for miles around, that it is no easy matter to come at them all in one short visit.' Cousens gives a fairly detailed account of the architectural remains, but only specifically mentions the

photographing of the fine carved wood decoration of 'two exceptionally good house fronts.' The finest piece encountered, however, was 'the great ceiling scroll which was drawn and published in one of the numbers of the Indian Art Journal. The work is superb, but, unfortunately, the three great slabs bearing it received very much damage when the porch, in which it was placed, fell into the river. The scroll was recovered, and now lies upon the pavement near its original position.' From Patan, Cousens moved to Sunak, a village a few miles west of the Unjha railway station: 'Here we found two old temples, one in ruins, the other in good preservation and richly decorated. This furnished us with several drawings and photos.' The party left Sunak on 25 February 1890 and moved camp to Dhenuj, 'but I visited Ruavi and Sandera en route and took photos and notes of old temples at each of these places. At Dhenuj is an old temple, rebuilt, with a good deal of new material added, but the older work is of the very best class, and the carving of the vedi or parapet wall of the mandapa or hall is particularly good. Drawings and photographs were made here. Near the town are the ruins of a very old step-well. In the villages of Virta, Ghurad, Motap, and Kanoda, which lie around Dhenuj, were found some fair specimens of old work, and photos and drawings were made of these.' (Henry Cousens, Progress Report of the Archaeological Survey of Western India for the months December 1889 to February 1890, Government of Bombay, General Proceedings (Archaeology), dated Camp, Dilmal, North Gujarat, 12th March 1890).

### **1890 (March-April).**

Cousens moved camp from Dhenuj to Dilmal, 18 miles west: 'As Modheyra, at which place is the beautiful temple of Surya surveyed by us three years ago, lay not far off, I took a detour in that direction personally, staying there one day, to get a few additional measurements of its basement mouldings and an extra photograph.' At Dilmal itself, '4 sheets of drawings were made, and 4 photographs with 12 facsimiles of inscriptions were taken.' From Dilmal, the party moved via Waghel to Munjpur. At the former, no remains were found of the temple: 'Not a vestige...now remains, and it is almost forgotten by the villagers themselves. Those that do remember it say it was carted away in toto, some 20 or 25 years

ago, its material being used in the construction of a talao at Radhanpur! The very foundations were dug out and carried away...' At Lotesvara, two miles east of Munjpur, Cousens examined the 'curiously built well, in the plan of a Greek cross...of recent construction' and 'at Munjpur and Lotesvara 2 sheets of drawings were made, 2 photographs taken, and 4 inscription impressions made.' From Munjpur the survey group moved to Sankesvara, where two drawings were made, two photographs taken and 28 inscriptions impressed of the remains of the Jain temple. Panchasur, six miles on, was then visited, and while, 'according to tradition, one of the oldest towns in Gujarat...it has absolutely nothing left on the surface to commemorate those days.' The next camp was at Mandal, where '4 sheets of drawings, 2 photographs, and 7 inscriptions were obtained' of the Islamic remains. From here Cousens proceeded to Viramgam, where he examined the great tank known as the Mana Sarovar, and from where 'a draftsman and the assistant photographer were despatched to examine and report on the old temple of Trinetra near Than, of which we had received promising reports. On developing the negatives taken it turns out to be a very interesting building constructed in a style quite different from any we have done, and fully deserving a special visit. It can easily be taken up with the other remains in Kathiawad yet remaining to be surveyed.' In January 1890, the Rev. J. Abbott of the Marathi Mission, Bombay, had discovered a group of caves at Nadsur, and as these were previously unknown to the Survey, Cousens, 'instead of going into Kathiawad after Gujarat, as I had originally intended, I proceeded straight from Viramgam to Nadsur, reaching that place on 16th April.' Recording these remains proved difficult: 'As there is no ground except a narrow strip of very rough hillside before the caves it was impossible to get a good photograph of any of them at close quarters, so that we were obliged to content ourselves with a general one taken from the spur opposite from which the caves are seen, though at some distance through the trees. Another was taken of the interior of Cave 7, the principal vihara, showing the peculiar decoration of the back wall.'

**May 1890-April 1891.**



From May 1890 until January 1891, the survey establishment was engaged in general office work at the Pune (Poona) headquarters, 'which chiefly consisted of inking in and preparation of the drawings, plotted in pencil in the field, for reproduction by photolithography; and the writing up of an account of the remains in Gujarat, including a notice of its architecture, which is to form a second volume to that of Dabhoi on the archaeological remains in the territory of His Highness the Gaikwad of Baroda.' Cousens had kept his party at headquarters past the usual date of 1 November for setting out on fieldwork, in order to clear the accumulation of drawings (an arrangement which he argued should become standard practice), but, 'the Government of India, however, objecting to this arrangement, the party started on the 2nd of February for the Ahmadnagar district in order to commence the survey of the Hemadpanti remains which are scattered over that and the Nasik and Khandesh Collectories.' Cousens' party proceeded straight to Shrigunda to start the survey of Hemadpanti remains. At Shrigunda itself the temples themselves were disappointing, being 'very plain and uninteresting', but 'some very good wood carving was found decorating the façades of two houses...of the style, though not so old, that is found in such abundance in North Gujarat, and the best of it was both photographed and drawn to scale.' At the village of Limpangaon, five miles south-west of Shrigunda, a more impressive temple was found, and altogether at the two sites, 'five sheets of drawings were made, five photographs were taken, and five facsimiles of inscriptions were obtained.' On 11 February camp was moved to Pedgaon, about eight miles south of Shrigunda, and here, despite the Muslim remains which generally indicated desecration of Hindu temples, the ruins of five Hemadpanti temples were found, 'one of which, that of Lakshmi-Narayan, is a perfect little gem...most profusely decorated both within and without, and its outer walls are thickly covered with figure sculpture.' The Lakshmi-Narayan being 'a good typical temple of its class, some time was devoted to it in making drawings which, with the photographs taken, will fully illustrate its construction and decoration. At Pedgaon nine drawings were made, and seven photographs were taken.' On 3 March the survey set out for Karjat, visiting Takli en route, and arriving on 6 March. The temple at Karjat, though old, was disappointing, with 'a row of very indecent

figures' on the front porch, and only one sheet of drawings and one photograph were taken. While the main party were travelling to Karjat on the main road, two draftsmen were sent from Pedgaon to Karjat cross-country, with orders to visit Rasin and report on any remains. There was, however, little of interest there, and on 10 March the party left Karjat for Ahmadnagar. Mandugaon was visited on the journey, 'and a photograph was taken of a neat little Hemadpanti temple...but it is of no special interest.' Cousens arrived at Ahmadnagar on 12 March and examined the Muslim remains and prepared drawings and took photographs of the Damri Masjid, the Fariabagh, Salabat Khan's Tomb and other buildings. As he was now on the line of the railway, 'I took advantage of it, before leaving Ahmadnagar, to run up to Kopargaon, and visit the temples at Khumbari and Kokamthan...The temple at Khumbari, though old, was uninteresting. That at Kokamthan turned out to be very interesting, and a survey of it will be taken up in our next season's tour. Photographs were taken of both.' From Ahmadnagar, Cousens moved to Tisgaon, but finding nothing there to detain him, moved on to Sheogaon and then Ghotan. Here he found that the temple was 'now so masked by modern walls and improvements (?) in chunam and whitewash that very little can now be seen of the original temple.' Of two other ruined temples in the vicinity, 'neither [was] interesting enough for photography.' Camp was moved to Miri on 5 April, but here no temple was found, although there was a step-well in ruinous condition, which was still in use despite its very dangerous state. Hearing of a fine Hemadpanti tank at Maktapur on the Ahmadnagar-Aurangabad road, a clerk was sent on to report on it, and the survey camp meanwhile moved to Vadala on 6 April. The Maktapur tank was considered of little importance and after some local investigations, 'camp was moved on to Sonai, whence a fairly good Hemadpanti well at Bamini, four miles off, was photographed and plotted.' On 12 April the survey party moved to Parner, which, despite earlier descriptions, 'turned out to be not worth the visit.' From here a visit was made to the Dhokeshvara Caves at Dhoke, twelve miles north of Parner and three miles east of the village of Takli. 'Here a plan and detailed drawings with photographs were obtained.' The season was concluded with a visit to the Boleshvara Temple, four miles south of the railway station of Yeol. 'Here drawings were commenced,

but as there will be more work to be done there, I propose commencing next season's work with a visit to it.' Cousens concluded that 'During the season - February, March and April - 23 sheets of drawings were made and 24 photographs with 31 facsimile impressions of inscriptions were taken.'

### **May 1891 - April 1892.**

From the beginning of May until 4 November 1891, 'the establishment was occupied at head-quarters, Poona, chiefly in inking and preparing drawings for photo-lithography.' Following orders, Cousens visited Bijapur in May 1891 to organise the Museum in the Yaqut Mahal.

Synopsis For the season's tour, Cousens' party headed eastwards from Poona to Yeoat, 'thence northwards to Kopargaon and Kokamthan, then round in a south-westerly direction towards the Western Ghats and up the Sangamner and Akola valley, and from there on to Sinnar in the Nasik Collectorate. From Sinnar camp was moved on via Shivra to Manmad. From Manmad, the direction lay more or less parallel with the G.I.P. Railway line as far as Pachora and Maheji, at which last point we struck inwards and northwards to Erandol. From Erandol our route lay westwards to Dhulia and north-west to Balsane. Prakasha and Taulai, which lie on the Tapti and beneath the Satpura Hills, respectively, were visited from Balsane. From the latter place we moved back through Dhulia and southwards via Laling to Jhodga and Malegaon, and thence on by Chandod to Nasik and Anjaneri. Our last move, above the ghats, was from Anjaneri, round by the Pindu caves to Tringalvadi near Igatpuri at the head of the Thal Ghat. From Igatpuri the party railed down to Kalyan for Ambarnath.'

Cousens' party set out from Poona for Yeoat on 4 November 1891, 'the Divali holidays preventing an earlier start.' Here the survey of the Boleshvara Temple three miles S.W. of Yeoat, commenced in the previous season, was completed. Camp was then moved to Kokamthan. Here, on an artificial embankment projecting out into the river, 'is an exceedingly interesting old temple.' From Kokamthan, two draftsmen were sent ahead across country to Sinnar to start work on the Gondeshvara Temple, the remainder of

the party making a detour round by Sangamner and Akola. Akola was reached on 24 November, and the Siddeshvara Temple examined. 'From Akola excursions were made to Tahakari and Ratanvadi, where photos and drawings were made of the old temples at those places.' At Sinnar, twenty miles south of Nasik, 'is the largest and most complete 'Hemadpanti' temple in the Deccan - the temple of Gondesvara...There is also on the north-west of the town a very interesting and exquisitely carved little temple in the Chalukyan style.' From Sinnar, camp was moved to Manmad (reached on 4 January 1892) via Shivra and Yeola. At Shivra, the memorial stones, on examination, 'were found to be of little interest and of comparatively no antiquity.' From Manmad, a small old temple in the village of Nagapur, 'of no particular interest', was examined. Camp was moved to Nandgaon on 8 January, and from here another old temple at Bangaon (six miles to the south), again of little interest, was investigated. Camp was then moved to Chalisgaon via Hirapur, where a so-called 'Hemadpanti' temple, turned out to be of little importance. Cousens' party arrived at Patna on 11 January, 'the site of a deserted town, now overgrown with jungle...Scattered among the ruins are the remains of several old temples....The whole of the valley is thickly wooded, and being quite uninhabited, save by the owl, the jackal, the wild pig, the panther, and an occasional tiger, it is, between the lights, quite an eerie and lonely place to camp in.' From here Cousens moved on to Vaghli, which he reached on 20 January. After examining the temples, camp was moved to Nagardeola, where, at nearby Sangamesvara, 'was found an interesting temple...After making some drawings and photographing the temple, we moved, on the 2nd February, to Pachora, from which place as a centre the following places were visited, viz. Pimplegaon, Kurhad Kurd, Loharra, Shendurni, and Nandre.' Remaining at the Pachora camp, remains at Khatgaon, Gharkhed, Chartan, Changdeva and Kandari were visited. Most of the temples Cousens considered of little importance, although 'the temple of Changdeva has been a very large and fine temple, but it is now mostly rebuilt in the most outrageous fashion.' On 11 February camp was moved via Maheji to Erandol, which was reached the following day. At Erandol, 'is a large, strongly built old quadrangle known as Pandava's Vada. It is the remains of one of those strongly built and enclosed mosques which were erected in the early days of Mahomedan rule, partly

mosque, partly fort...' On finishing work at Erandol, the party moved eastwards to Undikheda on 20 February, 'expecting to find there something worthy of our time. In this we were sadly disappointed, the temple...turning out to be but a modern erection of no interest to us.' From here Cousens moved to Balsane, some 25 miles N.W. of Dhulia, 'where there are the remains of some nine separate temples and buildings.' From Balsane, Cousens sent a draughtsman and photographer to Prakasha and Taulai to 'spy out the land' (his information having intimated that there were no remains of great interest or antiquity at these places): 'They returned with photos and drawings which in great measure confirmed my suspicions. At Prakasha itself are some fine modern temples and inscriptions, but of little interest to us.' A clerk sent to Indwa to report on the well there, returned with a similar report. The survey left Balsane on 9 March, and after returning via Dhulia, where a short halt was made, Laling was reached on 14 March. Here the Hemadpanti temple and the fort, of 'very limited' extent were examined, as was the ruined European bungalow, 'built, report says, by a former Collector, as a hot weather retreat from Dhulia. A few old iron gund lie about, and two or three with their breaches knocked off have been used as a waste water-pipe to one of the bathrooms of the bungalow. The latter stands gaunt and bare, the sport of the four winds of heaven, unroofed, and having its crumbling walls decorated within with a number of pictures from old world editions of the Illustrated London News and other prints. Remnants of wrecked furniture lie about.' On the 15 March the survey party arrived at Jhodga, where there was 'a well-finished temple of Mahadeva.' Jhodga was left on 19 March for Chikalvohol, where there were the remains of an old temple; but little of the original workmanship remained. From Malegaon, on the route from Jhodga to Chandod, two draftsmen and the photographic assistant were sent to Devalana, but it was found that the old temple had been largely rebuilt. After finishing at Devalana, the draftsmen travelled to Nasik via Kalvan, Saptasringi, Vani and Dindori, but did not find any remains of particular interest. The next stop for the party was Chandod, where there was a Renuka Devi Temple and a Jain cave. From there the party moved on to Nasik, which was reached on 30 March. Despite its venerable history, few early buildings were found: 'The city has more the air of a modern town than anything else.' Anjaneri, fourteen miles

west of Nasik, was then visited, and the numerous small shrines examined. From Anjaneri a trip was made out to Trimbak, 'the great place of pilgrimage...There is here everything that makes a place of pilgrimage dear, in both senses, to the religious enthusiast, but little in our line.' Camp was then moved to Igatpuri, six miles from which was the little village of Tringalvadi, with its Jain cave. With a fortnight to spare, 'Kalyan, below the Ghats, was visited, and from thence Ambarnath.' At the end of the month the field season was closed, 'and on our way back to head-quarters, camp was pitched for the remaining month of the hot weather at Lonavli, where the cooler weather was much better to work in than the trying heat of Poona during during May.'

**(Government of Bombay, General Department. Progress Report of the Archaeological Survey of Western India for the months May 1891 to April 1892. IOR/V/24/263.) [OIOC Photo 1009/1 (1273-1336)]**

#### **May 1892-April 1893.**

'The field season was commenced with a preliminary tour through the Central Provinces and Berar in order to gather information from which to compile as complete a list as possible of the antiquarian remains in those provinces prior to starting the regular work there next season. With this end in view I tried to visit as many of the principal places of interest as time would admit of.' Since the only existing list of remains was out of date, Cousens distributed printed forms for administrators to list additions for him to visit: 'with the forms I forwarded a circular letter, through the Chief Commissioner, to the Deputy Commissioners and other officers explaining in detail exactly what was required, for I found that many officers had but vague ideas of the nature of our work.' During October, November and December, lists were also sent in from Berar, 'but these again were copies of old lists sent in as far back as 1873-76 [by Gill and others?]. Some of these, originally compiled by persons who evidently took very great interest in the work, seem very exhaustive,' whereas others were very meagre in the extent of information supplied. Also, 'the information called for and returned in these early lists dwells too much upon conservation, and a great deal more than required upon

traditional lore, so that as guides to future survey work they are not as useful as they might be...It cannot be expected of district officials, who do not pretend to any extensive knowledge of architectural or archaeological matters, to say with any degree of accuracy, what building ought or ought not to be conserved or to what extent.'

With his clerk and photographic assistant, Cousens travelled to Nagpur, arriving on 3 November 1892. Here he held discussions with various officials regarding information on architectural remains, as well as making a complete list of the sculptures in the museum. From Nagpur he travelled westwards, 'turning my attention to the country lying between that place and Bhusaval, and thence determined to follow up the valley of the Narmada as far as the time at my disposal would permit. A few places, which from the lists appeared to be among the more important, I decided upon visiting. These were Markanda and Bhandak in the Chanda district, Muktagiri in Elichpur, Lonar and Mehkar in Buldana, Mandhata in Nimar, and Pachmarhi in Hoshangabad. On his way to Chanda, Cousens halted for a day or two at Bhandak, where several old caves and 'some very old temples, a few colossal images and an exceedingly interesting old Hindu bridge' were examined. 'As I carried a small half-plate camera with me I took photographs of these.' From Chanda Cousens moved on to Amraoti, where he met the Commissioner Colonel Mackenzie and the Deputy Commissioner Colonel Gunthorpe, both of whom promised assistance in his work. From here he visited Muktagiri, 'of which I had heard a good deal, [which] I found to be a collection of very modern Jaina temples of no particular interest...They form, however, a very picturesque group, perched upon the precipitous ledges of rock at the end of a secluded and wild ravine, where a pretty waterfall comes tumbling down the valley from the highlands above.' From Muktagiri, Cousens then decided to travel via Akola to Lonar, where there were 'the most important group of remains in Berar,' but stopped first at Buldana: 'On arrival at Buldana I met Colonel Szezepanski, the Deputy Commissioner, whom I found to be well acquainted with, and much interested in, the remains in his district. I gleaned a good deal from conversation with him and more from the perusal of an album of photographs of all the remains of note in the country round. Indeed, this saved me



the further journey to Lonar and Mehkar, for from the photographs I began to feel as familiar with the buildings at those places as if I had actually visited them.' Leaving Buldana, Cousens visited the Muslim remains at Burhanpur, and from thence to Khandwa and Mandhata: 'Among the ruins are some fine old temples and other buildings which will well repay a thorough survey. The town with its scores of comparatively modern temples is not so interesting to us.' From Mandhata Cousens moved on to Hoshangabad, 'but found the principal district officers out in camp.' The last place visited by Cousens on this tour were the Mahadeva Caves at Pachmarhi. 'I was now close upon the tracks of General Cunningham and his assistants, who had already toured through parts of Jabalpur, Damoh, and Sagar, and, as it was too late in the season to expect to find district officials at head-quarters, I returned to Poona on the 23rd of December.'

### **8 January 1893**

Cousens once more left Poona on tour, heading for Bhatkal in North Kanara, having sent on the draftsmen with the survey kit the week before. Some of the remains in Kanara had been cursorily examined by James Burgess some years before and Cousens' plan was to start at Bhatkal, the southernmost town in the Bombay Presidency and, working northwards and inwards, investigate as much of Kanara as possible. He planned to visit such places as 'Murdesvara, Honavar, Gokarn, Gersappa, Bilgi, and Banavasi, which places promised to repay investigation. This we were able to accomplish, and, in addition, the time at our disposal before the wind up of the season enabled us to do Annavatti in Maisur, Tillivalli in Dharwar, Khidrapur on the Krishna, and Kolhapur.' Cousens spent some time looking round Bhatkal, a picturesque little town 'that has seen better days', situated among rice fields about two miles inland on a tidal creek. On looking at the temples and comparing them to the indigenous domestic architecture, Cousens dismissed Fergusson's theory that the roofs were copied from Nepalese styles, preferring the more prosaic explanation that the deep slope was accounted for by the heavy rainfall of the area. At Bhatkal Cousens found 'over two dozen old temples of sorts...also two mosques, not very old, a number of Kanarese inscribed slabs, and three old European tombs dating back to 1637 and 1638...There

are many old European tombs scattered throughout the country, and a complete list of them with copies of any quaint inscription is a desideratum.' From Bhatkal, a trip was made to the village of Hadvalli, ten miles further inland. Here were several temples, but 'there is nothing much of account in these.' From Bhatkal, 'a very pleasant journey of ten miles brought us to Murdesvara situated upon the sea shore.' In addition to temple ruins, 'the principal remains here are some thirty-five viragals and other inscription slabs...The largest group of these stones are at the junction of the main road from Bhatkal to Honavar with the branch road running to Murdesvara village. There are here twenty stones. I found them leaning forward or backward at different angles, and one had fallen and was broken. I had some of them put straight for photographing and drawing, but they should be permanently set upright by being fixed in a masonry foundation...They are among the very best of their class...' From Murdesvara Cousens moved to Honavar. Here also he found a number of memorial stones. On 17 February he left Honavar for Gersoppa, 'a busy little place' 18 miles away. 'The remains of interest now consist of several ruined temples, chief among them being that called the Chaturmukha Basti, a cruciform temple having four porches facing the four cardinal points.' Eighteen miles by road 'brought us to the Falls near the village of Jog. They are a sight never to be forgotten.' On 26 February Cousens arrived at Bilgi, where some photographs and drawings were made of the three temples. At Baidurkanni, on the road from Bilgi to Siddapur, Cousens examined a group of viragals, also looked at an inscribed slab at Siddapur, and arrived at Banavasi, 'a large straggling village on the left bank of the Varda river...a very ancient place,' on 7 March. Here Cousens examined 'several old brick stupas outside the town to the north-west. Two of these I opened out, but found that they had been previously dug into, and quite one third of their height cleared away.' He also made a careful investigation of the Madhukeshvara Temple, and makes special mention of the massive temple car. Here he encountered a family of wood-carvers 'who had done work for the Maharaja of Maisur...They were making sandalwood images and boxes, and the work they shewed me far surpassed in boldness and execution any thing of the sort I have seen in the Bombay Presidency.' However, this exquisite work was spoilt in Cousens' eyes by the careless joinery of the boxes, one of which was 'completely spoilt by being

cut by a 'square' which was more than an eighth of an inch out in six inches in length.' It was only with considerable difficulty that Cousens could convince the artisans to acknowledge this, 'but even then I doubt if they looked upon it with such concern as a European workman would, and certainly not to the extent of discarding such work...This want of eye-training...is a subject deserving of especial attention in all technical art training schools, engineering colleges, and schools of art.' From Banavasi 'we passed through a corner of Maisur territory to reach Tillivalli in the Dharwar District, stopping a few days at Annavatti, where there is an old temple dedicated to Kaithabesvara,' where Cousens was impressed by the quality of the carved work. At Tillivalli he found another fine Chalukyan temple, the Santeshvara, although the low interior he considered 'dark and gloomy and depressing,' and the whole site 'in a very dirty state'. The visit to Tillivalli practically concluded the sites in the Kanarese and Dharwar districts, 'but still having a month of the season to spare...I turned my attention to Kolhapur...One entry was Khidrapur on the Krishna about 30 miles east of Kolhapur...I moved camp to Shedbal station, having photoed a very large dolmen standing in the middle of the village of Motibennur on the way. From Shedbal station 6 miles took us to the village of Jugal on the right bank of the Krishna right opposite Khidrapur where we encamped.' The temple at Khidrapur Cousens found disappointing, since although large, 'it is a comparatively late structure of the style of the great temple in Kolhapur city at that at Yeot', uncompleted and lacking in delicacy. Cousens left Khidrapur on 14 April, sending on his tents and draughtsmen to Kundal, while he himself travelled on to Kolhapur to investigate the Amababai Temple. This also he found to be disfigured by crude later workmanship: 'Such buildings these prove beyond all doubt that the taste for good work throughout the Dakhan has died out almost completely.' 'After getting a few drawings, photographs, and inscriptions from Kolhapur we started for Kundal.' here he found that a storm had blown down and damaged all his tents, and 'this necessitated my going on another five miles to Takari, where there is a Public Works Department bungalow.' He examined the caves at Kundal ('not of much account') and on 29th April left Takari and moved back to headquarters at Poona.

**(Progress Report of the Archaeological Survey of Western India  
for the months May 1892 to April 1893, IOR/V/24/263). [OIOC  
Photo 1009/ (1337-1381)]**

**May 1893 to April 1894.**

'The programme for the working season...I was able to carry out, with the exception of a few trifling details, in its entirety between November and April last. This completed the survey of the whole valley of the Narbada so far as it lay within the districts of Khandwa, Hoshangabad, Narsinghpur, and Jabalpur, together with the two northern districts of Damoh and Sagar.' 'Compared with the antiquarian remains in the Bombay Presidency, and Western India generally, those of the Central Provinces are few and poor...The valley of the Narbada...is perhaps the most scanty in this respect; but this chiefly due to the fact that railway contractors, when constructing the G.I.P. line, found in the many remains that then existed, material ready to hand for their bridges and culverts. One notable example of this is Barehta-Nonea, fourteen miles south-east of Narsinghpur, and some six miles from the nearest point of the railway. The only evidence now of the existence at one time of the many fine old temples here is a small group of sculptures gathered together within a small rough walled enclosure.' Cousens arrived at Burhanpur on 3 November 1893. This was 'practically a Muhammadan town whose palmy days passed away with the last of the Faruki kings. It is still of considerable size...There are many evidences of its former prosperity in the many ruined buildings...Hindu remains are conspicuous by their absence.' The finest and best preserved building was the Jami Masjid. 'Next to this in interest is the Bibi Masjid...but is of an entirely different design...The whole is now a ruin, but was found worthy of delineation.' Also of interest were the royal baths, the waterworks and various tombs: 'At Burhanpur six sheets of drawings were prepared, four photographic negatives, and four facsimiles of inscriptions were taken.' From Burhanpur the party moved on via Khandwa and Mortaka to Mandhata on the Narbada, a famous place of Hindu pilgrimage and where the great annual jatra was in full swing when they arrived. Here Cousens examined the Omkaresvara Temple, which stands upon the island part of the town. But the most important site for Cousens was 'the

ruins of a far older building on the top of the hill above the town....The temple of Siddhesvara is the principal and most interesting relic of antiquity of Mandhata.' Among other remains on the hill was a large bracketed torana or gateway, 'of the type of the Dabhoi gateways in Gujarat, in a very ruinous condition.' Near to Mandhata, on the north side of the river, was the village of Panthia, where 'there is a small old ruined temple containing a number of images of Vishnu where the standing figure is alike in each.' 'The number of sheets of drawings made at Mandhata and Panthia was eleven, of photographs and inscription impressions taken eleven and four respectively.' From Mandhata Cousens moved on 14 December via Khandwa to Narsinghpur. 'At Khandwa there is nothing of interest. Some old tanks and a little ruined shrine together with a few odd images scattered about are all that remain of any age in the place.' At Narsinghpur there was an interesting collection of sculptures collected together in the public gardens, assembled by a former Deputy Commissioner. The principal object was a finely carved temple doorway. The collection was very exposed to the weather, and Cousens recommended that it be placed inside the Town Hall for protection. 'These sculptures were both drawn and photographed. Four sheets of drawings were made, three negatives were taken, and an impression was taken of an inscription...' From Narsinghpur, Cousens sent two men to Gadarwada, 'which is a station on the G.I.P.R., 28 miles west of Narsinghpur, who photographed a brick step-well. It is not very old, is of little interest, and is now partly ruined.' Cousens received conflicting reports as to the remains at Barehta-Nonea, and 'it was not until I sent out a draftsman to reconnoitre...that I found that, beyond a few images gathered together in a small walled enclosure, there is nothing now standing to prove Barehta ever to have been any richer than other surrounding villages in antiquarian remains.' After the Christmas holidays, work was resumed at Bheraghat 12 miles west of Jabalpur, whither camp had been shifted. Here the ruined temple was examined and photographed. On the Jabalpur road not far from Bheraghat, was the little village of Tewar, where, 'under some large trees near a step-well, are collected scores of broken sculptures, many of them being of considerable merit.' These Cousens photographed. Nearer still to Jabalpur, Cousens examined the Madan Mahal, 'a very conspicuous building, but of no particular interest.' 'At Bheraghat, Tewar, and Jabalpur seven

sheets of drawings were made, seven photographs were taken, and impression were taken from seven inscriptions.' From Jabalpur, 'I sent men to Bilhari, Rupnath, Bahuriband, and Tigowa, all in the north of the Jabalpur District, to get photographs of remains at those places and copies of the inscriptions. This they did, and brought back four photographic negatives and two impressions.' The next move was to Nohta, 53 miles from Jabalpur on the Jabalpur-Damoh road. Judging from the remains of temples and scattered sculpture, Cousens judged Nohta to have been a place of some importance, and three sheets of drawings and two photographs were made. Damoh was reached on 19 February, but there was 'very little of interest.' 'Having received very indefinite information respecting remains in several places in the Damoh district, I sent out men with a camera and inscription materials to visit some of these places and bring me more accurate information. It turned out that none of these places were worth my journeying to. They were Kundalpur, Bamapura, Raneh, Hatta, Mugrone, Kanoda, and Narsinghgad.' His men did, however, bring back photographs from some of these places. Cousens left Damoh on 4 March, and marched to Sagar via Garhakota, where there was the remains of an old fort. At Sagar, apart from the fort, was a quantity of old temple sculpture in the garden of the Artillery mess. This had been gathered together by a former tenant and the material arranged in imitation of small kiosks. Next Cousens visited Eran, 40 miles north-west of Sagar, but was disappointed with the extent of the ruins, 'though this is compensated for by their great interest...From Sagar, Eran, and Etava we brought away six sheets of drawings, eleven photographs, and five inscription impressions.' A visit to Pathari 12 miles south of Eran, practically completed the season's work. 'At Pathari we made eight sheets of drawings, twelve photographic negatives, and eleven impressions of inscriptions. The column inscriptions both at Eran and Pathari gave, after certain treatment with lampblack and brush, far better photographic impressions than it is possible to get with paper on account of the very corroded state of the surface...Of an old ruined temple at Bamora, one of the stations on the Indian Midland Line, and about twelve miles from Pathari, I got two photographic negatives and then took rail for Hoshangabad and Poona.'

**[Progress Report of the Archaeological Survey of Western India  
for the Months May 1893 to April 1894, IOR/V/24/263] [OIOC  
Photo 1009/2 (1382-1442)]**

**May 1894 to August 1895.**

The months of May-November were occupied in office work at Poona, mainly involving the finishing of drawings plotted in outline in the field. 'This completed, practically, all unfinished drawings in hand and we were free for new work at the end of the monsoon season. The Revised Lists of Antiquarian Remains in the Bombay Presidency were sent to the press after some delay in getting the necessary sanction for the printing of the volume, so also were the new Lists of Antiquarian Remains in the Central Provinces and Berar. In May 1894 Cousens received notification from the Government of India that the Hyderabad government were anxious for an architectural survey to be undertaken in the Nizam's territories, and it was arranged that Cousens would start the work on 1 December 1894. 'Since no detail survey work was to be done, rapid and light travelling being necessary to cover as much ground as possible during the touring season in order to gather all the information available as to location, extent, and nature of remains, I had no use for four of my draftsmen [these were lent for the period to the North-West Provinces survey]...I thus started work with one draftsman, who is a very good photographer, a clerk, and photographic assistant.' Although most of the Nizam's territories were terra incognita from the antiquarian point of view, James Burgess had made a tour of the western districts during the 1875-76 season and there was therefore no necessity to revisit well-known sites such as Ajanta, Ellora and Aurangabad: 'I consequently determined to tour through the northern, eastern, and south-eastern parts of the territory, and, if time permitted, certain portions of the southern district also. All this I was not able to accomplish owing to being several times delayed and the very bad state of the cart tracks.' To save time Cousens asked for lists to be preliminary lists of remains to be prepared by Hyderabad officials and forwarded to him before he started his tour. Due to bureaucratic confusion, only a few of these lists were sent in in time, and these not in the form requested. Public Works department officials turned out to be the best



informed, while amongst other officials, 'I found, as a rule, a surprising ignorance of the existence of remains in the districts immediately under their own jurisdiction, and the most frequent reply I got to enquiries was that there were no remains of note, notwithstanding the fact that I had frequently come across several of interest in the line of my tour.' In the event, Cousens planned his work from his own lists, Burgess's 1875-76 reports, and various other printed sources. 'The general direction of the tour I had sketched out for myself was from Aurangabad in a south-westerly direction down the valley of the Godavari towards Nander, and thence via Indur and Karimnagar to Warangal and Hanamkonda; after this, if time permitted, a shorter tour through some of the southern districts.'

Cousens left Poona on 3 December, travelling by rail to Ahmadnagar and by road to Aurangabad: 'Our journey along the splendid high road from Ahmadnagar to the Godavari was easy and comfortable, but our experience of bad communications, which we had abundance of thereafter, began here.' At Aurangabad, 'the most important amongst the Muhammadaan remains...is the Muqbara or Tomb of Rabia Durana...Other buildings of lesser note are found in and around the town.' From Aurangabad, Cousens visited the hill fort at Daulatabad - 'Its palmy days are gone for good, since its exposed conical sides would not now be tenable for half an hour without modern artillery.' Having previously visited the Ellora district, Cousens now headed towards Jalna: 'Beyond a few Muhammadan buildings, religious and civil, of very mediocre stamp, and the remains of an old fort, there is nothing of any special interest at this place.' Here they left the made road, striking south-eastwards into unknown country towards Partur: 'The snapping of tonga traces and sticking in the mud now became things of frequent occurrence, and though adding greatly to the variety of our adventures did not improve the temper of either man or beast.' Partur contained 'a few half-ruined buildings, generally Muhammadan adaptations of previous old decorated temples,' and 'having received promising information concerning remains at Chartana, 22 miles eastwards of Partur, we made for that village, passing through Manta on the way.' Chartana he found 'a very ordinary and dirty village,' with a fort and, nearby, a number of Hemadpanti temples. 'One magnificent Jaina column, about 25 feet

high, containing all the parts and mouldings of a hall pillar, stands upon high ground in one part of the village, its splendid finish and carving standing out in strong contrast with its filthy surroundings. It is a strange fact that, when a temple becomes desecrated, there appears to be not a single person in the town or village who cares anything further about it as a work of art. It more often than otherwise becomes a public latrine, and the beautiful work which was once the joy of the sculptor's heart and the admiration of his patrons, now appeals in vain to the dull and blunted sensibilities of the ordinary villager, whatever his caste.' From Chartana, Cousens travelled to Aunda (or Aunda-Nagnath), about 14 miles south of Hingoli: 'Aunda contains one of the twelve most sacred Siva-lingas which are scattered throughout India.' On the journey to Aunda, Cousens passed through Jintur, Wasa, Varud, Pungla, and Bogaon, 'besides getting information of sundry remains at many villages situated on either side of our line of march.' At Aunda, Cousen examined the Nagnath Temple. From Aunda, Cousens travelled to Basvantnagar, 18 miles to the south-east: 'It stands at the crossing of the trade routes from Nirmal and the Sirpur forests to Jalna and Aurangabad, and from Hyderabad to the Berars...The Jami Masjid and a few old dargahs are all that, with the old wall, connect the present with the past.' Nander was next visited, 'our object in taking this route...the possibility of falling upon some trace of the ancient Tagara.'

referred to as...)

### **Theses on the Philosophy of History**

I

**The story is told of an automaton constructed in such a way that it could play a winning game of chess, answering each move of an opponent with a countermove. A puppet in Turkish attire and with a hookah in its mouth sat before a chessboard placed on a large table. A system of mirrors created the illusion that this table was transparent from all sides. Actually, a little hunchback who was an expert chess player sat inside and guided the puppet's hand by means of strings. One can imagine a philosophical counterpart to this device. The puppet**

called 'historical materialism' is to win all the time. It can easily be a match for anyone if it enlists the services of theology, which today, as we know, is wizened and has to keep out of sight.

Click here  
for some  
[background to  
the image of the automaton](#)

## II

'One of the most remarkable characteristics of human nature,' writes Lotze, 'is, alongside so much selfishness in specific instances, the freedom from envy which the present displays toward the future.' Reflection shows us that our image of happiness is thoroughly colored by the time to which the course of our own existence has assigned us. The kind of happiness that could arouse envy in us exists only in the air we have breathed, among people we could have talked to, women who could have given themselves to us. In other words, our image of happiness is indissolubly bound up with the image of redemption. The same applies to our view of the past, which is the concern of history. The past carries with it a temporal index by which it is referred to redemption. There is a secret agreement between past generations and the present one. Our coming was expected on earth. Like every generation that preceded us, we have been endowed with a weak Messianic power, a power to which the past has a claim. That claim cannot be settled cheaply. Historical materialists are aware of that.

## III

A chronicler who recites events without distinguishing between major and minor ones acts in accordance with the following truth: nothing that has ever happened should be regarded as lost for history. To be sure, only a redeemed mankind receives the fullness of its past—which is to say, only for a redeemed mankind has its past become citable in all its moments. Each moment it has lived becomes a *citation a l'ordre du jour* — and that day is Judgment Day.

## IV

*Seek for food and clothing first, then  
the Kingdom of God shall be added unto you.*

*Hegel, 1807*

The class struggle, which is always present to a historian influenced by Marx, is a fight for the crude and material things without which no refined and spiritual things could exist. Nevertheless, it is not in the form of the spoils which fall to the victor that the latter make their presence felt in the class struggle. They manifest themselves in this struggle as courage, humor, cunning, and fortitude. They have retroactive force and will constantly call in question every victory, past and present, of the rulers. As flowers turn toward the sun, by dint of a secret heliotropism the past strives to turn toward that sun which is rising in the sky of history. A historical materialist must be aware of this most inconspicuous of all transformations.

## V

The true picture of the past flits by. The past can be seized only as an image which flashes up at the instant when it can be recognized and is never seen again. 'The truth will not run away from us': in the historical outlook of historicism these words of Gottfried Keller mark the exact point where historical materialism cuts through historicism. For every image of the past that is not recognized by the present as one of its own concerns threatens to disappear irretrievably. (The good tidings which the historian of the past brings with throbbing heart may be lost in a void the very moment he opens his mouth.)

## VI

To articulate the past historically does not mean to recognize it 'the way it really was' (Ranke). It means to seize hold of a memory as it flashes up at a moment of danger. Historical materialism wishes to retain that image of the past which unexpectedly appears to man singled out by history at a moment of danger. The danger affects both the content of the tradition and its receivers. The same threat hangs over both: that of becoming a tool of the ruling classes. In every era the attempt must be made anew to wrest tradition away from a conformism that is about to overpower it. The Messiah comes not only as the redeemer, he comes as the subduer of Antichrist. Only that historian will have the gift of

fanning the spark of hope in the past who is firmly convinced that *even the dead* will not be safe from the enemy if he wins. And this enemy has not ceased to be victorious.

## VII

*Consider the darkness and the great cold  
In this vale which resounds with mystery.*

*Brecht, The Threepenny Opera*

To historians who wish to relive an era, Fustel de Coulanges recommends that they blot out everything they know about the later course of history. There is no better way of characterising the method with which historical materialism has broken. It is a process of empathy whose origin is the indolence of the heart, *acedia*, which despairs of grasping and holding the genuine historical image as it flares up briefly. Among medieval theologians it was regarded as the root cause of sadness. Flaubert, who was familiar with it, wrote: '*Peu de gens devineront combien il a fallu être triste pour ressusciter Carthage.*'\* The nature of this sadness stands out more clearly if one asks with whom the adherents of historicism actually empathize. The answer is inevitable: with the victor. And all rulers are the heirs of those who conquered before them. Hence, empathy with the victor invariably benefits the rulers. Historical materialists know what that means. Whoever has emerged victorious participates to this day in the triumphal procession in which the present rulers step over those who are lying prostrate. According to traditional practice, the spoils are carried along in the procession. They are called cultural treasures, and a historical materialist views them with cautious detachment. For without exception the cultural treasures he surveys have an origin which he cannot contemplate without horror. They owe their existence not only to the efforts of the great minds and talents who have created them, but also to the anonymous toil of their contemporaries. There is no document of civilization which is not at the same time a document of barbarism. And just as such a document is not free of barbarism, barbarism taints also the manner in which it was transmitted from one owner to another. A historical materialist therefore dissociates himself from it as far as possible. He regards it as his task to brush history against the grain.

\* 'Few will be able to guess how sad one had to be in order to resuscitate Carthage.'

### VIII

The tradition of the oppressed teaches us that the 'state of emergency' in which we live is not the exception but the rule. We must attain to a conception of history that is in keeping with this insight. Then we shall clearly realize that it is our task to bring about a real state of emergency, and this will improve our position in the struggle against Fascism. One reason why Fascism has a chance is that in the name of progress its opponents treat it as a historical norm. The current amazement that the things we are experiencing are 'still' possible in the twentieth century is *not* philosophical. This amazement is not the beginning of knowledge—unless it is the knowledge that the view of history which gives rise to it is untenable.

### IX

My wing is ready for flight,  
I would like to turn back. If I stayed timeless time,  
I would have little luck.

*Mein Flügel  
ist zum  
Schwung  
bereit,  
ich kehrte  
gern  
zurück,  
denn blieb  
ich auch  
lebendige  
Zeit,  
ich hätte  
wenig  
Glück.*

*Gerherd  
Scholem,  
'Gruss  
vom  
Angelus'*

A Klee painting named 'Angelus Novus' shows an angel looking as though he is about to move away from something he is fixedly contemplating. His eyes are staring, his mouth is open, his wings are spread. This is how one pictures the angel of history. His face is turned toward the past. Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage and hurls it in front of

his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing in from Paradise; it has got caught in his wings with such a violence that the angel can no longer close them. The storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we call progress.

Click here to see a screen version of [Klee's painting \*Angelus Novus\*](#)

X

The themes which monastic discipline assigned to friars for meditation were designed to turn them away from the world and its affairs. The thoughts which we are developing here originate from similar considerations. At a moment when the politicians in whom the opponents of Fascism had placed their hopes are prostrate and confirm their defeat by betraying their own cause, these observations are intended to disentangle the political worldlings from the snares in which the traitors have entrapped them. Our consideration proceeds from the insight that the politicians' stubborn faith in progress, their confidence in their 'mass basis', and, finally, their servile integration in an uncontrollable apparatus have been three aspects of the same thing. It seeks to convey an idea of the high price our accustomed thinking will have to pay for a conception of history that avoids any complicity with the thinking to which these politicians continue to adhere.

XI

The conformism which has been part and parcel of Social Democracy from the beginning attaches not only to its political tactics but to its economic views as well. It is one reason for its later breakdown. Nothing has corrupted the German working class so much as the notion that it was moving, with the current. It regarded technological developments as the fall of the stream with which it thought it was moving. From there it was but a step to the illusion that the factory work which was supposed to tend toward technological progress constituted a political achievement. The old Protestant ethics of work was resurrected among German workers in secularized form. The

**Gotha Program \* already bears traces of this confusion, defining labor as ‘the source of all wealth and all culture.’ Smelling a rat, Marx countered that ‘...the man who possesses no other property than his labor power’ must of necessity become ‘the slave of other men who have made themselves the owners...’ However, the confusion spread, and soon thereafter Josef Dietzgen proclaimed: ‘The savior of modern times is called work. The ...improvement... of labor constitutes the wealth which is now able to accomplish what no redeemer has ever been able to do.’ This vulgar-Marxist conception of the nature of labor bypasses the question of how its products might benefit the workers while still not being at their disposal. It recognizes only the progress in the mastery of nature, not the retrogression of society; it already displays the technocratic features later encountered in Fascism. Among these is a conception of nature which differs ominously from the one in the Socialist utopias before the 1848 revolution. The new conception of labor amounts to the exploitation of nature, which with naive complacency is contrasted with the exploitation of the proletariat. Compared with this positivistic conception, Fourier's fantasies, which have so often been ridiculed, prove to be surprisingly sound. According to Fourier, as a result of efficient cooperative labor, four moons would illuminate the earthly night, the ice would recede from the poles, sea water would no longer taste salty, and beasts of prey would do man's bidding. All this illustrates a kind of labor which, far from exploiting nature, is capable of delivering her of the creations which lie dormant in her womb as potentials. Nature, which, as Dietzgen puts it, ‘exists gratis,’ is a complement to the corrupted conception of labor.**

*\*The Gotha Congress of 1875 'United the two German Socialist parties, one led by Ferdinand Lassalle, the other by Karl Marx and Wilhelm Liebknecht. The program, drafted by Liebknecht and Lassalle, was severely attacked by Marx in London. See his ‘Critique of the Gotha Program’*

**XII**

**We need history, but not the way a spoiled loafer in the garden of knowledge needs it.**

*Nietzsche, Of the Use and Abuse of History*



**Not man or men but the struggling, oppressed class itself is the depository of historical knowledge. In Marx it appears as the last enslaved class, as the avenger that completes the task of liberation in the name of generations of the downtrodden. This conviction, which had a brief resurgence in the Spartacist group,\* has always been objectionable to Social Democrats. Within three decades they managed virtually to erase the name of Blanqui, though it had been the rallying sound that had reverberated through the preceding century. Social Democracy thought fit to assign to the working class the role of the redeemer of future generations, in this way cutting the sinews of its greatest strength. This training made the working class forget both its hatred and its spirit of sacrifice, for both are nourished by the image of enslaved ancestors rather than that of liberated grandchildren.**

*\* Leftist group, founded by Karl Liebknecht and Rosa Luxemburg at the beginning of World War I in opposition to the pro-war policies of the German Socialist party, later absorbed by the Communist party.*

### **XIII**

**Every day our cause becomes clearer  
and people get smarter.**

*Wilhelm Dietzgen, Die Religion der Sozialdemokratie*

**Social Democratic theory, and even more its practice, have been formed by a conception of progress which did not adhere to reality but made dogmatic claims. Progress as pictured in the minds of Social Democrats was, first of all, the progress of mankind itself (and not just advances in men's ability and knowledge). Secondly, it was something boundless, in keeping with the infinite perfectibility of mankind. Thirdly, progress was regarded as irresistible, something that automatically pursued a straight or spiral course. Each of these predicates is controversial and open to criticism. However, when the chips are down, criticism must penetrate beyond these predicates and focus on something that they have in common. The concept of the historical progress of mankind cannot be sundered from the concept of its progression through a homogenous, empty time. A critique of the concept of such a progression must be the basis of any criticism of the**

concept of progress itself.

#### XIV

Origin is the goal.

*Karl Kraus, Worte in Versen, Vol. 1*

History is the subject of a structure whose site is not homogenous, empty time, but time filled by the presence of the now. [*Jetztzeit*].\* Thus, to Robespierre ancient Rome was a past charged with the time of the now which he blasted out of the continuum of history. The French Revolution viewed itself as Rome incarnate. It evoked ancient Rome the way fashion evokes costumes of the past. Fashion has a flair for the topical, no matter where it stirs in the thickets of long ago; it is a tiger's leap into the past. This jump, however, takes place in an arena where the ruling class give the commands. The same leap in the open air of history is the dialectical one, which is how Marx understood the revolution.

*\* Benjamin says 'Jetztzeit' and indicates by the quotation marks that he does not simply mean an equivalent to **Gegenwart**, that is, present. He clearly is thinking of the mystical **nunc stans**.*

#### XV

The awareness that they are about to make the continuum of history explode is characteristic of the revolutionary classes at the moment of their action. The great revolution introduced a new calendar. The initial day of a calendar serves as a historical time-lapse camera. And, basically, it is the same day that keeps recurring in the guise of holidays, which are days of remembrance. Thus the calendars do not measure time as clocks do; they are monuments of a historical consciousness of which not the slightest trace has been apparent in Europe in the past hundred years. In the July revolution an incident occurred which showed this consciousness still alive. On the first evening of fighting it turned out that the clocks in towers were being fired on simultaneously and independently from several places in Paris. An eye-witness, who may have owed his insight to the rhyme, wrote as

**follows:**

**Who would have believed it!  
we are told that new Joshuasat the foot of every tower,  
as though irritated with  
time itself, fired at the dials  
in order to stop the day.**

***Qui le  
croirait!  
on dit,  
qu'irrités  
contre  
l'heure  
De  
nouveaux  
Josués  
au pied  
de  
chaque  
tour,  
Tiraient  
sur les  
cadrans  
pour  
arrêter le  
jour. \****

## **XVI**

**A historical materialist cannot do without the notion of a present which is not a transition, but in which time stands still and has come to a stop. For this notion defines the present in which he himself is writing history. Historicism gives the 'eternal' image of the past; historical materialism supplies a unique experience with the past. The historical materialist leaves it to others to be drained by the whore called 'Once upon a time' in historicism's bordello. He remains in control of his powers, man enough to blast open the continuum of history.**

## **XVII**

**Historicism rightly culminates in universal history. Materialistic historiography differs from it as to method more clearly than from any other kind. Universal history has no theoretical armature. Its method is additive; it musters a mass of data to fill the homogeneously empty time. Materialistic historiography, on the other hand, is based on a**

constructive principle. Thinking involves not only the flow of thoughts, but their arrest as well. Where thinking suddenly stops in a configuration pregnant with tensions, it gives that configuration a shock, by which it cristallizes into a monad. A historical materialist approaches a historical subject only where he encountes it as a monad. In this structure he recognizes the sign of a Messianic cessation of happening, or, put differently, a revolutionary chance in the fight for the oppressed past. He takes cognizance of it in order to blast a specific era out of the homogenous course of history—blasting a specific life out of the era or a specific work out of the lifework. As a result of this method the lifework is preserved in this work and at the same time canceled\*; in the lifework, the era; and in the era, the entire course of history. The nourishing fruit of the historically understood contains time as a precious but tasteless seed.

*\*The Hegelian term **aufheben** in its threefold meaning: to preserve, to elevate, to cancel.*

## XVIII

‘In relation to the history of organic life on earth,’ writes a modern biologist, ‘the paltry fifty millennia of homo sapiens constitute something like two seconds at the close of a twenty-four-hour day. On this scale, the history of civilized mankind would fill one-fifth of the last second of the last hour.’ The present, which, as a model of Messianic time, comprises the entire history of mankind in an enormous abridgment, coincides exactly with the stature which the history of mankind has in the universe.

### A.

Historicism contents itself with establishing a causal connection between various moments in history. But no fact that is a cause is for that very reason historical. It became historical posthumously, as it were, though events that may be separated from it by thousands of years. A historian who takes this as his point of departure stops telling

**the sequence of events like the beads of a rosary. Instead, he grasps the constellation which his own era has formed with a definite earlier one. Thus he establishes a conception of the present as the 'time of the now' which is shot through with chips of Messianic time.**

**B**

**The soothsayers who found out from time what it had in store certainly did not experience time as either homogeneous or empty. Anyone who keeps this in mind will perhaps get an idea of how past times were experienced in remembrance--namely, in just the same way. We know that the Jews were prohibited from investigating the future. The Torah and the prayers instruct them in remembrance, however. This stripped the future of its magic, to which all those succumb who turn to the soothsayers for enlightenment. This does not imply, however, that for the Jews the future turned into homogeneous, empty time. For every second of time was the strait gate through which Messiah might enter.**

### **BACKGROUND ON PLAGUE ("BLACK DEATH")**

Medieval astrologers blamed the Black Death on a malign conjunction of Saturn, Jupiter, and Mars; epidemiologists now trace the cause of the epidemic plague to an unfortunate conjunction of *Yersinia pestis*, fleas, and rats. A brief overview of the complex ecological relationships of microbes, fleas, rodents and human beings will help us understand the medieval pandemics, the waves of plague that continued well into the seventeenth century, and the status of plague today. It is worth discussing the components of this web of relationships in order to dispel the notion that discovering the "cause" of the epidemic disease is a simple matter of naming the microbe involved and as a reminder that rodents, fleas, mosquitoes, ticks, and microbes are still part of the web of life. Moreover, the magnitude of the pandemics caused by bubonic plague is an instructive lesson about how powerful a force disease can be in human history. Such reminders are essential now that molecular biologists are able to identify, isolate, and manipulate the genetic factors responsible for the awesome virulence of the microbes that cause bubonic plague and other epidemic diseases.

Plague provides an interesting example of the way in which a specific microbe can cause different clinical patterns. In this case, the major forms of illness are known as bubonic and pneumonic plague. In the absence of appropriate antibiotics, the mortality rate from bubonic plague may exceed

50%; the deadly pneumonic form probably kills 100% of its victims. Even today, despite streptomycin, tetracycline, and chloramphenicol, many plague victims succumb to the disease.

If the plague bacillus enters the body via the bite of an infected flea, the disease follows the pattern known as bubonic. After an incubation period of about 6 days, victims suddenly experience pains in the chest, coughing, difficulty in breathing, vomiting of blood, high fever, and dark splotches on the skin. The most characteristic signs of bubonic plague are the hard, painful swellings called "buboes" that appear in the lymph nodes, usually in the groin, armpit, neck, and behind the ears. Restlessness, anxiety, headaches, mental confusion, hallucinations, and finally coma and death may follow. In some cases, referred to as septicemic plague, the patient may rapidly weaken, become delirious or comatose, and die in 1-3 days without the appearance of buboes.

Spread directly from person to person by droplets of saliva, pneumonic plague is highly contagious and exceptionally lethal. Just what circumstances lead to the transformation of bubonic plague to the pneumonic form is uncertain. However, if victims of bubonic plague develop pulmonary abscesses, their fits of coughing will release hordes of bacteria. When inhaled, the bacteria make their way through the mucous membranes to spread and multiply in their new hosts, who are classified as victims of primary pneumonic plague. The incubation period for pneumonic plague is usually only 1-3 days and the onset of symptoms is very abrupt. Pain in the chest is accompanied by violent coughing which brings up bloody sputum. Neurological disorders progress rapidly and incapacitate the victim. Hemorrhages under the skin produce dark purple blotches. Coughing and choking, the patient finally suffocates and dies.

As if to provide unequivocal proof that plague was not a medieval disease, bubonic plague swept across Asia in the 1890s, from Canton to Hong Kong to Bombay, killing about one million people in India in 1903, while invading Java, Japan, Asia Minor, South Africa, the shores of North and South America, Portugal, Austria, and parts of Russia. Alexandre Yersin (1863-1943) discovered the plague bacillus during an outbreak in Hong Kong in 1894. Shibasaburo Kitasato (1852-1931), studying the same outbreak for the Japanese government, also contributed to early studies of the bacterium. Originally called *Pasteurella pestis*, the plague bacillus was renamed *Yersinia pestis* in honor of Yersin.

From Lois N. Magner, *A History of Medicine* (New York: Marcel Dekker, 1992), pp. 114-116.

Los Angeles Plague of 1924-25 Worst U.S. outbreak of pneumonic plague

(also the last such occurrence in an American urban environment) and the last time an American plague epidemic would involve rats. During the outbreak, 31 of the 33 pneumonic plague cases were fatal, while five out of the eight people infected with the bubonic plague died. The epidemic took place in the Mexican section of Los Angeles, where the first victim, a Mexican, fell ill on October 1, 1924, and developed a femoral bubo originally diagnosed as venereal disease. Although he recovered, his daughter and others in his neighborhood fell ill and died. By October 28, 15 people were infected, and all of them died within three days. There were seven more plague victims on October 29. The epidemic in Los Angeles was underway. The victims complained of plague symptoms like stupor, high fever and chills, headaches, and, most important, very large, lymphatic swellings under their arms, in the neck, or in the groin.

A doctor examined a patient in Los Angeles's Mexican section in 1924 without diagnosing the plague; the patient and 13 others were then sent to the Los Angeles County General Hospital, which contacted the state and federal government for vaccine and plague serum. Later, a local health official informed the U.S. government of the ongoing epidemic. Only very distorted accounts appeared in newspapers, which frequently classified the disease as "malignant pneumonia."

Most of the deaths from plague had already occurred by the time sanitation and public health measures were instituted. The plague-ridden area of the city was isolated and food portions given to the frightened residents, who were informed of their predicaments. Although the serum arrived, it was used only on one patient. By November 1924, a campaign against rats was undertaken in the city close to the harbor, rather than in the Mexican section, to forestall a port quarantine that could disrupt business. Eventually, a harbor quarantine took place anyway. By early 1925, the plague epidemic had ended.

Indian Plague of 1994. Unexpected outburst of bubonic and pneumonic plague in India in September 1994. Transmitted by fleas that infest rats, the bubonic form of the bacterial disease first erupted in Maharashtra state in west central India, where many rats were drawn by relief grain and other stockpiled food sent there after severe earthquakes in 1993 that killed some 10,000 people.

Public health officials at first seemed to downplay the danger of the disease, undoubtedly to avoid panic in Bombay, the capital of Maharashtra and India's largest city with more than 12.5 million inhabitants. However, on September 20, 1994, Indians began dying from pneumonic plague (a more deadly strain of the bubonic plague) which is spread via coughs and droplets of contaminated saliva exhaled by infected individuals, in the port city of Surat, about 150 miles north of Bombay. In less than a week, about 200,000 panicky residents of Surat (with a population of more than 1.5 million) fled the city in

jammed trains and buses, usually heading south to Bombay. Even doctors fled Surat by the hundreds.

Alarmed that Surat refugees would carry the plague into Bombay's rat-infested shantytowns and slums, health officials undertook swift rat-control and disease-control measures, such as stockpiling tetracycline and other antibiotics. Officials urged calm, but cases of plague began to be reported in Bombay, New Delhi (north central India), and Calcutta (northeast India). There were increased efforts to find and treat the sick, along with increased availability of antibiotics in pharmacies.

By October 1, health officials and the World Health Organization reported that plague had eased and was under control in India, and yet many citizens and authorities remained fearful that the estimated 400,000 people who had fled Surat by then would continue to spread the disease throughout the country. At least 54 people had died of plague in Surat, and unofficial estimates put the death toll as high as 300. Some families reportedly cremated or buried suspected plague victims without reporting the deaths.

This epidemic of plague once again raised much concern about the old Hindu practice of rat worship in India. Like cows, rats are deified in Hindu temples; no Hindu worship is complete without an offering to the elephant-headed god Ganesha (or Ganesa), who is accompanied by a rat whenever he travels about. In the early morning in many towns and cities in India, men and women can be seen carrying rats in traps and releasing them at a distance from their homes. Indians rarely kill rats, which many health officials consider a deadly menace that must be eradicated to escape plagues in the fYork: Facts on File, 1995), pp. 146 (India), 192-193 (Los Angeles).













