

Implications: Future Encounters of the Primate Kind

Shirley C. Strum and Linda M. Fedigan

Introduction

Instead of the usual "conclusion," we would like to end the book with a consideration of the "future" as seen through the eyes of the workshop participants. Our chapters "Science Encounters" and "Gender Encounters" have already explored the implications of the workshop for the central questions of our project. But much more emerged in Brazil and during the e-mail exchanges. Although not part of the original agenda, these thoughts and concerns are relevant. They situate and connect the more academic issues to the bigger context of science and society. Rather than try to summarize what was said, we use e-mails to let individuals speak for themselves in their characteristic lively fashion.

The section is organized around six topics. The order of presentation is not a statement of priorities or importance. In most cases there are no definitive answers or solutions but the conversations are illuminating. We begin with "*The Media and Science*," which carries forward what remains an unresolved debate. This is followed by "*Gender and Science on the Periphery*." The two topics are placed together because they seem to share many similar themes. "*Science Wars*" is next. The tension between different views of sci-



ence and the work that was necessary to be able to talk to each other has already been introduced. Here we see what participants felt had been accomplished that could provide insights for others. During the science exchanges we came to consider the "Value of Primate Studies." Scientists and science analysts differed about how to judge their worth but agreed that the study of primates was valuable. Everyone was less optimistic about "The Future of Primates and Primate Studies," both of which are intimately connected to the growing biodiversity crisis and global politics.

Worries about the future quietly punctuated our more academic discussions. It was as if connecting science rather than isolating it unleashed a Pandora's box of suppressed anxieties not just about the future of primates and primate studies but about the future of other disciplines, of the scientific enterprise in all its dimensions, of society, and of the natural world. Among the wealth of opinions about how to proceed, we did agree on one thing—the future would need "New Teams." The multidisciplinary, cross-cultural, and historical process that was "Teresopolis" exposed the shortcomings of thinking and acting in isolation.

The e-mails below reflect the nature of discussions on these various subjects. As with other e-mails, they have been edited to highlight key points.

The Media and Science

Throughout the workshop, science analysts offered a new way to think about the media and primates, about science and popular culture. For those actually involved with the media and trying to educate the public about primates, it was unclear exactly how to proceed. Understanding the process is only a first step. Even if we discard as inaccurate the "diffusionist" metaphor in which the media is required to faithfully "represent" scientific results to a passive public [as discussed in the e-mails exchanges in section 5], what should be put in its place? How do we make media and science a joint effort in which, if no one has control, at least everyone has "responsibility." During our e-mail exchanges we had the opportunity to see how scientific results get transformed in press releases in the popular media: "Chimps Cheat, Study Shows. UCSD Team Says Females Routinely Sneak Off for Sex . . ." read the headlines in the local newspaper. That afternoon, CBS, NBC, NPR, ITV, BBC had live or telephone interviews with the scientist who did the work. This particular episode of media and science upset many of us, but it offered a concrete example of what happens and made us think about what could be changed. Certainly, as the world gets smaller and space and resources for both nonhuman and

human primates decline, there are new challenges, new opportunities, and new responsibilities for both scientists and the media.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Shirley Strum" <sstrum@weber.ucsd.edu>

. . . understanding the process (which I don't really yet despite my extensive familiarity with it) is only a first step for me. I want to know how to get the scientific and cultural meanings closer together, running more in tandem. When the negotiations transform "chimps in unexpected and not so unexpected ways," I don't feel like I want to sit back and say "isn't popular culture interesting, isn't popular culture powerful . . ." Is it silly of me to want to make the connection "more appropriate," to have scientific images help to make better cultural images (and vice versa)? . . . I still don't see what it is that I can, should, am supposed to do . . .

Recently, in another forum, Evelyn Fox Keller discussed how the goals of the history of science have changed from "making science better" to understanding the process/practice for its own sake. Fine, but as a scientist I want to take that knowledge and make the process better. With some aspects of the practice of science, I think I know how. I certainly don't when it comes to science, the media, and popular culture. So tell me, if I want to be an interventionist scientist, what steps should I take based on this new understanding of the process of popular culture and the media.

PS. By the end of the workshop, Dick Byrne retracted the comment that he made that his colleagues get him wrong more than the media!!!

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Linda Fedigan" <Linda.Fedigan@ualberta.ca>

I would like to comment on Gregg's suggestion . . . that it is inappropriate for us to assume that the press is just there to interpret scientific findings to the public and that we have to realize that popular culture will produce its own meanings ("chimps in popular culture are different animals from those within primate studies.") I can accept that there are different understandings of chimps and I can accept that the media is not just a mouthpiece for scientists. But what gives me a knot in my stomach when I interact with the press is that the public, for the most part, also assumes that what is reported in the press is the scientist's view of the world. So if the popular press wants to represent female chimpanzees as adulterous, and if the public develops a view of chimps as "cheating" on their partners, that doesn't bother me (just as the anthropomorphic representation of monkeys in *Curious George* children's books doesn't bother me). But IF the press explicitly or implicitly presents the view that x, the scientist who did the work, thinks of chimps as adulterous and studies "cheating" rather than paternity patterns in chimps, that does bother me. In other words, I think that the press has some responsibility to try and present the scientist's point of view when they are reporting the results of a scientific study. They are not just representing chimps, they are representing the scientist. An ongoing study at my university has found that the general reader's accuracy in understanding the science items reported in newspapers is largely

determined by how the information is presented—their conclusion is that the better educated the reporter is in science, the more accurate will be the public's understanding of what is reported. I may be falling into the diffusionist model that Gregg has warned us against, but I agree with Shirley that my goal is to have scientific images and cultural images running more in tandem and I want to know how to better get my views across.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Thelma Rowell" <thelma@ingleton.demon.co.uk>

. . . the whole [chimp mating] story challenges the idea of some great joint effort between media and science to me. Is it because of all the social sciences converging in primate studies? . . .

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Gregg Mitman" <gmitman@ou.edu>

. . . I don't think I have any forthright solutions to the concerns about wanting to make the scientific and the cultural run more in tandem, except that by knowing what are the dominant narratives (e.g., about chimps) in popular culture, and thinking ahead what possible spins a reporter might take on a story to make it sell, one could be more savvy about the presentation of one's results, by leaking the angles or suggesting possible leads one wants to get out. . . . But many of you have had much more experience, both positive and negative, with the media than I. Perhaps it would be useful to hear about stories that people were satisfied with and why they worked . . .

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Brian Noble" <brian.noble@utoronto.ca>

I think that Gregg's and Bruno's pushing for a completely revised approach is the sort of move that will really make a difference, and Donna Haraway's work is a striking case in point. Each intervener is bound to affect things differently.

As soon as I began to consider the production and circulation of primatological and dinosaur knowledges, I began to see that no one in particular had "control," only the possibility of intervening, and rather, that there were what one might call "systemic" or "corporatizing" powers at play. I agree . . . that close analyses, network studies like Bruno has done, discourse analyses, deconstructions, all help to contour the processes and relationalities. This is about trading, the very sort of trading that the Teresopolis meetings have begun to facilitate. And since many of these studies do deal with power differentials in the multiple mediations taking place, they also can be read for guidance on how complexly situated interventions take place. Bruno's multihorizon picture in the meetings [see chapter 17] offered something that clearly avoided the rather inadequate idea of the one-way translation of pure nature into mixed-up culture via science and media etc., rather suggesting a nexus of agencies, a redistribution of "nature" and "culture" at every stage, and multiple resources working to produce current "setups."

I also think that Alison Wylie's addition of positioned "subjects" (see chapter 12) (e.g.,

Shirley wanting to be an interventionist) is important as a resource in the setup, as is the consideration that the setup is being altered continually through changing historical conditions. The surprising thing is that once you begin to look into such matters, you find that scientific truth, while remarkably powerful and predictive within the terms of particular less-articulated setups, is also ephemeral, shaky, and a very limited resource in much larger networks producing and very forcefully conditioning "what counts as nature."

I don't know who has time to study primates and also do this, so perhaps the idea of trading, exchanging, and good listening remains the most efficient means. Alison Wylie's positioned subject gets all the more crucial, though, as everyone is going to bring different "agendas" to their interventions, spinning things in ever-alternate manners . . .

So, on the "cheater" [chimps], who will intervene in the contradictions, how and with what stories?

[from another e-mail] . . . It seems to me that the last ten to fifteen years has seen the heating up of primatology in political terms (I mean in how primatology exchanges with the polity, the people). There's more wide-ranging and controversial media play, conservation and endangered species issues always on the rise, gender and critical analyses intensifying, debates and practices around primates as disease vectors or as surrogates for biomedical testing, postcolonial conditions of conducting fieldwork, etc. It's a great big political swirl . . .

At the same time, more and more primatologists are actively (rather than passively) engaging the media, the politics, the publics, the policies in designing and conducting their studies. Others are finding they have no choice since it seems to be found everywhere, in grant applications, in fieldwork, in media presentations, in the news. And I don't mean politics as in bureaucratic hurdles or office politicking, but rather committing to something because you care. This can be caring about the animals, the discipline, who gets represented in the discipline, or even how things might be relevant to other people, the public(s).

As more scientists do take such active responsibility, the otherwise "pure science" or passive questioning gets more and more backgrounded. It gets increasingly difficult (and many would also suggest, irresponsible) to ignore the media, the public, politics, changing environments, etc.

. . . if this in any way characterizes what indeed people feel is going on . . . today, what do other people think is at stake? for primates, for primatology, for science. . . .

Gender and Science on the Periphery

Difference and inclusiveness were recurrent themes in Brazil and in the e-mails. There are many ways to have "difference." While we might not agree on whether "a difference makes a difference" in science or whether it makes an "interesting difference," or even the advantages of other visions of scientific enterprise, we almost reached a consensus that science should become more inclusive. But how? Who and what should be in-

cluded and why have they been excluded up to now? Science on the periphery provided a new “take” on gender and Euro-American science. As well, issues of gender and science in North America appeared remarkably similar to those of “science on the periphery” experienced by those in developing countries. Unique and separate disputes merged into a vital struggle over “power” in science (see chapter 23, “Science Encounters”). Obviously the transfer of scientific technology is not enough in the development of global science. Attitudes have to change as well. The study of primates is seen as exemplary in extending scientific inclusiveness. Participants argued that it should continue to push the “envelope” of possibilities. Thus an interest in the role that women may have played in changing scientific ideas about primate society led us to broader considerations: the importance of standpoint and the variety of standpoints that have, can, and possibly should make a difference in science.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Alison Wylie” <awylie@julian.uwo.ca>

. . . If there is any point of consensus in the studies I was referring to, it is that science itself is better if the community doing the science is more inclusive, and not just in the sense of tolerating difference. What’s needed is constructive engagement of a diversity of standpoints. I should say, too, that the striking thing about both the workplace studies and the content analyses in archeology is how quickly these have led beyond gender . . .

. . . Given the range of factors that have been identified as making a difference to primatology (in its development and currently), what sorts of inclusiveness might really make a difference now or in the future? And what kinds of institutional/disciplinary mechanisms might foster really effective, engaged inclusiveness?

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Brian Noble” <brian.noble@utoronto.ca>

. . . if it isn’t just who participates but the very stuff they participate with that sets up the conditions of exclusion, shouldn’t we be taking the forms themselves into account in a very active way, as much as we do the participants and their differences, keeping the linkages and de-linkages between the two clear all the while?

. . . Isn’t primatology, as such, a vanguard locale for reconfiguring science in relation to the gendering of scientific practices and science as culture?

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Zuleyma Tang-Martinez” <szthalp@umslvma.umsl.edu>

. . . The question for me is whether we should be encouraging the notion that men and women do science differently because of their biological sex (the essentialist approach critiqued by Alison Wylie), and I hope it has been clear that my answer to that is a definite

“no.” Whether we should encourage thinking that there is a male versus a female way of doing science (whether because of biological sex or gender differences)—I do not believe this is a good approach either. And lastly, whether we need to recognize that gender differences can lead to different approaches to science—I believe that the answer is yes, but not necessarily that one approach is better or superior to the other. As I have said before, to me it is the diversity of approaches and what each individual (based on all aspects of who they are, not only sex or gender) brings into science that gives a broader perspective and richness to our scientific endeavors.

. . . What kind of science do we want in the future?? One in which sex and gender (and class and race, etc., etc.) play a role, or one in which they do not? And would the latter even be possible?

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Brian Noble” <brian.noble@utoronto.ca>

. . . I would take “inclusiveness” to mean not only the inclusion of women or other marginalized people, but also the inclusion of those nonhuman features such as marginalized forms, practices, schemas, stories, spaces, etc. (and marginalized animals for ethologists, like “sheep”!) which will complement the inclusion of women or other marginalized folks in the continual shifting. Taking both people and nonpeople into account might help to get at what Bruno was referring to . . . as “the critical edge.” Or to put it another way, as other sorts of people are included, wouldn’t it be most interesting if science also opened up to nonhuman stuff like different forms of practice, storytelling, etc. which they bring along with them and which are around us all the time anyway?

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Zuleyma Tang-Martinez” <szthalp@umslvma.umsl.edu>

. . . Another related point that has already been alluded to by others: many feminists find Japanese science or American Indian approaches to nature very attractive because of the perceived emphasis on connectedness, empathy, holism, etc., all characteristics that we have gendered “female.” But does this really mean that such approaches are more “feminine”? I think it does only if we set up the gendering prescribed by Euro-American cultures as the “norm” by which other societies and endeavors carried out in other cultures are measured and interpreted. Such an approach not only ignores the great complexity of other approaches to science and nature . . . but [is] also somewhat chauvinistic in its insistence that we interpret and judge other cultures and approaches through our culturally bound lens of gender. I think it might also be interesting to ask ourselves why it is that in some countries with a long history of machismo, this does not carry over to science, at least in terms of the systematic exclusion of women as women (although there may be exclusion based on social class which disproportionately disadvantages women).

[from the next day’s e-mail] . . . At one point, Maria Emilia [Yamamoto] pointed out that Euro/American science takes on what is essentially a gendered stance (still from an Euro/

American perspective) to science and scientists in the developing countries. The science and scientists in the developing countries are devalued and considered inferior, their methods are often treated as being less objective (i.e., less scientific), and their findings and observations are largely ignored (e.g., it is very difficult for Latin American scientists to have their findings published in U.S. journals). Interestingly, a Venezuelan behavioral ecologist who did his Ph.D. in the U.K. and is now back in Venezuela, told me that while he was using the U.K. address on his manuscripts he had no problems publishing his research in U.S. journals, but as soon as he began using his Venezuelan address (even though he claims the research, etc., were the same) he began having great difficulties in getting anything published. He finally gave up in disgust and now sends his research to Latin American journals. I might add that he is at the best Venezuelan university and is considered one of the two top behavioral ecologists in Venezuela . . . there is the assumption that Euro-American science needs to “rescue” science in the developing world. Thus, Euro-American science assumes the “male” role (objective, superior, dominant, etc.) while Third World science is assigned the “female” role (inferior, less objective, dependent on “the North,” and the “maiden in distress needing to be rescued by the knight in shining armor”). Note also the underlying themes of hierarchy and control in all this. Third World science is viewed as a flawed and defective version of Euro-American science just like some men have viewed women as flawed and defective versions of men.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Brian Noble” <brian.noble@utoronto.ca>

A point that captivated me most in the meetings was the differential interest mounted by American (Washburn, anthropological), British (Maddingly, zoological), gendered (heterogeneous), Japanese (Kyoto school, “primatographic”), and Brazilian (postcolonial, conservation ecology) positions. The interest of the latter of these two was quite outweighed by the interest of the others. I heartily agree that primatologists should feel good about . . . the tremendous number of connections . . . gained, but the differential interest earned across these positions is also something worthy of addressing. . . . Women in primatology have continued to win such redress, and the discipline is, of course, still thriving . . . why not keep extending it to other interests?

Science Wars

We began with suspicion and lack of understanding, with different styles and different ideas about what science is. We unwittingly recreated the “science wars” in our small, isolated world. But we also explored the possibility of overcoming these differences, forging a new community—a one populated by scientists and analysts who can listen to each other and carry on a productive discussion. And we began to understand why it was

necessary to build new understandings, acting cooperatively rather than antagonistically. Certainly some of the fight over science is just “silly” and prevents us from dealing with the more pressing issues in science and in today’s world.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Allison Jolly” <ajolly@arachne.Princeton.edu>

. . . we might all want to look at the *Nature* of May 22, volume 387, issue 6631 [at] a long briefing on the Science Wars, pp. 331–336, and a report on Norton Wise being turned down for the chair at the Institute for Advanced Study, p. 325.

My initial reaction is that the “Briefing” article is much less interesting than Teresopolis, because it is so empty of content: it is almost “Tis-Tisn’t”—as in science is or isn’t true/searching for truth/making progress. Most of the case studies so far have been in physics, and are not explained. Our stuff with the passion fruit mousse of primatology at least makes more intuitive sense of what is worth arguing about.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Gregg Miltman” <gmiltman@ou.edu>

. . . [the] issue of science as a social construction . . . seemed to paralyze so many of our discussions in Teresopolis. The fact that there are no pristine field sites for primatologists anymore, and that the very alteration of the landscape by humans has changed primates, humans studying them, and the relationships between them, is a nice example where both human and nonhuman actors are historical agents in the co-production of knowledge, made real, by the material interaction between them, which of course is dynamic. It moves us to an understanding of science as process. . . . The . . . point raised by Alison [Jolly; see e-mail in “The Future of Primates and Primate Studies,” below] is that primatologists will then likely make inferences about how current habitat conditions will lead one to make larger theoretical claims about natural selection for primate behavior patterns taking place in extreme situations, without recognizing the very historically contingent nature upon which one is making these universal claims. In many respects, I think there is much common ground between primatologists abandoning the notion of studying primates in pristine nature and grappling with the issue of human-altered landscapes and talk in science studies about production and the co-construction of nature. And it seems to me that we are all pretty inept at breaking out of the nature/culture dichotomy, which I take to be at the heart of these discussions, but a move we absolutely must make (if we could only figure out how) in terms of survival—both of human and nonhuman species—in the twenty-first century.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Brian Noble” <brian.noble@utoronto.ca>

. . . I wonder whether we are now seeing the rise of a) a community of science + science studies calibration and cooperation, and b) the emergence of hybrid critically engaged

scientists/science studiers. Thank goodness for primatology. There is lots and lots going on at the intersections other than mock battles. Noting there is a contest in the emergent spaces is one thing . . . taking up arms is quite another.

As you can see, I am promoting the position that the war is over, or it should be, if indeed it was ever such a thing.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Gregg Mitman" <gmitman@ou.edu>

. . . It is the practice of community—defined not as unity through sameness, but as unity in difference—that enables a collective conversation to take place that integrates yet respects historical situatedness. It is through interaction with the natural environment, in the form of living, working and playing, that communities are made. We place too little value on these forms of experiential knowledge within the academic community: historians know little, from the perspective of bodily knowledge, about the real work that gets done by a biologist in the field. Similarly, biologists often fail to appreciate the real work of hours spent by historians in cramped and dusty archives, pouring over illegible script, looking for that important gem. Perhaps this is why, as we write . . . amidst the brushfires ignited by the supposed science wars, the relationship among academics resembles more the tower of Babel than true community. If we really seek to shatter the science/humanities and nature/culture dichotomies that paralyze action, we need to spend a lot more time living, working, and playing in each other's fields . . .

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Shirley Strum" <sstrum@weber.ucsd.edu>

. . . The science wars, while a great concern of mine, appear somewhat trivial when put in the context of the real wars going on. . . . Moving science into the developing world in a new way, not just transfer of technology, but science-in-action with poor, uneducated people actually involved in a variety of partnerships, really changes the context and the frame. It makes me rethink the nature of science in terms of its entire process (from research to application or rejection) just as seeing science in the context of science studies revolutionized my ideas about science.

Does putting the "science wars" into an international, North/South perspective change the arguments or the sensitivities and emotions?

The Value of Primate Studies

Although we never specifically asked about the "value of primate studies," the debate about science and about the media elicited the topic. Scientists disagreed about the need to justify (and how to justify) studying primates. Despite the angst of some primate watchers, no one felt primate studies should be abandoned. Perhaps the most ringing praise came from the

science analysts who pointed out the multitude of benefits that have accrued to science and to society from this work, regardless of the original intentions or scientific justifications of the research.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Thelma Rowell" <thelma@ingleton.demon.co.uk>

. . . When applying for NIH funding, one used to have to fill in a bit about how one's research was going to help the health of US citizens. One will do almost anything for money, and if congressmen will only give it on those conditions, I can justify my request in those terms . . .

[from another e-mail] . . . [I] gave up applying for primate research grants; found I could do it pretty well on tax refunds and that saved a lot of effort and let me ponder my own questions in peace. Not popular in the department, that. I wonder if grant-funded research is a bubble? Have watched it expand from almost nothing, then, like a bubble, get stretched thinner and thinner—what will happen when it bursts?

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Charis Thompson Cussins" <cmc34@cornell.edu>

On the subject raised by Thelma of what is necessary to tell congress to get them to pay for one's scientific research, perhaps researchers should remember whose money congress is disposing of, and take some responsibility for assuring accountability to those constituents. Constituents of science (i.e., all of us who live in and by its truths, in the main) do not need research to serve us (not all research needs to be a cure for AIDS) but we do need enough transparency to assure that our money is being reasonably spent—that we are not paying for too many atomic bombs, Nazi science, Cyril Burts or superconducting supercolliders. Good science and workable democracies flourish together, it is often said, and both need at least a certain amount of transparency and accountability.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Shirley Strum" <sstrum@weber.ucsd.edu>

Just back from a week of watching baboons to read the interesting exchange. . . . I've thought a bit about some of the issues and wonder whether who pays for the work isn't a major mover. Thelma gave up trying to get funding for her Kakamega work and perhaps part of her perspective comes from the freedom to follow her nose and her personal interests that she got by paying for her work herself. I have traveled the same route in many recent years.

I stopped to think how much money has been spent on my "modest" long-term research project over twenty-five years. . . . Can I justify it? I'm not certain. I have justified it in the past in the usual academic, scientific and even conservation terms. But as the . . . social and scientific ethos changes, what am I supposed to have accomplished and to whom should I be responsible? In primatology there are diverse constituencies. Are there more than in other fields? Is it enough to say that we know more about baboons, that I teach

better classes, that the public is more knowledgeable about them through my efforts (no matter how unhappy I might be with media representation) . . . that Kenya is better because of the training, education, employment, conservation options that baboon research has offered, that the world is better because I explored key conservation issues for primates and helped test new approaches?

I love being in the “seemingly” isolated world of baboons when I watch them, but the connections are so many and so powerful now, as compared to twenty-five years ago it seems to me, that I only have “brief” journeys into that isolated world—little fantastic fantasies. When I’m back in the real world of which the baboon world is a part, the questions change and I am forced to think about whether “watching baboons is good for something.” And the answer seems to be that what is at stake changes in relationship to each of these constituencies . . . and even within them in the last twenty-five years (maybe perhaps in the last twenty-five minutes!). So, if we pay for the research ourselves, do we exit the (responsibility/justification) loop and return to the kind of science of the early wealthy naturalists?

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Thelma Rowell” <thelma@ingleton.demon.co.uk>

I had a professor of paleontology at Cambridge, an expert on the synapsids/early mammals, who, he said, was frequently asked what was the usefulness of his work. He used to reply that at least he was sure that he did no harm, and felt that was a rarely valid claim.

Your point is good, Shirley, but perhaps we shouldn’t take ourselves too seriously. As a good capitalist, if someone will give you the money, then it is worth it to someone. If we are, au fond, in the entertainment industry, we are bargain basement indeed, compared with your standard sports or pop star! and at least as good value.

[from another e-mail] . . . and a lot cheaper. I don’t think science should be expected to be good for something.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Brian Noble” <brian.noble@utoronto.ca>

I’ve been trying hard for a couple of days to come to terms with what’s been going on in the discussion of the last few days re: media, funding, public, and the “good” of science, etc. I’d like to offer some thoughts . . .

Clearly there’s the matter of convergent zoological and anthropological lineages, but I’m wondering if there isn’t more yet animating even that contrast. (Thelma, you’ve very bravely allowed your own views to be the lightning rod for the current exchanges, and I hope you will indulge things a little more . . . thank you for this).

. . . The position you’ve espoused Thelma: studying primates as animals, pursuing scientific problems because they interest you in particular, conducting science because it should be seen as intrinsically valuable, not because it should be “good for something,” not because it should tell us about being human or human issues . . . that position seems increasingly difficult to sustain in the increasing torrent of public (i.e., political) involvements . . .

all the apparatuses which used to bolster a sort of “pure science” of primatology are losing ground in the swirl. Lots of folk in contemporary science studies are seriously addressing this as well . . .

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Bruno Latour” <latour@paris.ensmp.fr>

Sorry friends, I am not sure I understand this nostalgia, self despondency, and hesitation on the worth of your work. You are terrific and without you the primates would not be part of our lives, of our sociology, biology, comparative ethology, ethics, conservation, neuropsychology. They would be confined to pests to be destroyed by natives, to trophies to be hung on the walls of their villas by hunters, and to constrained lab animals just a bit more expensive than guinea pigs. Is this nothing? What worth do you want in addition? Interest my dear fellows, is not a given, it is made, and scientists, you in particular have been very good in rendering these animals interesting to a much wider constituency, turning all your sites into a conglomerate of different disciplines that would never have dreamed to come together if not for the field sites (who would have connected social theory, endocrinology, and ecology without them?).

Now of course this does not solve the question of who should fund whom and what is the return on investment, but what is amazing to outsiders like me, is, on the contrary, the incredible amount of interest you have been able to mount, grant application after grant application over fifty years for your animals—I guess this interest would not have been elaborated so strongly if you had paid for all of it only with your own money . . .

To: <teresopolis@majordomo.srv.ualberta.ca>

From: “Brian Noble” <brian.noble@utoronto.ca>

I agree with Bruno on the terrific work of primatologists. I also take note, Bruno, of the way in which you use the word “interest,” as an “added value.” I tried to use the word “politics” in a related way, to try and get at what primatologists and publics care about. . . . I think “interest” may be more useful for the moment since it rolls together curiosity with value and participation. That gloss changes the idea of “public interest in primates,” just as it changes the gloss of Thelma’s or Shirley’s “interest” which is gained by use of personal or unofficial moneys. . . . Thelma’s choice to go it alone in relation to funding, or Jane Goodall’s noting of humanish ways of chimps supported by the National Geographic complex, or Sarah Hrdy’s infanticide and stalking scenarios, or Robert Sussman’s concentration on race, are interests born of connections. In all this, then, theory, method, gender (and media as well)—the organizers’ themes—are interests that have been gained, added in along the way.

The Future of Primates and Primate Studies

The future of primates and primate studies are interconnected, perhaps mutually constructed as some of the participants suggest below. Although

we focused on how and why ideas about primate society have changed, there was a persistent overriding concern about a factor that was not on our list: conservation. The natural world has altered dramatically in this century. How these worldly changes have affected the animals, their behavior (and our ideas about their society), is unknown. Questions about what is "natural," as well as how we define "nature," simmered just below the surface of workshop discussions but were never directly addressed. We could not, and did not, ignore "conservation" however; the current biodiversity crisis threatens the future of both primates and primate watchers, who now live in a world of habitat loss and fragmentation. Everywhere, recently diminished small populations of wild animals are vulnerable to the normal causes of extinction. Increasingly they are now also threatened by human aggression, indirectly because of civil wars and directly through the growing conflict between nonhuman and human primates over declining and limited resources. Science is changing as a result of this new global reality. There is less concern about academic controversies, like questions about the origins of different types of social organization, and more concern about population and habitat viability. Attitudes about science are also shifting. Conservation is what young primatologists want to do. As some participants suggest, there are new opportunities in these changing circumstances. But there is also a new sense of responsibility. Primatologists increasingly use their knowledge in order to help save endangered species. New techniques rely on the best of science applied to the thorniest of conservation problems, whether it is the obstacles to captive propagation, the design of successful translocation and reintroduction experiments, or predicting the future vulnerability of a population using sophisticated computer models. Everyone at Teresopolis felt we had a role to play in the conservation of the natural world through science and personal commitment. It was not clear, however, exactly what it was that "we" could or should do.

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Thelma Rowell" <thelma@ingleton.demon.co.uk>

. . . I think you underestimate the effect of people. A tracker I worked with in Cameroon said authoritatively that there is no forest without paths—human paths. For Africa I think he is right, and there is no modern habitat whose present characteristics are not largely due to human activity, just as in Europe. That being so, and adding the fact that the human population of East Africa has approximately quadrupled since independence thirty-odd years ago, it would be ecologically astonishing if there had not been ramifications throughout the continent, whether settled by people or not.

Now, it is also quite probable that the population of people 150 years ago was more similar to that of today, and there has been a crash at colonization preceding the present

expansion—and then there was the rinderpest epidemic, the result of that colonization, but having its own immense effects in "unoccupied" areas. All other animals and plants must have been reacting to these changes, so to take the situation in 1960, or 1930, as a previously unchanging baseline is unlikely to be realistic.

Beyond all that, however, there is the effect of research activity, at Gombe and Mahale in particular. I would be surprised if the effect of provisioning lasted only as long as the food supply. . . . I do wonder if my behavior would have remained pristine if I was followed everywhere by a chimpanzee with a notebook for years on end.

A most powerful experience was going out with Shirley's baboons and realizing after a while that they had arranged a place for me in their movement.

To: teresopolis@majordomo.srv.ualberta.edu

From: "Allison Jolly" <ajolly@arachne.Princeton.edu>

I feel strongly about this—the theme I took for a President's Peroration at the Wisconsin IPS meetings was "Behavior in the Bottleneck." The gist of it was that we will more and more be studying nonhuman primates as affected by human primates. Willy-nilly, we will make a virtue of necessity. We will (and have) linked conservation biology with small group genetics and viability. But also on the behavioral side we will study migration between isolated forests, the effects of sparse or highly crowded populations, edge effects. And then claim that probably a lot of natural selection has always taken place in extreme circumstances: during the drought, or after the fire or cyclone that wipes out some troops' ranges and then in a while promotes new leaf growth. This is all part of the general ecological shift from believing in stability to being impressed by patchiness, change, catastrophe, at different scales. Looking at primate social behavior in the face of human-induced change will soon be respectable.

I had started on this theme before going to Teresopolis, but it obviously owes a lot to your paper, Karen, and to visiting your muriqui. But I have hardly ever seen a primate field site that wasn't massively impacted by humans . . .

(from the next day's e-mail) . . . I was thinking about the Gombe population of chimps which is a population of what I understand to be about 150 chimpanzees, in an isolated forest now surrounded by agriculture. Also about last years' epidemic of respiratory disease which killed nine (?) chimps of the northern community and which was transmitted apparently from the surrounding villagers, many of whom also died though with less international attention.

It could be argued that the vulnerability of the chimp population influences demography and genetics, rather than behavior. . . . I do not think that the components of chimp, or muriqui, or ringtailed lemur behavior change because they are in small reserves. However, even a shift in the frequencies of, say, aggressive behavior related to crowding in a small reserve, may be significant to the animals themselves. . . .

Shirley had asked in an earlier e-mail why it was that the Japanese scientists did not seem to be as involved in the growing conservation move-

ment as other scientists despite working in the midst of vanishing habitats while studying their animals. Hiroyuki Takasaki responded as follows:

To: <teresopolis@majordomo.srv.ualberta.ca>

From: "Hiroyuki Takasaki" <takasaki@big.ous.ac.jp>

A brief response to Shirley's comment on the little concern/awareness about conservation issues among Japanese primatologists. From the very start, after establishment in 1985, the Primate Society of Japan is one of the most concerned in conservation activities among academic societies in Japan. By Japanese standards, it is rather radical. The president does not hesitate to write letters to mayors and governors to stop "pest control," i.e., removal of crop-raiding monkeys. The annual meeting always has a workshop on primate conservation, in particular of the Japanese macaque, which has become a crop raider in many places where the majority of farmhands are now aged people. These days, papers on conservation occupy a considerable number of pages in every issue of *Primate Research*, the Society's journal. The Society has a specialized committee and circulates newsletters on conservation . . .

Outside Japan, the Japanese primatologists' conservation activities are limited. However, that does not mean they are unaware. Following the Mahale case, Sugiyama has succeeded in getting money for conservation of the Bossou chimpanzees from JICA (Japanese aid). Also Izawa did the same in Colombia in order to create a new reserve. These were news in Japan, but did not hit the media overseas, I believe. News media circulate news which their subscribers want to hear or read as news. Nobody cares that the Japanese government pays money for conservation.

As funds are very limited in private sectors in Japan because of the current tax system, it is most realistic to try to involve the Japanese government in conservation efforts at present. However, as basic human needs have priorities in this kind of aid, it is not an easy task to convince bureaucrats to care about the needs of nonhuman primates.

Fundraising and media campaigns, however, do not help much in many primate habitats. Where does all the money go? Just see what happened in the case of Zaire under Mobutu's regime. Although the Wamba area became a reserve after Kano and his colleagues' repeated requests to the government, the only effective means of conservation has been the continuation of research (on bonobos) there. Any conservation approach which greatly affects the local residents' "subsistence" will never work. Even in the presence of researchers they will poach if they feel they have the right inherited from their ancestors to do so. Being a butterfly hunter, I can understand how they feel. This means fighting with the local government and people is a waste of effort. Only patience will work.

Any political trouble means the discontinuation of research. Japan's main resource is its people. The Japanese government will not fund nationals who make trouble overseas. It is dependent on the importation of most of its resources. Its food self-sufficiency is less than two-thirds. Without importation, one-third of the population will starve. The domestic Japanese nationals' survival depends on the steady import of goods from overseas, which are changed into export goods to buy food. It has to be that way until the self-sufficiency

imbalance gets corrected. . . . Thus no primatologist will be funded by the government if he/she criticizes any foreign government which has essential mining or natural resources. This is usually an unspoken rule, but understood by all Japanese primatologists who work overseas.

Becoming a persona non grata means discontinuation of research, which will never help conservation. Therefore, once getting involved in a particular primate habitat, continuation of research there by all means is the best and most practical thing a field primatologist can do with limited manpower and funds for conservation. This is an implicit consensus among all Japanese field primatologists, I believe. This explains part of their tendency to adhere to particular habitats; site sweepers are rare among them . . .

To: teresopolis@majordomo.srv.ualberta.ca

From: "Allison Jolly" <ajolly@arachne.Princeton.edu>

Should we at some point include "force" as an influence on primatology. I have just received a message from Drs. Takeshi Furuichi and Chie Hasimoto sent to Sue Savage-Rumbaugh . . . which makes me upset. It seems that the civil war in [what was] Zaire has disrupted everything including all the missions. The missionaries are a genial host to all the bonobo researchers. The mission supervised not only a cure of souls, but the only hospital and functioning schools in the region. Without their help, the bonobo researchers cannot get to their field site or function adequately there. Roads and airfields have been destroyed and no one knows how much else. The bonobo research has been put on hold, indefinitely, but they hope to return as soon as possible to pay their workers and to let people know that they are still intending to continue their research and conservation activities.

New Teams

Innovative collaborations creating new teams will be a necessity in the future. Our experience at the workshop indicates that this is not an easy goal. It requires hard work, sustained effort, basic trust, and good will. Even then, the road will be bumpy. These teams are needed in all the areas we considered at Teresopolis. Collaborations in science are needed, ranging from the most basic tasks, doing science (with new questions, new methods . . .) and understanding science (situated in its complexity), to the more serious challenge of promoting and safeguarding science. Equally critical will be collaborations in conservation, which projects require diverse sets of expertise and even more far-ranging partnerships. The ability of scientists to make their work and the conservation of their subjects meaningful to society obliges us to find new types of media involvement (and new levels of media and science responsibility). It also challenges us to break down the barriers between mainstream science and

science on the periphery and possibly even develop new notions of what science is and how it can be done most effectively.

We began by wanting to understand how and why ideas about primate society have changed. We ended by realizing that to find the answer to what we thought was a relatively straightforward set of questions meant we had to consider topics as far ranging as the nature of science, the effect of the biodiversity crisis, the issue of marginalization by gender and by culture, the antagonistic relationship between different groups of scientists and between scientists and science analysts. And much more. Fortunately, we no longer have to do this enormous task alone.