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PRESIDENTIAL ADDRESS, 1992: MEGATRENDS AND THE LEPIDOPTERISTS' SOCIETY¹

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With the approach of the 50-year anniversary of the Lepidopterists' Society in 1997, it is appropriate that we begin to think about what type of Society we want for the next half century. I hope that this address will help to identify a few major goals that I believe the Society should pursue.

I joined the Society in 1948, missing charter membership by one year. As a member through its first 45 years, I have a vantage point from which to look back upon our Society and, perhaps, from which to offer some thoughts about its future. It is reassuring to read the premises upon which our Society was founded as stated by Charles L. Remington and Harry K. Clench in the May 1947 issue of the Lepidopterists' News. Three points stand out above the rest: 1) the Society would be devoted to the scientific study of Lepidoptera; 2) its membership would be international; and 3) the Society would include both amateurs and professionals. Harry Clench was able to reaffirm the primacy of these premises twenty-five years later when he wrote the history of the Society in our Commemorative Volume (1945-73). These same principals guide us today, and I hope that they will continue to be central to the Society in the future.

Technological, economic, and political changes are occurring on a vast scale and at a rapid pace. It is never easy to establish policy to accommodate future changes; however, I would like to raise a few

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TABLE 1. Influence of major trends on the Lepidopterists' Society.

Megatrend	Impact on Lepidopterists' Society
1. Industrial society to informational society	Publication methods
2. High tech/high touch	Butterfly houses Butterfly counts
3. Centralization to de-centralization	Regional lepidopterist societies

questions to our membership, realizing that it probably will require the next five years to evaluate and answer them. I am ever mindful of Mark Twain's famous quip that "predictions are very difficult, especially about the future." My rationale for anticipating the future comes from *Megatrends*, a book written ten years ago by John Naisbitt. Many, but not all, of his predictions have come true. More importantly, Naisbitt provided social and psychological unifying themes to explain major or "megatrends" in the world.

I have chosen three of these themes that have influenced and will continue to influence our Society and the study of Lepidoptera. These are listed in Table 1 with an indication of the type of impact they will have or have had upon our Society.

Industrial Society to Informational Society

Whether the Lepidopterists' Society has made the transition from an industrial to an informational Society may be debated, but new technology undoubtedly has permitted us to transmit and process information more quickly and efficiently than ever before. There are few members left in our Society who received the first issue of the *News* in May 1947. It was mimeographed using a typing stencil. Such stencils now are obsolete and almost unavailable. Everyone who remembers typing on stencils, with their messy correction fluid and their high premium on perfect typing, probably is glad that they have disappeared. Our editor of the *News* now produces camera-ready copy with a computer by a process that wasn't even dreamed of in 1947.

Looking into the future, we should realize that what we see today is but a point on a continuum of change in information processing technology—new approaches are being developed continually. The *Journal of Research on the Lepidoptera* (JRL) now is offering the JRL cumulative index on computer disk. Should we consider something similar? Should we consider the use of compact disks (CDs) not only for indices but also for volumes of the *Journal*? Is our material copyrighted so that the Society could benefit from such a medium? A modest way to begin

computerization may be to advertize in the News for volunteers to assist Richard Arnold with the compilation and data entry for a cumulative "Season Summary." Should we begin to develop regional data bases on Lepidoptera or at least coordinate the standardization of such data bases? Scott Miller strongly suggested this possibility last year in his talk at Tucson. Should we develop a standardized computer format for articles for the News and/or Journal? If the Society plans to make educational materials available to schools, should the material be supplied in machine readable format? Many secondary school libraries now have computer data bases search capability.

High Tech/High Touch

The second theme, high tech/high touch, involves the connection between growth of high technology industries, with their mechanization and impersonalization, and growth of industries that emphasize personal awareness, person-to-person contact, and personal involvement. I believe that this theme is manifested in the growing popularity of butterfly houses. People hear much about the cause and effect behind environmental issues such as ozone depletion, global warming, and pollution. They can achieve some temporary relief from the chaos and experience a little bit of the "Garden of Eden" when they walk through a butterfly house. This same high tech/high touch action-reaction also may explain the increasing popularity of butterfly counts—people want to become involved directly.

How does all this relate to the Lepidopterists' Society? I believe we should take advantage of the growing interest in butterfly houses. We should ask ourselves if we are doing all we can to encourage contributions to our Journal and News for providing the basic background science for mass rearing of Lepidoptera, whether for butterfly houses or potential environmental restoration projects. Terry Domico, a freelance wildlife biologist, recently asked me "for how many of our butterflies and moths do we know enough of the biology that we could undertake a mass-rearing and re-population effort?" He related an interesting story to me in regard to this question. In preparation of a book on the insects of Borneo, he visited Lepidopterists' Society member David Goh at his butterfly farm in Malaysia, where Goh is mass rearing species for butterfly houses. In a few weeks, Domico recorded the life histories of four species of *Troides* that occur in Borneo for which there were no published life history data. This indicates to me that much of the little life history information we have may actually reside, unpublished, in the minds of amateurs. There is a need to get such information into the public domain.

Centralization to De-centralization

The third theme that I have selected from Naisbitt's book is the trend from centralization to de-centralization. Naisbitt relates this trend to changes in government and business practices, and explains it in terms of the growing sophistication and diversity of the populace. For the Lepidopterists' Society, I see this theme exhibited in the proliferation of regional lepidopterist organizations. Currently there are nine of these in the U.S. alone, some more formally structured than others. The growth of these organizations has occurred during a period when membership in our own Lepidopterists' Society has remained more or less constant. A significant portion, but by no means all, of the members of these regional groups are also members of the Lepidopterists' Society. We should not view this movement with alarm nor should we attempt to "coordinate" or control it; we should encourage such groups to form. Our Society can only benefit from such a stance. My wife and I have visited five of the nine organizations, several repeatedly. There is great vitality and enthusiasm there, especially evidenced in local meetings and field trips. This is truly the grassroots of our organization.

What I see in these local groups is a greatly under-utilized resource for making significant contributions to the study of Lepidoptera. There are people willing and able to take part in short and long term survey projects. There are local floral and faunal experts. What is needed is a recognition of this resource and creative leadership to channel its energy toward prioritized local projects. Such efforts will be of extreme value if and when conservation projects are initiated by local and other agencies. This need for professional leadership also was expressed last year by Scott Miller.

These regional lepidopterist organizations represent one of the best means to provide the personalized one-on-one encouragement and education for young people aspiring to learn more about the science of lepidopterology. They are an excellent recruiting mechanism for our Society and the profession.

It is not clear how the Society can further the aims of local lepidopterist organizations without encroaching upon their autonomy. Formalizing and expanding our publication of their activities may help. A forum for local group representatives could be provided at the Annual Meeting. Articles in the News could highlight model activities such as local studies or re-population efforts.

In keeping with the international scope of our Society, we should cover activities of organizations similar to ours in other part of the world. Our "News From Europe" editor, Willy De Prins, is exploring



FIG. 1. *Pyrrhopyge hygieia rufipectus* (Godman and Salvin) (Hesperiidae). Upper photo from 35 mm color slide taken in the Rio Napo area of eastern Ecuador by Joseph T. and Suzanne L. Collins ca. 1970. Lower photo from 35 mm slide taken of color monitor display of the digitized version of the butterfly. Digitization was done at 900 dots/inch using 24 bit color.

increased communication links with SEL (*Societas Europaea Lepidopterologica*).

High Technology

As an example of how technology might impact the study of Lepidoptera in the future, I would like to describe briefly the exciting and rapidly advancing field of high resolution digital imaging.

Biology is a visual response discipline, whether one thinks of field observation, type specimens, or microscopic studies. High resolution color photography is the current medium of choice to record visual data. Sometime within the next five to fifteen years, we will have high resolution digital television in our homes. This will mean easy access to a display device, and because the signals are digital, microcomputers will be capable of analyzing them. Images may be transmitted with high fidelity for publication or analysis where phenotypic information is sufficient. More importantly, new types of quantitative phenotype analysis would be possible.

As an introductory example, I would like to present an image created at the National Center for Supercomputing Applications (NCSA) at Champaign-Urbana. Figure 1 is in two parts. The upper part was prepared from a conventional 35 mm color slide taken in 1970 in the Rio Napo area of eastern Ecuador. The lower portion was prepared in two steps. The original slide was digitized at 900 dots/inch (dpi) in 24 bit color (16.8 million different colors). The digital record of the image was then displayed on a special, very flat, high resolution color monitor and photographed with a 35 mm camera. The resulting 35 mm slide and the original slide were then composited by the printer to produce Fig. 1. The high fidelity of the lower image demonstrates the great promise of digital storage and retrieval techniques for archiving color pictorial information. The price one pays for this fidelity is the need for very large memory storage capability (approximately 70 million bytes per image). Reasonable fidelity currently is widely available in 8 bit color (256 colors). When the high resolution or high fidelity color equipment becomes readily available, images can be placed on compact disks (CDs) and distributed like books, i.e., loaned or sold. Even more important is the possibility of using the images for studies never before possible, such as viewing an image as a predator might view it if the spectral response of the predator's eye (color palette) is known.

In conclusion, a wonderful symbiotic relationship exists within our Society between amateurs and professionals. We now see a similar relationship evolving between our Society and regional lepidopterist groups that share our goals. As a Society, we have benefited directly

from technology in our increased publication capabilities and indirectly from technology's tendency to foster antithetical activities such as butterfly houses, butterfly counts, and participation in local survey and conservation projects. We can look forward to our 50th anniversary with great confidence and high expectations.

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