Applying Principles of Biological Evolution to Legal Development: An Exploration

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Abstract

The application of the biological principle of evolution has found a number of contemporary applications within the analysis of business activities. The application of these scientific principles is considered appropriate in a further application within the development of legal principles particularly in the context of the ongoing development of the European Union as a significant business environment. It is proposed within this paper that direct parallels may be drawn between the evolutionary principle of biological speciation and the emergence of legal principles within separate national boundaries. Contemporary principles of biological evolution are also considered in respect of the development of primary legislation which act on the development of law in a punctuated manner. These principles are examined in respect of the continued debates surrounding company law within the European Union, in particular the persistence of national legislation dealing with corporate mobility. In examining the appropriateness of applying biological evolution to the development of EU company law consideration is given to the development and functioning of the Societas Europaea (European Company) in respect of its legal environment.

Keywords: Evolution, Speciation, Punctuated Equilibrium, Treaties, Societas Europaea, Environment.

Introduction

Background to the European Community

Throughout its development the European Community (EC) has sought to create a stable environment supportive of economic growth and commercial opportunity through the establishment of a number of guiding principles (Barnard, 2007). Since its inception the EC has expanded to include (currently) 27 member states, 17 of whom belong to the single European currency (Barnard, 2007).

A key principle for the EC is the establishment of an internal marketplace in which many of the pre-existing barriers between nations have been deconstructed through a philosophy of free trade (Barnard, 2007). Pivotal in the functioning of the EC and its intended internal market is the establishment of a "common policies approach" underpinned by the recognition of community law over that of the member states in those areas agreed by the member state (Van Gend en Loos, 1963) and that in those areas where the EC has competency the member state cannot act in a contrary manner. Thus the common policies approach has in turn supported the creation of a market environment which adheres to the principle of free movement of certain factors, often referred to as the

Four Freedoms of the EC (Barnard, 2007):

- The Freedom of Goods
- The Freedom of Persons
- The Freedom of Services and the Right of Establishment
- The Freedom of Capital

The significance afforded to these underpinning freedoms is reinforced trough the legislative frameworks of the EC and the functions of the European Court of Justice (ECJ). These freedoms have therefore, both direct and indirect bearing on the operation of the single market which European Law is often (but not exclusively) considered to exist as a supranational entity (Barnard, 2007) and as such provide the legislative parameters in which commercial activities within the EC must operate.

In considering the manner in which the EC has progressed since its first inception it is proposed here that such development is based upon two distinct mechanisms here represented as a simple dichotomy consisting of:

- Phases of planned development characterised as the consequence of deliberate, conscious and proactive interventions
- Reactive, unplanned and often spontaneous interventions, themselves reflective of changes in environmental conditions

Although for the purposes of illustration a clear distinction is made between proactive and reactive development, it is not suggested that these processes are mutually exclusive but are interdependent. In this way it is proposed that planned developments set the overall context for the EC (encapsulated within the relevant articles) and as such influence the prevailing EC environment in which the member states must operate. However, rather than existing in a form of stasis the environment of the EC is fundamentally dynamic and as such subjected to a number of pressures including competition from nations outside of the EC, socio-cultural developments within the EC and continued changes in the political landscapes within the member states that make up the EC (Shaw et al., 2007).

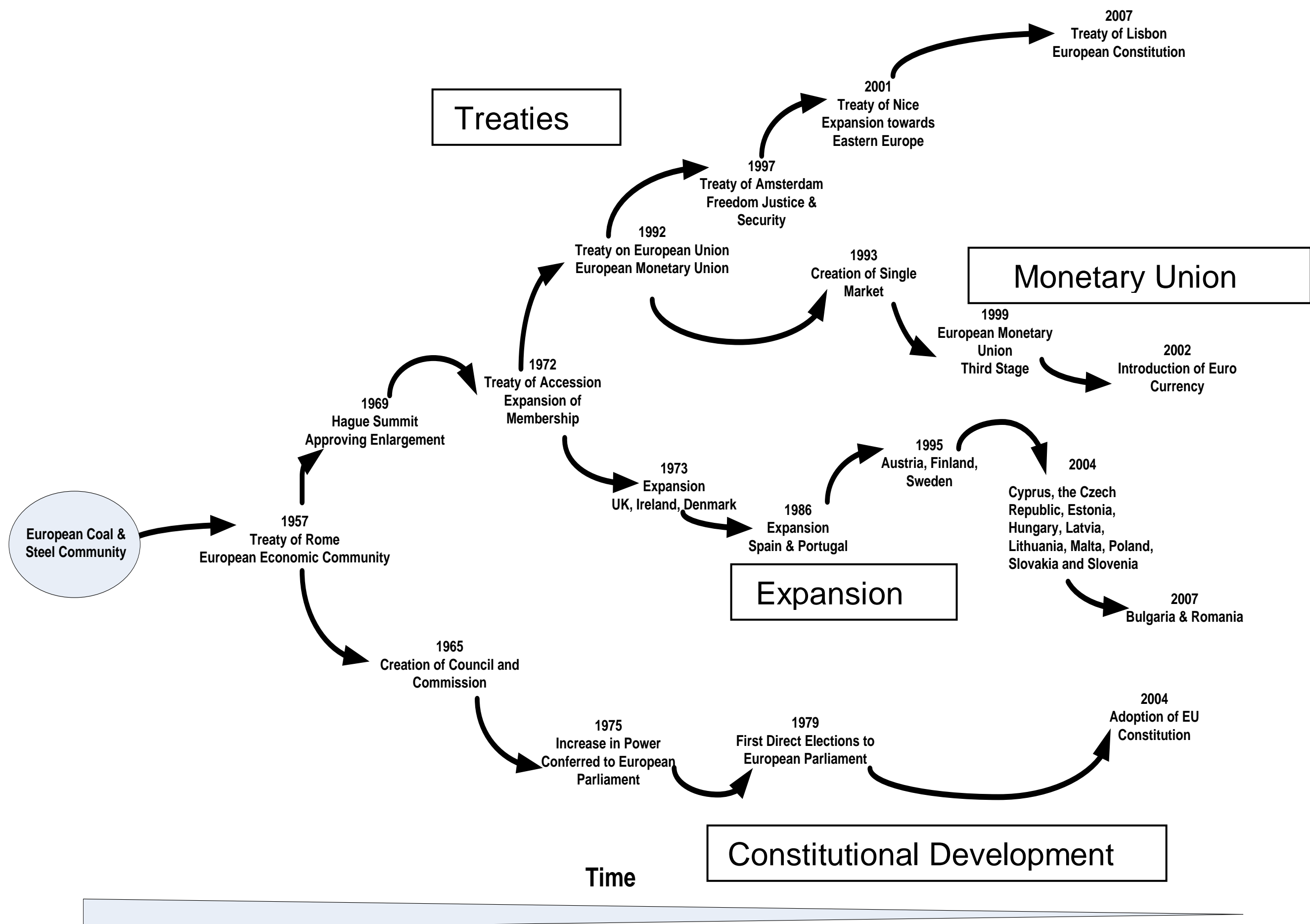
Development of the EC

From its earliest manifestation as the European Coal and Steel Community in 1951 the current format and ambition of the EC have been shaped by a number of key changes including:

- Successive and deliberate amendments to treaties
- Expansion of the membership from the original six member states to twenty seven
- The establishment of monetary union and a common currency
- The establishment of the organs of Government including the European Parliament, Commission, Council and European Courts of Justice (Foster, 2006)

The implementation of these amendments to the original ambition of the European Coal and Steel Community are summarised in Figure 1.0

Figure 1.0 Timeline Development of the European Union



It is proposed here that in considering the presentation of developments that have shaped the European Community within Figure 1.0 a number of key features arise. The first of which is that all aspects of the modern European Community have a common ancestor (Geu, 2009) in respect of the European Coal and Steel Community, that the ongoing development in the structures, functions membership and ambition of the European Community have developed through an incremental process up to the point at which they are consolidated in the form of new treaties which in turn have facilitated expanded membership, new monetary regimes and new constitutional structures. It is further proposed that in adopting new developmental forms, previous incarnations are relegated to the status of an historical relic (Wilson, 2001). Influences that have shaped earlier forms of the EC may be evident as a consequence of the desire to maintain positive characteristics, whilst at the same time accompanied by a conscious effort to remove or replace those characteristics deemed inappropriate or outmoded. Whilst it is acknowledged that the underlying mechanisms responsible for the creation and subsequent modification of the (now) European Community are in themselves social constructs, produced through the application of the conscious decision making process; the ongoing development of the EC through processes of adaptation involving the removal of undesirable traits whilst preserving desirable characteristics is in itself highly reflective of a selective, evolutionary process (Deakin, 2002).

Biological Evolution and Legal Doctrine

The application of evolutionary mechanisms to the development of legal doctrine is not a new concept and as such predates the writings of Charles Darwin (Deakin, 2002) in which the proposition of organically progressive jurisprudence seeks to reflect the needs of the society which it serves (Von Savigny, 1814). After the appearance of the Origin of Species (Darwin, 1859), a number of authors including Holmes (1899) and Corbin (1914) sought to apply the principles of natural selection to explain the "mutation" (transformation) of legal concepts and the selective survival of certain legal precedents.

The approach to the development of law through the application of Darwinian evolutionary theory, although popular in the latter part of the 19th Century and earlier part of the 20th century, has in the view of a number of authors including Deakin (2002), Smits (2002) and Geu (2009) been largely ignored for much of the 20th Century; only to re-emerge within the context of the law and economics movement of the 1970s (Postner, 1972; Priest, 1977 and Rubin, 1977). It is proposed here that whilst the relationship between the disciplines of law and natural sciences have been somewhat disjointed, the acceptance of biological theories in particular those surrounding evolution have more readily accepted within the analysis of business activities (Lynch, 2008). The development of business strategy (Mintzberg and Waters, 1985), the development of the product life cycle in marketing (Biggadike, 1981; Katsanis and Pitta, 1995) and discontinuous adaptation within change management (Balogun, and Hope Hailey, 2004) all draw upon evolution principles as a means of explaining the efficacy of business in respect of adaptation to competitive environments(Johnson et al., 2008). Before considering the application of evolutionary mechanisms to the development of legal doctrine within the EC, it is necessary to consider the meaning of evolution in respect of those prevailing theories that continue to dominate the understanding of biological evolution.

Evolutionary Principles

Whilst a complete discussion of the principles and developments within the subject of evolution are beyond the scope of this paper, a need arises to introduce a number of biological concepts as a means of illustrating development through the process of evolution. In addressing the notion of evolution as a mechanism for change it is impossible to ignore the principles of natural selection as proposed by Darwin (1859). Classical Darwinism suggests that evolutionary changes take place through a process of natural selection in which those heritable traits that make it more likely for an organism to survive and successfully reproduce (demonstrate increased "fitness") become more common in a population over time (Ridley, 2004). A prerequisite for natural selection to ultimately result in adaptive evolution is the presence of heritable genetic variation that results in "fitness", differences.

Fitness in this context is taken to mean the ability to continue the lineage of the species through sexual reproduction and is not related to the ability of an organism to prolong life although this in itself can be a major contributing factor to achieving sexual reproduction (Ridley, 2004). The transmission of heritable traits is in the context of modern biology, is concerned with the transmission of genetic material in the form of Deoxyribonucleic Acid (DNA) (Ridley, 2004). The main role of DNA present within all living organisms and some viruses (Tortora et al., 2009) is the long-term storage of genetic information. DNA segments that carry this genetic information are called genes and are often considered as packages of information whose influence is ultimately expressed in the development and function of the organism in which it resides. The chemical composition of genetic material (its DNA) is such that it permits cross generational copying, with the result that individual genes are themselves capable of being transferred from parent to offspring with a high degree of fidelity (Deakin, 2002). Genes, as packages of genetic information, are capable of retaining their existing information which when transferred, through reproduction, will ultimately influence the development and functioning of the offspring organism (Klug et al., 2008). Whilst the transfer of genetic material takes place at the cellular level the expression of genetic information is often witnessed at the macro physical level and is referred to as phenotype (Klug et al., 2008). Such characteristics include examples as eye colour in humans, running speed in cheetahs and development of bright plumage in certain birds.

A Genetic Approach to Evolution

The contribution of the discipline of modern genetics to evolutionary theory means much emphasis is placed upon changes in the underlying genetic material of an organism which ultimately result in changes in expression at the physical level. It should be noted however that changes at the genetic level are not always conferred in a manner which are expressed at the obvious physical level nor will changes at the genetic level automatically confer an improvement in physical characteristics (Klug et al., 2008).

Although primarily focusing on the developmental processes associated with evolution it is acknowledged that that the process of genetic variation can be considered to occur as the result of a number of different mechanisms including mutation, karyotypic alteration and meiotic recombination Meiotic recombination occurs when genetic material from one parent is spliced into the genetic material from a second parent during sexual reproduction and as such can lead to changes to genetic expression ultimately affecting the physical appearance and functioning of the organism (Klug et al., 2008).

Although these changes to the underlying genetic material can bring about significant phenotypic changes it must stressed that the process of natural selection is dependent upon the transfer of inheritable characteristics that confers an increased level of "fitness", to offspring through genetic material. Thus transfer of those positive characteristic expressed within the progenitor will when transferred to offspring confer a better chance of survival and be therefore, more able to continue the species (Deakin, 2002).

This discussion has thus far centred on a number of fundamental principles concerning the development of biological organisms and as such has made a number of propositions in which it is proposed:

- That evolution exists
- That the outcomes of evolution are increased biological "fitness" in respect of survival and ultimately sexual reproduction,
- That evolution is dependent upon the successful inheritance of genetic information that transfers advantage from progenitor to offspring (Ridley, 2004).

Although recognising the mechanisms by which evolution is achieved through the process of natural selection, this discussion has not as yet considered potential causes of evolution. The underlying causes of divergence of species within the natural world have been attributed to a phenomenon referred to as speciation (Darwin, 1859) which draws together the relationship between the biological organism and its immediate environment (Smits, 2002). Speciation is considered to occur in a spontaneous manner, through the process of natural selection as a consequence of pressure exerted by the external environment under which only those organisms with characteristics that aid survival and reproduction will persist. Under these terms, those organisms in possession of characteristics that enable adaptation to their external environment will persist whilst organisms in which characteristics conferring adaptation are absent will, through natural selection, perish (Ridley, 2004).

Within biological systems the prevalence of pressures exerted from the external environment can arise as a consequence of the existence of physical barriers (rivers, mountains etc.) that separate members of a single species (Ridley, 2004). Such separation may ultimately lead to the emergence of new species as each individual group adapts to new conditions (Baker, 2005). Continued divergence between different groups of a common ancestor can give rise to an increasing array of new species though further adaptation, through natural selection, to prevailing environmental conditions. As the diversity of species through aspects such as structure, habits and functions increases, so too does efficiency in the utilisation of limited resources (Bakers, 2005). Thus the ability to utilised limited resources in a more efficient manner will in turn support greater abundance of life within a specific geographical location (Laland and Brown, 2002). The distinctive forms that arise in this way are all considered adapted to their environment; the coexistence of different species suggests that adaptation rather than a single event may take many forms and still achieve the desired outcome in respect of fitness in respect of survival and sexual reproduction (Deakin, 2002). However, as species diversify from the original ancestor interspecies sexual reproduction becomes increasingly impossible, where immediate offspring are produced these are sterile and are therefore unable to further the lineage. Sexual reproduction between different species, even if possible, tends to lead to offspring that are sterile and therefore unable to transfer genetic material to further offspring thus resulting in a dead end in terms of inheritance and ultimately an evolutionary dead end (Laland and Brown, 2002).

Punctuated Equilibrium

In the presentation of biological theories of evolution relevant the proposition that the development of EC law has followed an evolutionary process it is necessary to introduce a final concept that of the theory of punctuated equilibrium (Eldredge and Gould, 1972). Unlike the proposals of gradual adaptation demonstrated by species through the process of natural selection, the theory of punctuated equilibrium has at is core the notion that sexually reproductive species will undergo little evolutionary change for most of their history and will remain in a static state of development. When evolution occurs, it does so in relatively rapid, rare, localised events after which the original progenitor species is split into two rather than one species gradually transforming into another (Ridley, 2004). Although the original propositions of punctuated equilibrium have undergone refinement in as much as the notion of a rapid evolutionary mechanism has been qualified in respect of geological time and should not be taken to imply that punctuation takes place overnight. Further modifications to the theory accept that whilst punctuation represents an evolutionary step forward in terms of development, subsequent hereditary variation does occur, but changes are considered to be non accumulative and are akin to deviations around a central phenotype (Sterelny, 2007).

It proposed here that punctuated equilibrium as a process of development may be considered as one in which prolonged periods of relative evolutionary stasis during which minor changes to a species occur through variation in genetic material are punctuated by significant evolutionary divergence as a result of changes in the external environment. It should however be noted that whilst punctuated equilibrium (Eldredge and Gould, 1972) and adaptation through natural selection (Darwin, 1859) have identified as alternative viewpoints to the underlying mechanisms of evolutionary development a unifying theory of evolution has yet to be adopted (Ridley, 2004). However, for the purposes of this paper these theories are not considered mutually exclusive but provide useful parameters in which comparisons may be made between the theories of biological evolution and the development of legal doctrine.

Applying the Principles of Biological Evolution to Development of Law

It is presented here that whilst the presentation of biological principles is pertinent in discussing processes of evolutionary development, it is necessary it is appropriate at this juncture to establish the relevance between biological and legal evolution. Before considering individual application of the theories of biological evolution to the development of legal doctrine a number of parallels must be established.

Inheritance and Natural Selection within a Legal Context

As we have seen the primary requirement of evolution is that it is possible to transfer heritable material from progenitor to offspring. Should this heritable material confer an advantage to the offspring this will support greater opportunity to continue the lineage (Geu, 2009). In this sense biology has identified this heritable material in the form of genes which are themselves storage elements of genetic information. It is proposed here that in keeping with biological systems legal systems rely upon the same transfer of knowledge in the form of precedent within the common law system and the development of legal rules within the civil law system (Geu, 2009). Although it is considered here that common law and civil law are distinguished by fundamental differences, both rely on the transfer of knowledge from one generation to another. The process of development of legal doctrine in both the common and civil law has arisen over an extended time period during which amendments to precedent and modification of legal rules have been adapted to best fit the environment in which they are required to operate (Smits, 2002).

Thus, as the environment in which legal process is required to operate has changed, legal precedent or legal rules that cannot be adapted to the needs of the environment are eliminated through a process akin to that of natural selection (Deakin, 2002). Examples of this drawn from the common law include the principle of identification within the context of corporate manslaughter (Gobert, 1994). The principle of identification which relied upon reconciling the juristic person, in the form of the company with a natural person acting as the "directing mind" of the company, became largely inappropriate as the proliferation of large complex organisations meant that an individual representing the "directing mind" of the company could not be easily established (Hsaio, 2009). This failure of the legal precedent to adapt to changing pressures exerted from the external environment, in this case the development of complex organisational structures, has ultimately led to a redefinition of the principles surrounding corporate liability for manslaughter which are contained within the Corporate Manslaughter and Corporate Homicide Act 2007 (Mujih, 2008). Whilst advances in genetics and in particular the disciplines of cellular and molecular biology have recognised the importance of genes as units through which biological knowledge is transferred, developments in the social sciences have also begun to identify the transfer of social information through specific units of transfer termed "memes" which are themselves considered, within the social context, analogous to genes. The diffusion of "memes" are in principle subject to incremental development over time in a manner which reflects environmental pressure and in turn become an embedded characteristic of the prevailing human culture and its institutions including that of the law (Deakin, 2002).

Speciation of Law

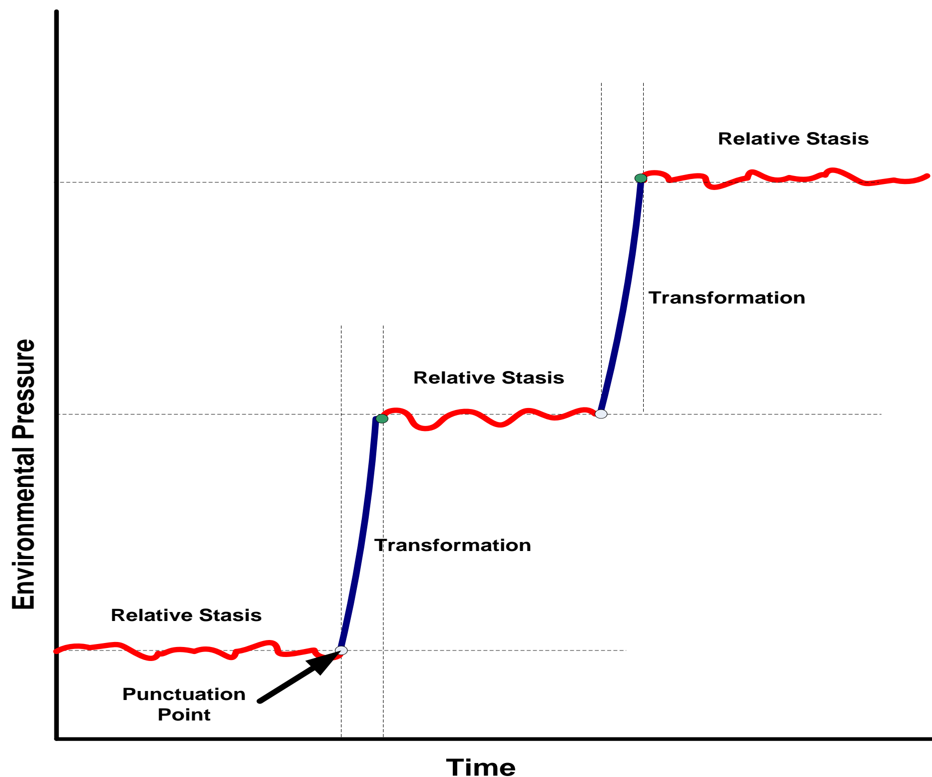
Theories of biological evolution congruent with those of legal development include the principles of speciation. Members of a single species separated from each other will, according to speciation, become adapted to their separated environments to such an extent as to ultimately become two separate species (Ridley, 2004). It is proposed here that an immediate parallel can be drawn between the evolution through speciation and the development of company law within the member states of the EC. A clear application of the principles of speciation within the company law exists in the divergence in approach to the recognition of the company as a legal entity by member states within the EC.

The different approaches taken by member states have become known as the doctrine of incorporation (Rehse, 2003) and the doctrine of the "real seat" (Lowry, 2004). The different approach taken by the incorporation and real seat doctrines give rise to a conflict within laws (Valk, 2010) as in effect the approach taken will determine which entities are recognised as companies and therefore which national law may be applied to that entity (Lowry, 2004) The real seat doctrine proposes that only one state should have the authority to regulate a corporation's internal affairs and that this authority belongs to the state in which the corporation has its real seat (*siege real* or *effektiver Verwaltungssitz*) In contrast to this incorporation doctrine proposes that the existence of a company as well as its subsequent dissolution is governed by the law of the sate in which it was incorporated (Ebke, 2002). The conflict in laws within these two competing doctrines has resulted in the failure of companies legally incorporated within one state to be recognised as legal entities by states that operated a different legal doctrine (Dryberg, 2003). It is presented here that the emergence of two separate doctrines of company law as represented by incorporation theory and real seat have in fact emerged as two separate, mutually exclusive "species" which have adapted to fit the environments in which they operate and as such are highly reflective of the theory of speciation (Ridley, 2004).To further these parallels between biological and legal evolution it is considered appropriate at this point to consider the application of punctuated equilibrium as a biological construct to the development of law.

Punctuated Equilibrium with the Legal Framework of the EC

Throughout the development of the EC it is possible to identify numerous historical events that have shaped the "modern" EC from its earliest format (Figure 1.0). An event such as the introduction of a new treaty represents a significant departure from a pre-existing form of association that cannot be (it is proposed here) reversed without fundamentally damaging the integrative nature of the EC. The development of the macro environment of the EC can therefore be considered as one which moves forward through a series of leaps rather than through prolonged and incremental change. Thus, it is proposed, that the introduction of treaties and therefore treaty articles represents a form of punctuated equilibrium at the macro level of the EC whilst the introduction of directives and subsequent statutes can be considered incremental. In addition to the development of the macro environment it is also proposed here that the evolutionary principle of punctuated equilibrium can equally be applied to the development of legal doctrine.

Figure 2.0 Model of Punctuated Equilibrium



(Adapted from Sundarasaradula and Hassan, 2005)

The model of punctuated equilibrium presented in Figure 2.0 seeks to demonstrate that until a point of punctuation is reached, application of a legal rule remain in a state of relative stasis deviating only as a consequence of its interpretation in respect of the cases to which it is applied. Following a point of punctuation which arises as a consequence of environmental pressure, a period of rapid transformation takes place ultimately resulting in the introduction of a new form of the legal rule which once again will remain in relative stasis until environmental pressure causes a further change in evolutionary state. It is proposed here that this form of punctuated equilibrium has played a major part in the development of legal rules operating with the EC and as such has supported the overall ambitions of the internal market. In forming the legal context for punctuated equilibrium the following are presented as punctuation points which, it is contended, have fundamentally transformed the legal landscape within the EC in a manner akin to that of biological evolution through punctuated equilibrium. It is proposed here that as the exertion of external environmental pressure at the macro level has resulted in punctuation events so too has punctuation taken place in respect of the development of legal rules.
In establishing the relationship between the development of legal doctrine and punctuated equilibrium it is proposed that within a number of cases the judgements reached by the ECJ:

- Were established as a consequence of the environmental pressures imposed by the supranational legislature of the EC (Mortimer, 2007).
- Provide a significant departure from existing legal principles and as such cannot be reversed within the current environmental pressures of the EC
- Have been consequentially applied to subsequent cases in which no departure from the rule is observed but through the process of application the rule may be applied to a variety of circumstances

Thus in its approach to enforcing the common policy approach and therefore defending the fundamental freedoms of the EC (Barnard, 2007), it is proposed here that the ECJ has acted on a number of occasions which in respect of evolutionary mechanisms presented thus far are consistent with the process of punctuated equilibrium (Sundarasaradula and Hassan, 2005) as presented in Figure 2.0. In respect of the concept of free movement of goods the key principle of “Mutual Recognition” as established within Case 120/78 Rewe-Zentral AG v. Bundesmonopolier Waltung Für Branntwein - *Cassis de Dijon.*. This case represented a defining moment in EC law which, through its outcome, established that the within the functioning of the EC, member states were required to respect the ambition of a common market place and to remove obstacles in the form of national law. The outcome of this case established a formal recognition that “if a product is lawfully produced in one member state the product should be accepted by other member states” (Fairhurst, 2010). A further example of punctuation pertaining to the free movement of goods is the prohibition of “Charges having Equivalent Effect” (CHEE) to tariffs. Charges having and equivalent effect (CHEE) are considered to operate in the same manner as tariffs in respect of goods transported across the border of nation states. As demonstrated within Case 8/74 Procureur du Roi v. Dassonville [1974] ECR 837. This ruling within this case effectively abolished the application of barriers to trade in the form of tariff charges between member states and as such enforced such a transformation by categorising CHEEs as

> *“any pecuniary charge, however small and whatever its designation and mode of application which is imposed unilaterally on domestic or foreign goods by virtue of the fact that they cross a frontier” (*Commission v. Luxembourg – Gingerbread Case, 1962; Commission v. Italy - Statistical Levy, 1969).

These rulings are themselves considered to be in keeping with an evolutionary mechanism akin to that of punctuated equilibrium as opposed to incremental development typical of Darwinian incrementalism. This conclusion is achieved as a consequence of the magnitude of the change in legal doctrine which in the aforementioned cases impacted immediately across the entire EC. It is proposed that if an incremental approach to the development of legal doctrine had been adopted this would have arisen on the basis of a gradual introduction of new law through a number of localised agreements between member states which would ultimately have resulted in a common approach. As has been established with the development of legal doctrine in respect of the free movement of goods within the EC so too, has an equivalent approach been adopted in respect of the free movement of persons. A cornerstone of the rules developed by the ECJ in respect of the natural person is the prohibition of discrimination on the grounds of nationality which was demonstrated in *Case 2/74 Reyners v. Belgian State [1974] ECR 631 - Reyners* and the prohibition of discrimination and its application to citizens' rights within *Case C-184/99 [2001] Grzelczyk (Rudy) v. Centre public d'aide sociale d'Ottignies-Louvain-la-Neuve ECR I-6193 - Grzelczyk.*

However, although models of biological evolution can be applied retrospectively to much of the legislative environment of the EC consideration may also be given to whether the same principles can be applied to identify examples of ongoing evolutionary activity. In respect of this a significant opportunity arises with the developments in EC company law as a consequence of the introduction of the Societas Europaea (SE). Whilst the overall ambition of the EC as presented within Articles 2EC and 3EC are unambiguous and the freedom of establishment is enshrined with Articles 43EC and 48EC the issue of pan European corporate mobility is still as yet unresolved. The circumstances most clearly associated with restrictions on true corporate mobility within the EC is the persistence of national laws that apply differing regulations to the recognition of the legal status of a company operating within a member state's jurisdiction. The result of this differential approach has resulted in a conflict of laws (Rehse, 2003) as the application of the theories of "incorporation" and "real seat" place different emphasis on the place of registration (incorporation theory) and the location of the principal place of business ("real seat"). The effects of this are well established in respect of the recognition of legal status and the ability of a company to undertake work in member states outside the place of registration (Craig and De Burca, 2008).

To many authors including Dryberg (2003), Rehse (2003) Omar (2005) the judgements handed down by the ECJ in Centros (1999), Überseering (2002) and Inspire Art (2003) represent a clear statement of intent to move towards a single approach to company registration based upon the principle of incorporation (Rehse, 2003) and away from the principle of the "real seat" (Robertson, 2003). However, this assumption has been thrown into disarray following the judgement of the ECJ within the Cartesio (2008). The ruling of the ECJ in respect of Cartesio been taken by a number of authors as reigniting the debate between the theories of incorporation and "real seat" (Cerioni, 2010) and their application to the freedom of establishment to such an extent that this ruling has now placed significant limitations on corporate mobility across the internal market of the EC (Gerner-Beuerler and Schillig, 2010), particularly in the ECJ's reassertion of the thinking within the earlier Daily Mail (1998) which maintained the belief that:

> *"Articles 43EC and Articles 48EC cannot be interpreted as conferring the right of a company to move its place of central management and control plus their central administration to another member state whilst at the same time retaining incorporated status under the legislation of the initial member state of origin"*

Within Cartesio (2008) the ECJ in recognition that Hungarian national law did not permit the transfer of the registered seat and its principle place of administration to another member state whilst maintaining legal status within Hungary (Volk, 2010) reaffirmed the principle established within Daily Mail (1988) that companies are

> "creatures of national law and exist only by virtue of the national legislation which determine [their] incorporation and functioning" .

The principles applied in Daily Mail (1988), Centros (1999), Überseering (2002) and Inspire Art (2003) although debated in respect of differences based on whether the mobility of the company represented either an outbound" movement from the state of registration to another member state or an "inbound" movement from the state of origin to another member state (Ringe, 2005) are of little consequence as different national laws still support the existence of two distinct legislatures (Gerner-Beuerle and Schillig, 2010) which for our purposes are recognised as two separate species of law. It is presented here continued disharmony between EC and national legislation, the prevailing debates surrounding interpretation of Articles 43EC and 48EC in respect of freedom of establishment and in particular the distinction between "inbound" and "outbound" mobility of companies considerable environmental pressure is being placed upon existing legal rules. However it should be noted that no explicit mention is made of a distinction to the freedom of establishment based upon inbound or outbound movement of companies within either Articles 43EC or 48EC. It is further proposed that in the absence of any changes in the overarching EC approach to cross-border corporate mobility prevailing legal rules are becoming increasingly unable to adapt to the continued demands made of them.

The Societas Europaea (SE) an Evolutionary Exploration

Whilst continued difficulties of European corporate mobility arise as a consequence of the persistence of differing legislative demands between member states, a long held ambition of the EC has been establishment of a truly European corporate form (Reichert, 2008). This ambition was achieved with the acceptance of the European Company or Societas Europaea (SE) by member states at the summit of Nice in 2000.

The delivery of the SE was not however, achieved overnight but came as the consequence of some thirty years of development since the draft proposals for a Statute for a European Company were first presented to the European Commission in 1970. The gestation of this statue was in the opinion of a number of authors including Teichmann (2003) and Ringe (2007) prolonged as legislative differences between member states including the management structure of the SE and the status of the SE in respect of the law of individual member states. Whilst brought into force on 8th October 2004 commentators have reported that the development of regulations underpinning the SE have been achieved in an unsatisfactory manner, with the introduction of the new SE regulations supplemented with existing corporate legislation of member states as a means of overcoming persistent disagreement between member states (Teichmann, 2003; Ebert, 2004; McCahery and Vermeulen, 2005).

Whilst it is recognised here that the introduction of a truly European corporate entity recognisable across the member states of Europe will, at least in theory, seek to consolidate the underlying ideals of the single internal market (Teichmann, 2003) the practical application of this ideal is far from secure (Ringe, 2007). What however is assured is that the regulation surrounding the SE brings with it opportunity for companies to be established and operate as corporate entities separate from previous structures (Ebert, 2004) It is proposed therefore that If the regulations underpinning the creation and maintenance of the SE represent a step forward in evolutionary terms it should be possible to reconcile the meaning of articles contained with the SE Regulation with characteristics of evolutionary development, in which: A greater fitness in terms of survival and hence maintenance of lineage through reproduction are achieved through the successful transfer of (biological) knowledge from progenitor to offspring (Ridley, 2004). In response to environmental pressure new species may arise better adapted to persist within prevailing environmental conditions which occur through significant events that punctuate periods of relative status in evolutionary development (Sundarasaradula and Hassan, 2005).

In applying these determinants of evolutionary development consideration is made of two principles points of the SE in respect of:

- the management structures that can be adopted by the SE
- the mobility of the SE within the context of freedom of establishment (Teichmann, 2003).

In recognition of the different management systems in the company laws of the member states, the regulation of the SE Article 38b provides the option to implement a structure based upon a two tier system with a supervisory body and a management body or the one-tier system with a single administrative body. This flexible approach brings with it an approach in which the principles of codetermination of the company through the involvement of employees can be achieved; a practice highly reminiscent of the approach taken by companies operating within German and Austrian company law (Teichmann, 2003).

It has been have proposed that whilst codetermination within the Statue and Directive of the SE offers a number of positive characteristics including transparency of the functioning of the board of directors, enhanced corporate governance, greater operational understanding and greater efficacy in the development of strategies which require genuine employee consultation (Teichmann, 2003) criticisms identify prolonged negotiation, inefficiency in decision making and limitation of entrepreneurial activity (Sandrock and du Plessis, 2005). Further to this would be the necessity to establish a uniformity of approach across all branches of the SE and therefore the introduction of codetermination into environments in which it had previously not existed. In light therefore of the approach taken to the adoption of management structures within the SE consideration must be given to whether a process of evolution has taken place or whether this is indeed a hybrid approach taken from the two existing species of national company law.

A number of authors including Teichmann (2003), Ringe (2007) and Reichert (2008) have noted that the development of the Regulations surrounding the SE borrow significantly from the existing legislation of member states under those circumstance where no new legislation could be developed or in circumstances where an agreement between member states was impossible. It is suggested here that although the SE Regulation in permitting two forms does represent the transfer of knowledge from one generation to the next this is achieved in a manner akin to hybridization between species rather than as an entirely new species. Further to the approach taken in respect of management structures is another key characteristic of the SE that of the possibility of "enhanced" corporate mobility through the opportunity to transfer the company's seat from one member state to another without the necessity to "wind up" or reregister (Ringe, 2007).

This has been interpreted representing a departure from the orthodoxy of the national law on registration within the "real seat theory" and in principle is more akin to incorporation theory (Ringe, 2007). However the distinction between the theories of incorporation is somewhat blurred in respect of a Article 7 of the Regulation which requires that the SE must permanently keep the registered office and head office within the same member state. It is presented here that this approach appears as a compromise aimed at reducing objections from member states which operate differing approaches to company registration. Whilst satisfying national legislators, this brings with it a number of potentially cumbersome practicalities for business particularly for those that already have registered offices in one member state with the primary place of business in another member state (Teichmann, 2003). The limitations within Article 7 of the Regulation also appear at odds with a number of ECJ judgements dealing with the freedom of establishment in particular those of Centros (1999), Überseering (2002) and Inspire Art (2003). Article 7 of the Regulation does however, bring with it the opportunity to move the head office (principal factor in registration under "real seat" theory) of a company to another member state which would have under for example German law been impossible without the necessity to wind the company up first (Ringe, 2007). Whilst the approach taken with Article 7 of the Regulation has introduced a new community rule its introduction again is more akin in biological terms to the development of a hybrid offspring rather than a new evolutionary structure (Ringe, 2007).

Following this logic it would appear that in viewing the introduction of the SE as a new corporate entity from the perspective of biological evolution the SE is no more than a hybrid of existing national law, implemented to seek a form of compromise between differing national legislations and management cultures. It is further proposed that under the principles of speciation it would appear that the SE arising from the union of two separate legal species would, in biological terms, be ultimately sterile, lacking fitness in terms of adaptation and therefore unable to continue the lineage.

However, rather than confining the SE to the status of a hybrid species doomed to legislative and corporate sterility it must be acknowledged that evolution is a consequence of the relationship between environment and organism (Ridley, 2004). The inextricable link between environmental influence and the evolutionary development of the organism is (it is proposed here) a key determinant in defining the SE as either a hybrid progeny or evolutionary outcome. Whilst the physical characteristics of the SE in respect of management structure and transnational mobility suggest a hybrid organism, consideration must be given to the regulations governing the SE and in the context of the legislative environment in which the SE operates.

Should the regulations governing the SE be confined to law at the national level each individual SE would be subject to the relevant national laws and therefore according to place of registration or location of head office, become a

> "creature of national law and exists only by virtue of national legislation which determining its incorporation and functioning" (Daily Mail, 1988).

As such, each individual SE (it is proposed here) would become indistinguishable from existing corporate forms already which in turn would limit perceived benefits and therefore the appeal of the SE to the business community. It is however, acknowledged that a key characteristic of the SE is its existence within a distinct and separate legal environment from those corporate entities formed under the national law of member states (Ringe, 2007). This in itself is considered here to be of the greatest significance, as management structures and operating parameters of corporate entities formed within the environment of the SE regulations may be considered as adaptations in response to a new environmental pressure in the form of the statue and directive of the SE which is in itself separate and distinct from the national legislations of individual member states. This therefore presents something of an evolutionary duality, with the creation of a new legal environment akin to evolution through punctuated equilibrium plus the development of a new corporate entity in the form of the SE through incremental, Darwinian evolution. This is in itself noteworthy as this duality is reflective of the persistent debates within biological evolution which have not, as yet, identified a single mechanism to which evolution may be attributed.

In reconciling the SE with the biological principles introduced within this paper, the elements of structure and functionality of the SE are reflective of an environment distinct from that of national law and is therefore reconciled with the supranational legislative environment of the EC. This in itself is not at odds with the ambitions of the EC as presented in Articles 2EC and 3EC (Treaty Establishing the EC) through which it is possible to see that in creating a separate environment Article 3.1h EC recognises

> "the approximation of the laws of Member States to the extent required for the functioning of the common market"

This paper has considered the potential application of biological theories to that of the development of legal doctrine within the EC and in applying these theories with the development of the Societas Europaea (SE). Although at September 2011, 909 SEs were reported (www.worker-participation.eu) it is not yet possible to determine the overall fitness of the legislative structure in respect of the prevailing theories of incorporation and "real seat" as the SE form is relatively new and untested in respect of EC legislation. What is however asserted by the introduction of the SE is that a new corporate form is in existence, whose ultimate destiny will depend upon its ability to adapt to the environment which it inhabits.

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