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Anti-darwinian theory in Japan

from Beverly Halstead

The popularity of Kinji Imanishi's writings in Japan gives an interesting insight into Japanese society.

KINJI Imanishi (born 1902), Emeritus Professor of Kyoto University, is a noted figure in contemporary Japan, a renowned mountaineer and explorer, and the recent recipient of Japan's Order of Culture First class. In his earlier days, he was a student of mayflies and habitat segregation[1] and the behaviour of non-human primates and biosociology.[2] But he is now best known for his numerous books in which he advances his own anti-darwinian view of evolution.[3]

Imanishi's books are all exceedingly popular and all of his works on evolution remain in print, right back to that which he first had published in 1941. Indeed, it would not be unreasonable to say that in Japan the average intelligent layman's understanding of evolution stems in great measure from the writings and innumerable interviews given by Imanishi.

Imanishi is not simply a popular writer. In Japan he is often held up as an intellectual giant equivalent to Charles Darwin. There is talk of a movement, led by Seigen Tanaka, to recommend Imanishi for the Nobel prize. A new centre of "Japanology" which the Prime Minister, Yasuhiro Nakasome, is pushing hard to set up and whose aim will be to "create outspoken Japanese capable of explaining, defending and exporting their cultural values around the world just as the West has done" will, according to newspapers, have Imanishi as one of its chief advisors.

Imanishi's views certainly do represent different cultural values. He sees the group and not the individual as of fundamental importance in evolution, he does not see struggle in nature but rather the underlying harmony. Imanishi claims that his insights arise out of a particularly Japanese world view, which is starkly at variance with the philosophies and religions of the Western world. Imanishi seems to be dismissive and at times contemptuous of the West and in particular of its individualism.

What Imanishi has to say is of considerable interest. The claim that there was a new Japanese view of evolution, stemming from the intrinsic qualities of Japanese society is especially intriguing.

"On one fundamental point, Imanishi is in complete agreement with Darwin. He accepts that from the origin of the first living things on Earth, life has diversified through the aeons of gelogical time. Where he parts company with Darwin, is on the importance that Darwin assigns to the role of the individual, especially with regard to the concept of natural selection, involving, as it does, competition among individuals in the struggle for existence. Imanishi contends there is no such thing as survival of the fittest; what determines survival is in most cases purely accidental. It is a matter of luck rather than selection. Although naturally, Imanishi recognizes that individuals vary, he considers that to a very great extent the nature of the species as a whole determines the character of the individuals. It is not the other way around, as Darwin would insist. Imanishi

relates this to the sense of identity that organisms posses. Imanishi sees the species or more properly his species-society as being an entity in its own right.

Imanishi considers that Darwin's view of nature is too harsh: it is a paternalistic view derived from the cultural and religious ethos of Western Europe. The Japanese view is essentially a maternal one, that sees the maintenace of stability as a primary factor. Imanishi stresses that in the development of the individual, from the egg, there is no struggle for survival among the cells, just as there is no competition or struggle for survival within a cell. What one finds as the cells divide and differentiate is change that proceeds smoothly.

The emphasis on the individual and indeed on individualism is a feature of Western society".[6,7] He writes[8]:

> One of the decisive differences between Darwin's theory of evolution and mine, as I mentioned before, is that, my theory holds [that] all the individuals of a species change at once when the time to change comes, Darwin thought that evolution begins with the individual, or with a small number of individuals. This certain individual, using a term of modern neo-darwinism, is called a mutation. Whether in morphology or behaviour, this mutation can be victorious in competition only when it is the fittest, and it is further supposed that that organism losing in the competition for survival will perish. God is always on the side of the elite. Perhaps because this appeals to those Christian Westerners ...
>
> Some years have passed since I first said that evolution is change occuring when it is time to change. And as support for this assertion I have produced on many an occasion the example of ontogeny, that is, the growth of the individual. The individual does not change through the process of growth.
>
> Evolution is changing when it is time to change, I said, and this is not just some incidental notion, but my evolutionary theory, but Westerners will probably not agree with me. They know only the individual, and probably will not recognize anything above the level of the individual.

But this is only one part of Imanishi's evolution theory. Arising out of his early research on mayflies, he developed the concept of habitat segregation, which he later amplified as life-style partitioning. It can be observed that in freshwater streams and rivers one can recognize that species appear to be segregated into particular habitats. This concept is central to Imanishi's evolution theory. He claims that not only does competition among individuals of a species not occur, but neither does competition between species. In this sense, Imanishi's evolution theory is novel and departs from the many others, which reject the notion of *intra*-specific competition. They, nevertheless, are happy to accept *inter*-specific competition. Imanishi bases his revolutionary notion on his contention that species, through mutual identification, simply of their own accord, select their particular habitats. In fact, the concept of identification transcends that of adaptation. It is the nature of the species or "species-society" that has primacy over the individual in this matter'. The individual species choose their own habitats within the environment. As Imanishi states[8]:

> In my younger years I challenged the succession theory of the ecologists Clements and Shelford with the habitat segregation theory, and now I am doing the same, this time challenging Darwin's theory of evolution. This is because both the succession theory

> of Clements et al., and Darwin's theory of evolution are predicated upon the principle of competition.
>
> The principle of habitat segregation is not a principle of competition, but is most emphatically a principle of coexistence.
>
> I regard the biological nature we see not as the scene of survival competition, but as the scene of peaceful coexistence among specia. Therefore I have also said that evolution to me is an increase in the density of the habitat segregation of the specia.
>
> But no matter which way one looks at it, I find it quite impossible to reconcile the struggle for survival with the evolution of the harmonized holospecia.

Imanishi draws attention to the fact that the selectionism of Darwin has its roots in Western society, whereas the theory of Imanishi has its roots in Japanese society. The emphasis on the group rather than the individual, the social structure of Japan, indeed the manner of perception of the world and man and the orderly formation of harmony in society is clearly reflected in Imanishi's theories. In any event, Imanishi contends that there are two quite different and contrasting theories of evolution: that of Darwin and that of Imanishi. Imanishi is strongly critical of neodarwinism with the individual as the fundamental unit of the process of evolution, and attributes the emphasis on competition and selection to the social ambience of the West. To Imanishi, "Darwin got carried away with competition and selection, whereas [Imanishi] chose habitat segregation"[5] and an evolutionary theory based on the principle of cooperation and mutalism – the principle of cooperation and an inherent harmony in the living world.

Subject an author

These two evolutionary theories illustrate his very concept of "habitat segregation": Darwin's inhabits the West and Imanishi's the East."[6]

One of Imanishi's articles has recently been translated into English "A proposal of shizengaku: the conclusion to my study of evolutionary theory".[8] This is difficult to follow without some knowledge of the background and it is not easy to communicate Imanishi's wonderful command of the Japanese language which makes his works so pleasant to read, if not necessarily easy to understand.

The notion of the primacy of the group falls on fertile ground in modern industrial Japan and in a sense the importance of the corporate nature of mankind, which Imanishi emphasizes, does provide a kind of intellectual respectibility for the suppression of individualism. Curiously Imanishi's views are popular among left-wing students by virtue of his emphasis on cooperation and mutual aid. There are indeed areas where Petr Kropotkin's Mutual Aids, with its emphasis on cooperation, are mirrored in the writings of Imanishi.

The influence of Imanishi is particularly powerful because it encompasses both ends of the political spectrum, no mean feat in this day and age. But there is something more than this, because Imanishi is especially popular with the ordinary Japanese. The fact is that the prevailing concept of competition is detested by the ordinary Japanese, because everyone is involved in it in their real lives. Imanishi presents them with an alternative – a dreamscape of irrational sentimentality. Imanishi satisfies the dreams and aspirations of people, his writing is comforting and the style is persuasive especially to those with no real background in biology and science. His style is very colloquial and sometimes even in Kyoto dialect. Real life in Japan is very hard for ordinary people, everyone is in a desperate rat-race. Imanishi gives dreams and hope to the Japanese people. Just as between the wars, when foreign travel was not possible, Imanishi and his friends went on mountaineering and exploration expeditions, and made films and books of their exploits. Their activities were envied by the Japanese people, for whom they provided dreams and hope throughout the years of depression and militarism. One suspects Imanishi is fulfilling a not dissimilar role today.

Imanishi's evolution theory is a poetic vision, it is beautiful to contemplate but it is a dream and it is Japanese in its unreality. In the world and indeed in Japan, it is demonstrably a world of competition, struggle and disharmony. In such a world Imanishi's theory acts as a wonderful counterbalance that gives people hope and something towards which to strive. Unhappily it has no place in the scientific understanding of the real world.

One of the most interesting features of the Imanishi phenomenon is that he epitomizes the generation that developed between the wars and was isolated from the mainstreams of international science. It was in just such intellectual isolation that new ideas and concepts were evolved. Before the First World War there was a tremendous influence of the West from the time of the Meiji Restoration (1868) until the rise of militarism. After the Second World War Japan again came to enter the mainstream of the West, at least substantial contacts were effected. The intervening period was one of particular originality from within the Japanese intelligentsia, especially the Kyoto Elite of whom Imanishi stands as a prime example.

Imanishi stood, and stands, firmly against the crude selectionism that was particularly enamoured of the rulers of Japan at the end of the last century and the early decades of the present one. Social darwinism was held to be an adequate justification for the running of society by a powerful authoritarian government.

The fundamental divide in man's view of the evolution of life, which has fuelled the most vitriolic of controversies, has been the degree of emphasis placed on either observed variations among individuals or on the features held in common. Was individual competition among individuals the driving force of evolution or was it cooperation? It must surely be evident that both aspects must be represented and over recent times there have been attempts to produce a synthesis – a dialectic resolution of the unity of opposites. This is perhaps best exemplified by in the writings of John Maynard Smith.[10] It can be fairly confidently stated that mutual aid and cooperation, indeed the phenomenom of altruism, are susceptible to an explanation in terms of natural selection. The, antithesis emphasized by Imanishi is a false dichotomy. It is now resolved. There is no longer any foundation for Imanishi's attack on what he imagined darwinism to comprise – it was merely a caricature of Darwin.

So much for Imanishi's views on the inherently harmonious nature of the living world. There are nevertheless a number of empirical claims derived from his early work on habitat segregation on aquatic insect larvae, mayflies in particular, that are critical and form the keystone to the edifice of Imanishi's evolutionary theory.

First is Imanishi's claim that the larvae select their habitat on the basis of recognition of species identity, that there is an innate property of proto-identity and that this determines the association of individuals of the same species. The second major contention is that where two species separate in a similar environment, they separate not by direct competition as usually assumed but simply by one group moving away of its own violition, that direct confrontations are always avoided in the living world.

The association of larvae of the same species is now established to be not a consequence of some type of proto-identity but simply the preference for particular physical parameters of the substrate.[11-15] Recent researches in freshwater, marine and terrestrial habitats in experimental ecology, have demonstrated that inter-specific competition takes place in some 90 per cent of all cases studied.[16]

The informational foundation of Imanishi's theory no longer stands, but this seems to have little effect on either the standing or on the public reception of his ideas. For an explanation of this, one has to turn to the scientific community in Japan, which has its own special characteristics. It is characterized by the virtual absence of debate or any kind of intellectual confrontation. The great teacher or leader, the *Ie-moto*, a member of this elite is untouchable. There are many examples of this situation within Japanese science, which have been incisively dealt with by Sibatani, who in 1981 wrote a critique of Imanishi's evolution theory[17] but who subsequently rather spoilt the effect by being converted to Imanishi's ideas.[4, 18] Perhaps the most striking example comes in the writings of Shoji Ijiri, a Marxist palaeontologist who has taken a special interest in evolutionary theory, but has never discussed the contrary views held by Imanishi. The reason according to Ijiri was that he believed the theoretical concepts were simply "saloon theories from the Kyoto Unversity coffee houses. They were group discussions for aristocrats, who talk about science with their brains and their mouths, in contrast to Ijiri who approaches theory on the basis of practical experience of mud and sweat".[19] As far as Ijiri was concerned "farmers and aristocrats have no points in common", in short he had completely ignored Imanishi's theory.

Whichever stand is taken the result is the same, there is no public response. There is one further factor, which may be significant. Imanishi states he is not an ecologist, hence ecologists cease to discuss his ecological theories even though his ideas may be central to their own researches. When Imanishi now states he is not a scientist, fellow scientists no longer feel there is any need to discuss his theories, even though they are concerned with the central concepts of their own disciplines. There seems to be a rigid regimentation in the natural sciences and great store is taken of labels that are paraded and rather less consideration of the actual content being displayed. There is a handful of exceptions. Sibatani has conducted a series of criticisms of the state of Japanese science [20], and the natural sciences in particular, from his working home of Australia (although he is now in retirement and settled in Japan again).

Vigorous debate is not part of the cultural tradition in Japan although deep and learned disagreements and discussions are conducted within groupings such as the Kyoto Elite.

Dedication to the search for truth will allow discussion among elites. There is the paradox of the elite proclaiming the importance of the group and Imanishi is a classic case in point, and yet his entire life has revealed the attitude of an extreme individualist. Indeed members of the Kyoto Elite are bound together by a single trait, extreme individualism, but who to a man proclaim the primacy of the group for the rest of Japanese society. It certainly does not apply to themselves. Originality and innovation flourish in a secret enclave beyond the experience of the ordinary Japanese, condemned, as they are, to the rigid authoritarian feudal society that masquerades as one of the advanced nations of the world.

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Imanishi's influence on evolution theory in Japan

SIR—My Commentary[1] on Imanishi's theory of evolution and the Japanese dimension evoked a gratifying range of responses.[2-9] Several correspondents[3, 4] complained about my article being more sociological than scientific. This is indeed the case as my aim was primarily to describe Imanishi's theory and set it in its social context – there is little to be said about its scientific content.

Whereas Nakahara et al.[5] claimed that I had rejected Imanishi's theory without fully understanding it, the actual wording of my summary was checked by Imanishi himself who stated "I was very impressed that you have got the ideas very precisely in spite of the language difficulty".

Some of the Western correspondents, such as Sinclair[3], obviously found Imanishi's theory so unusual that they could not believe what I had carefully written. Sinclair states "Imanishi no doubt would not deny that inter-specific competition exists", yet that is precisely what Imanishi contends; such denial is the very essence of his theory and it is this which makes it unique. I certainly did not confuse the roles of intra-specific and inter-specific competition. Needless to say, I agree that natural selection and the entire edifice of Darwinism requires intra-specific competition. Similarly, I agree with Millar et al.[4] that aspects of Imanishi's theory are not unique such as the denial of the importance of intra-specific competition and his assertion "that the unit for explaining evolution is not the individual but the species". Many of Imanishi's ideas are mirrored in the separate and joint writings of Eldredge and Gould.[10-13] Indeed, Imanishi has intimated his sympathy with much of Gould's writings, and is especially sympathetic to the notion of sudden jumps in evolution, and states "evolution is change occurring when it is time to change".

It is perhaps significant that these selfsame ideas are to be found in the writings of Lysenko[14] (with his own emphasis):

> "No continuous, unbroken series of forms between species – different qualitatively definite states of living matter – have been found. This is so not because the intermediate forms in a continuous range have died out as a result of mutual competition, but because there is no such continuity in nature, nor can there be. *A species is a distinct, qualitatively definite state of living matter*. We must realize that speciation is a transition – in the course of the historical process – from quantitative

> to qualitative variations. Such a leap is prepared by the vital activity of organic forms themselves, as the result of quantitative accumulation of responses to the action of definite conditions of life, and that is something that can definitely be studied and directed. *The conversion of one species into another takes place by a leap*."

Interestingly, Japan is one of the few places where Lysenko is still taken seriously. The Japanese Society for Michurin Biology was set up in 1954, the *Japanese Journal of Michurin Biology* was launched in 1965 and still continues in the 1980s. There is clearly a sympathetic response to these ideas in Japan.

My brief discussion on the scientific basis of Imanishi's concepts of proto-identity and habitat segregation or life style partitioning, which I claimed had been effectively refuted, was challenged by Sibatani[2] and Millar et al.[4] The points they raised have been adequately dealt with by Roster.[6] I agree that habitat segregation is a real phenomenon, as Nakahara et a1.[5] insist, but it is not as they or Imanish suppose antithetical to natural selection. The late Kani and Imanishi's close colleague Morisita[15] recognized the importance of inter-specific competition. There is no conflict regarding observations of the phenomena. It is in the explanations proposed to account for them that disagreements arise. Hence I agree completely with Sakura et al.[8] that "Imanishi's description of phenomena is not incompatible with Darwinian theory which deals with mechanisms of evolution".

Finally, I was pleased to read Sibitani's[2] comments on "Japanese ethnocentric excesses" as well as the letter from the primatologists in Kyoto who say that although they "are still hampered by the influence of Imanishiism, we criticize his theory and try to eliminate its negative influence".[8] This contrasts with Asquith' who challenged me on my general comments on the average intelligent layman's understanding of evolution, which I do not retract.

Darwin's work was indeed introduced into Japan in the last century and in fact social darwinism was one of the cornerstones of the social policy of the rigid authoritarianism of the Meiji restoration. It is against this particular background that the importance of Imanishi's oppostion to Darwinism must be viewed.

Imanishi is still a national hero, as, he was in the 1930s. The popular press abounds with interviews and articles by and about him. Typical is the article in the English language magazine *Look Japan* (10 January, 1980) "Kinji Imanishi, Japanese Theorist – as compared to Darwin", in which the three great thinkers of modern times are seen as Darwin, Marx and Imanishi. The interview with Imanishi in the July 1984 issue of *Omni* (Japanese edition only) gives a very clear idea of the high esteem in which he is held.

Asquith[9] confirms my critique of Japanese scientists. According to her "the majority of Japanese scientists simply disagree with Imanishi's popularizations and find his views obscure and untestable. Their silence is hardly surprising". My account was an attempt to draw attention to Imanishi's theories and to set them in their context, and if possible to provoke the Japanese scientific community into some kind of response. Sibatani's[16] initial aim was to bring Imanishi's ideas to the attention of Western scientists. I was the first to respond. I set out in my book[17] to bring to the attention of Japanese scientists the considered opinion of an individual Western scientist on the

theories of Imanishi. I believe that both Sibatani and I have succeeded in our avowed intentions.

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