Afterword

What can the article *Twitching in Sensorimotor Development from Sleeping Rats to Robots* (Blumberg 2013) teach us about the development of morals in Taiwanese children? Quite a lot, it seems, as I will outline later. We could not learn these lessons, however, until biologists and psychologists had built an infrastructure of ideas and the tools to test them. Dr. Xu Jing stands on this platform, raising it skillfully with evidence collected by Arthur Wolf at the beginning of his career. A bit of perspective on anthropology across the twentieth century will help frame and honor her achievement.

When I was being taught the basics of anthropology (my B.A. dates from 1963), our still relatively new discipline promised a holistic investigation of the human career using four interconnected but distinct domains and methods. At a time when interdisciplinarity was trumpeted as the next big thing, biological anthropology, archaeology, linguistics, and cultural anthropology, the "four fields," examining humanity through both scientific and humanistic lenses, would make anthropology the Queen of Disciplines.

Early anthropologists, doing fieldwork in the midst of the changes unleashed on the precolonial world (and on Western working classes), had often made stupid and harmful assumptions about "race." Markedly after World War II, some concluded that for too long, biology had been

used to legitimize racism and sexism. Investigations of human biology, they feared, would foster these socially distorting positions. We learned to set peoples in their historical, environmental, and technological contexts, showing that culture, not biology or evolutionary processes, explained most behavior formerly attributed to "race." This laudable support of human equality has been anthropology's greatest gift to contemporary society.

By the late 1970s, an influential core of researchers began to ring-fence the concept of culture as anthropology's true and sole focus, eschewing the four-field model with its implicit historical materialism. Influenced by learning theory, they argued that human behavior was constructed from experience after birth, particularly with already-enculturated adults; babies were blank slates. In many anthropology departments, efforts were made to preclude potentially risky findings by excluding the other three wholesale from what they called "cultural studies."

The culturological position has serious weaknesses. "Culture" is an extraordinarily labile concept (Kroeber and Kluckhohn 1952), meaning anything from the collective immaterial contents of minds to this encompassing position, as Beatrice Whiting defined it:

> The ecology of the area determines the maintenance systems, which include basic economy and the most elementary variables of social structure…. [T]he type of crops grown, the presence or absence of herding, fishing, and so on, depend on the nature of the terrain, the amount of rainfall, the location of the area *vis-à-vis* centers of invention and diffusion. These basic economic conditions determine in part the arrangement of people in space, the type of houses, and household composition. These in turn set the parameters for child-rearing practices. (B. Whiting 1963: 4)

This materialist hierarchy of formative factors encompassing and generating cultural matters was familiar to me as an undergraduate (Beatrice Whiting supervised my undergraduate thesis). The model floated loosely among other anthropology faculty members as well. To my best knowledge,

it was not taught, however, as a "theory" of culture.[1] The culturological position has also led to the unnecessary pinching off of research initiatives – those raised by genetics, for example – that were flourishing in other disciplines. Now in the twenty-first century, a hint of buyer's remorse has surfaced (Luhrman 2023). Scholars like Dr. Xu are showing how knowledge that lies beyond culture reintegrates the human person.

Arthur Wolf, the Lucile and David Packard Chair of Anthropology, was a part of the postwar flourishing, focusing initially on child development. He believed, and his work shows, that American anthropology has been a discipline with a purpose. We are to document the many and remarkable ways in which human beings arrange their collective lives; to explain how and why these variations come about; and to use that knowledge to support socially liberal actions and values. He thought it intellectually feeble to treat human beings as bodiless supernaturals.

In 2013, Wolf was interviewed by Carlos Seligo (Wolf et al. 2017) about Stanford University's Human Biology Program where he had taught for more than thirty years. With the largest number of undergraduate majors at Stanford and some of the university's most eminent scholars as teachers, it alerted budding doctors to their human side and gave Wolf a forum for assessing the integration he sought in his own work.[2]

[1] The quote from Beatrice Whiting swerves very close to "vulgar" Marxism. But while the materialist causal hierarchy was a matter of interest among anthropologists, it radiated tension because of the peculiarly virulent American anticommunism that censored my education. As an undergraduate researching for a professor's project, I was told not to use its language in my notes. In two classes, profs. quizzed me, nervously, about whether I "had been reading Marx?" In a course on nineteenth-century political history, a renowned professor waved Marx away with the single comment, "He was wrong." Nothing I was tasked to read in four years at Harvard would have led me to the historical materialist tradition of scholarship. An excellent study of why this might have been so is David Price's *Cold War Anthropology* (2016).

[2] This interview was part of a project to document Stanford's Human Biology Program. I was asked by the Shih Ho-cheng Folk Culture Foundation in Taiwan to edit and comment on it, after which Professor Chen Shujuo of Taiwan's National Museum of Natural History translated it for bilingual publication. I have borrowed from it in this *Afterword*.

Arthur Wolf:

I began teaching in the Human Biology Program in 1971.… [with people] from the biological sciences and … the medical school.… They wrote a proposal to the Ford Foundation for funding … quite a few millions.… The proposal was not even a whole page long. It was from people with very considerable reputations, and, of course, the Ford Foundation funded the program. What was missing, certainly from my perspective, was … that a lot of the more significant problems that we face in this country and elsewhere have their origins in society. They are not going to be solved necessarily by "fixes" of a medical or biological sort. They might have to be solved by social means.… [Later] it had much more the tone that it has today, of two kinds of science: biological and medical on the one hand [t]he "A side"] and psychological and social on the other [the "B side"].…

*[An example of how we brought A and B together] was when Craig [Heller] and I [debated the relationship between] aggression and war. …. [Professor Heller, a behavioral biologist] saw war as an expression … **just of aggression. He didn't see it in social/political** terms. Coming from my perspective … war isn't like children fighting on a playground. It's not just an expression of a human tendency. **There's obviously something in human nature that allows it to happen and makes people willing to do it, but that isn't what creates war**. (**bold** mine: HG). War comes from larger social/political problems. War probably has more to do with obedience, with strange kinds of loyalties and so forth than it has to do with aggression.*

[For an example of how an evolved tendency against sexual relations with close kin (incest) can overcome cultural pressures to engage in it] I have … spent the greater part of my career in studying the effect of early association [between children] on sexual attraction.… Imagine a world in which we could experiment on a large population. We would take [girl/boy pairs of] children in one large set and rear them together. In another large set, we would not introduce [the girl/boy pairs] until they became adults. [Then arrange marriage for both kinds of couples] and see what effect that early association vs. no early association had on their sexual interest in one another. We can't do that; we shouldn't be allowed to do it. Nonetheless, that is the obvious and only convincing way to go about [seeing if there is a difference]. That I have succeeded in addressing that problem is only because, in fact, the Chinese did it. In large parts of [traditional] China, people raised their sons' wives. Couples of boys and girls who were reared together were (actually, in this case) forced

to marry. Such couples can be compared with [those in] the other form of marriage in the same communities. In these, parents married their sons to girls that they [the parents] brought into the family at seventeen or eighteen years of age. Now, even given that natural experiment, [it is difficult] to measure the effects of association or non-association. You can look at fertility rates, you can look at divorce rates, you can look at the frequency of adultery. But if you had to go out and collect that data through interviews, it would be extremely difficult. And it would cost something like an aircraft carrier to collect…. I have been able to do it because the Japanese colonial government on Taiwan set up a household register system in which they did it for me. … [getting appropriate data to test is hard, and that] problem … enormously inhibits social science research: First, to find the natural situation, which is rare and, in many cases, does not exist; and second, to actually collect the data….

You take a human being: a human being is not psychological, or biological, or anthropological, or sociological. These divisions were made in the history of the development of the Western sciences. I see the major task of the Human Biology program is to bridge, to overcome, what are basically really artificial distinctions. The program does not always succeed in this, as the [disciplinary boundaries] are very difficult to overcome.

With the exception of accepting some imports of theory from (Western) literary criticism in the 1980s, American anthropology built itself a mighty fortress against extra-cultural evidence.[3] Many scholars remained outside those walls, however, rearing new generations willing to see humans as complete evolved creatures and to explore aspects of culture that their perspective makes researchable, as Dr. Xu has done with morality.

Which brings me to those twitchy rat pups. In Blumberg et al. (2013), researchers tested an approach to mammalian development that undermined the old assumption about the passivity of the very young. Even

[3] The siloing of cultural anthropology in the United States also owes much to the massive expansion of postsecondary education that followed the Soviet Union's first entry into space. Colleges and universities grew like bamboo shoots with government money watering them copiously (Price 2016). Competition for academic real estate (corner offices) and student body count motivated faculty to tighten disciplinary lines. A major anthropologist has recently voiced some buyer's remorse for fifty years of slighting scientific approaches (Luhrman 2023).

before birth, mammals self-initiate important activities, not relying on stimuli from outside themselves. Rat fetuses spend most of their intrauterine time sleeping, often in the "rapid eye movement" (REM) mode associated with brain activity but body paralysis. Their muscles twitch and spasm constantly. Blumberg concludes that a still rudimentary rat brain sends neural signals to rat muscles, one at a time, thereby teaching itself where their muscles are and how they function. Twitching and self-initiated exploration of the body persist as the body changes through growth and injury, keeping the brain updated and teaching muscle groups to work together. The fetal forms of many animals, including ourselves, do the same. From the third trimester of pregnancy, the human fetus initiates behavior that informs it about itself and its environment. Some learning is self-motivated, even before there is much of a self.

Such insight makes intellectual space that invites exploration by developmental researchers. In our present case, Dr. Xu has analyzed Wolf's data to reveal the agency of Taiwanese village children as they encounter their world. That world is part of an old and widespread Han Chinese civilization where adults believe infants are born a blank slate. Children inherit the teachings of respected sages made legible by symbolism ornamenting buildings, books, and visual arts. Their wisdom is purveyed through proverbs, comic books, theater, and the minatory observations of their elders. Historically, and still in 1950s and 60s Taiwan, instructions on how to behave, what is moral, and what creates the capacity to *zuo ren* – to act as a good, properly developed human being – are assumed to move in only one direction: from enculturated adults to obedient children.

Through Wolf's careful documentation of the words and actions of children themselves, Dr. Xu can watch them forming their sense of what is good or bad. They learn from adult teaching, certainly, but also from their alertness to the imperfections of adults who fail to adhere to their stated principles. Some moral templates are stated, others observed. Some aspects of morality may be innate: a sense of fairness, possibly; compassion, likely. How a person *zuo ren* will be assembled from many

and often-inconsistent elements. One might conclude that the morality practiced by ordinary Chinese people (and the rest of us?) is reinvented by each generation.

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* Hill Gates is the owner of the Wolf Archive. Born in Canada in 1942, she received her B.A. from Harvard/Radcliffe (1963), M.A. from the University of Hawai'i (1966), and Ph.D. at the University of Michigan (1973). Her works include *China's Motor: A Thousand Years of Petty Capitalism* (1996), *Footbinding and Women's Labor in Sichuan* (2015), and *Bound Feet, Small Hands: Tracking the Demise of Footbinding in Village China* (2017, coauthored with Laurel Bossen). Now retired, she is preparing *Hypergendering: Footbinding, Veiling, FGM, and the Mother-in-law Belt*, a book about female labor discipline in the old Eurasian civilizations as their economies intensified. Retired as Professor Emerita from Central Michigan University in 1991, she has also taught at Johns Hopkins University, Minzu University of China, Datong University (China), and Stanford University where she shared a position with Arthur Wolf.