

NHH03. Down and Dirty with Drosophila

In this session:

*Homosexual acts are often described as "unnatural" by critics who claim "You don't see them doing it, do you?" However, they are both wrong and unobservant because homosexual sex is commonplace among many species ranging from the tiny fruit fly (*Drosophila melanogaster*) to elephants. So-called "Gay Rams" are perhaps the best researched and best known. About 8% of rams appear to prefer sex with other rams. Another — although less known — animal are the Bonobos who lead what, to us, is a very laissez faire sex life. However, among animals and among men, homosexuality presents a problem for evolutionary biologists: because such sex is not reproductive, why has it not been bred out? The answer seems to lie in sex of this kind being a survival strategy rather than a reproductive strategy in that it allows testosterone-driven males to form cooperative alliances. This can work, however, only if men are bi-sexual and not exclusively homosexual.*

Evolution and Homosexuality

From the time of Ancient Rome and even earlier, people antagonistic to homosexuality have often stated it is "unnatural" and justified their claim by pointing to the animals and saying "you don't see them doing it, do you?"

Of course they are both wrong and unobservant. Almost all classes of animals show some form or other of same-sex copulation, not least of all among our closest relatives, the primates. As Noel Coward, himself no stranger to homosexuality, once said,

*Birds Do It! Bees Do It!
Even Educated Fleas Do It!*

He could have added many more verses had he wanted to because the list¹ of those doing it — in a variety of fashions — is long and includes antelopes, bugs, butterflies, cats, cattle, cockroaches, crickets, dogs, dolphins, donkeys, elephants, flies, geckos, guinea pigs, hamsters, horses, hyenas, lions, martens, mice, moths, octopi, orcas, porcupines, rabbits, raccoons, rats and wasps — and that's not

¹ *Out in All Directions: The Almanac of Gay and Lesbian America*, quoted in *Birds Do It! Bees Do It! Even Educated Fleas Do It! -Sexually Indiscriminate Mounting Among Animals* by Jesse Monteagudo at <http://gaytoday.badpuppy.com/garchive/viewpoint/022299vi.htm>

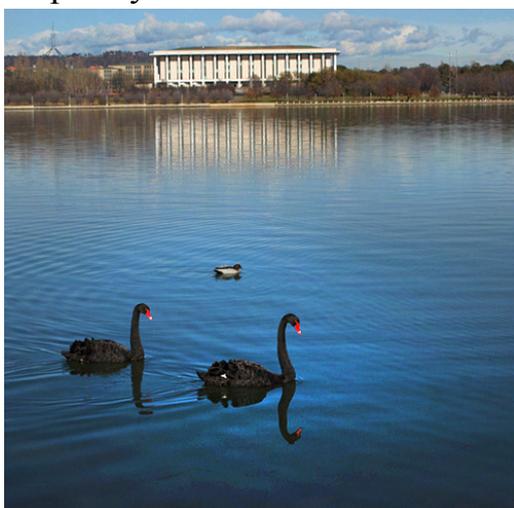
forgetting the diminutive Fruit Fly, *Drosophila melanogaster*, among whose ranks some males have been observed to mince around in circles and lick each others'



bums. Some critics of that particular research are on record questioning whether or not one can be justified in generalising these observations to humans....

Drosophila melanogaster,
the common fruit fly²

More readily observed than mincing fruit flies are black swans³, one quarter of whom form male-male pair bonds. Sometimes they steal nests from females or form temporary threesomes which last only until the female has laid her eggs at which



stage the males evict her from their nest. The male couple are successful parents: more of the cygnets under their care survive to adulthood than do those raised by male/female pairs. Scientists suggest this is because two males are better able to defend larger territories.

Black swans on Lake Burley Griffin, ACT.

The question is, however, what does such behaviour really signify? There are many ways apart from mutual sexual attraction in which it can be interpreted. While the alternatives could well be the proper interpretation, many scientists and others often prefer to consider such animal behaviour as pair-bonding, dominance-submission, or a form of social reassurance or, for that matter, any combination of all or some of these.

Gay Rams

However you want to interpret it, the preference quite often shown by some rams for other rams is a real problem for sheep farmers. This is not a moral problem but very much a financial one, especially when farmers have paid a high price for their stud ram's mating capabilities.

² <http://www.biopix.com/Temp/MWE%20Drosophila%20melanogaster%2000001.jpg>

³ See Braithwaite, L. W., 'Ecological studies of the Black Swan III – Behaviour and social organization', Australian Wildlife Research 8, 1981: 134-146 and Braithwaite, L. W., 'The Black Swan', Australian Natural History 16, 1970: 375-379.



So, for two decades or more, a longitudinal experiment was run at the US Sheep Experiment Station in Idaho where two biologists, Ann Perkins and James Fitzgerald⁴, collected semen from “gay” rams by electro-ejaculation methods and using it to impregnate ewes. The offspring male lambs were then watched for male mounting behaviour through this and successive generations. The study caught the attention of the newspapers — for example, journalist Rex Wockner reported on the 2nd November, 1989 under the heading “*Gay sheep may shed light on sexuality*”⁵ that:

Eight percent of the male sheep at the United States Department of Agriculture's Sheep Experimental Station in

Dubois, Idaho, are gay, officials confirmed in late November. "These animals are homosexual. They are responding physically to how they are," explained Anne Perkins... "They are not morally or culturally or ethically behaving like humans. These sheep are just doing what their bodies are telling them to do."

The gay sheep, like some gay men, practice anal intercourse, according to Perkins, although some achieve orgasm simply by rubbing their penis around another male sheep's tail. There is, however, a serious social problem currently in gay sheep culture in that most gay sheep, Perkins said, only want to be on top. "The difficulty for homosexual sheep is that it's difficult to find another male who will stand still," Perkins explained. "If there is a ram that is hurt or caught in a fence, then they can mount him, but otherwise there are so few receivers that it becomes difficult for homosexuals to express themselves."

⁴ Animals' fancies: why members of some species prefer their own sex - homosexuality among animals; includes related article, Science News, Jan 4, 1997 by Tina Adler

http://www.findarticles.com/p/articles/mi_m1200/is_n1_v151/ai_19027025

⁵ I am unable to find the original newspaper article. It was itself quoted at Liberated Christians site at <http://www.libchrist.com/other/homosexual/sheepandanimals.html>

.....Lesbian sheep, meanwhile, are apparently wrestling with a major "invisibility" problem in the gay sheep world, a difficulty that has plagued human lesbians too. "It's very difficult to look at the possibility of lesbian sheep," Perkins explained, "because if you are a female sheep, what you do to solicit sex is stand still. You don't mount. So, it's very rare that a female sheep would mount another female sheep." "Maybe there is a female sheep out there really wanting another female," Perkins speculated, "but there's just no way for us to know it."

In another study, Charles E. Roselli et al.⁶ measured the levels of testosterone in rams under different conditions and concluded

..... differences in basal androgen concentrations in adulthood cannot be responsible for expression of male-oriented preferences or low libido in sheep. Instead, functional differences must exist between the brains of rams that differ in sexual preference expression.

With this in mind, Roselli turned to ".... reports in humans that a certain area of the hypothalamus, the preoptic area ... was usually larger in males than females". This was the area found to be larger in heterosexual humans than in homosexual men but the finding was questioned because the men had died from AIDS and no one knew if the disease or drugs used to treat them when alive could have affected their brains.

However, the researchers found similar differences in the brains of sheep who, it goes without saying, had not had AIDS. Announcing the findings at the meeting of the Society for Neuroscience in Orlando, Florida, Roselli said that they had confirmed what had been found in humans and further, that the brain cells in the area studied produced greater amounts of the enzyme *aromatase*, which is involved in the action of testosterone, in the heterosexual rams⁷. More recently, Roselli and his team have been taking an interest in the genetic contributions to homosexual behaviour in rams, an interest which inspired the satirical e-newsletter, *The Bongo News*⁸, to "report" that Roselli has isolated the gene responsible and having extracted it from sheep DNA, claims rams from now on will be "... much better breeders". The article added that:

⁶ Relationship of Serum Testosterone Concentrations to Mate Preferences in Rams

Charles E. Roselli, Fred Stormshakb, John N. Stellflugc and John A. Reskoa

Department of Physiology and Pharmacology, Oregon Health & Science University, Portland, Oregon 97201 and Department of Animal Sciences, Oregon State University, Corvallis, Oregon 97331 and United States Sheep Experiment Station, Dubois, Idaho 83423

⁷ There is some suggestion that the levels of aromatase relate more to aggressiveness than to sexual proclivity.

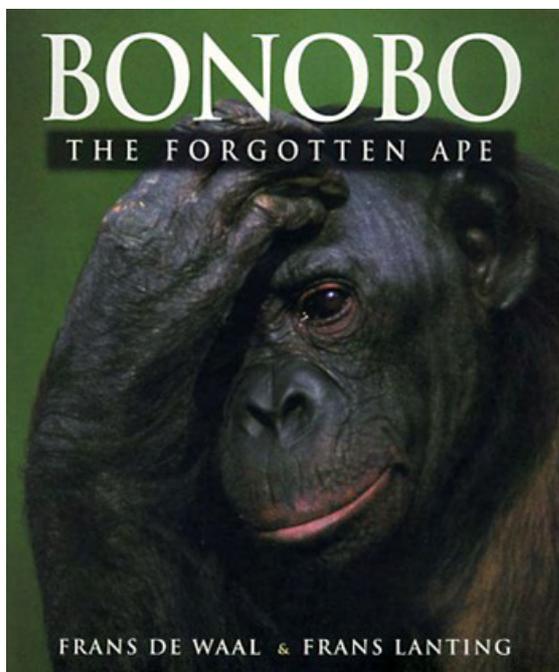
⁸ Reported on 1 January 2007 in a weekly e-newsletter *The Bongo News*, dedicated to Satire, Parody and Jokes! <http://www.bongonews.com/layout1.php?event=3005>.

Instead of being heralded as having created a major scientific and agricultural breakthrough, the Oregon scientists have been vilified by People for the Ethical Treatment of Animals (PETA) and gay rights advocates who have vigorously protested the university's work. The scientists have even received death threats.

If there is any truth in this “report” it is that much of the most vehement opposition to genetic studies of homosexuality comes from among gays who — as *The Bongo News* went on to say — fear the identification of genes “causing” homosexuality will lead to its eradication in future generations.

Coming closer to home, **Richard Pillard** who is a professor of psychiatry at the Boston University School of Medicine, refers to “an interesting observation” by the primatologist George Vasey⁹

“.....that homosexual mounting occurs rarely in New World (plathrrhine) monkeys but is more frequent and more clearly expressed among Old World (catarrhine) primates, who are more recently evolved and more closely related to us. Catarrhine males will sometimes show a preferences for a male partner and will compete with other males for such a partner.”



But the primate which is closest to humans is not only the chimpanzee we all know and love, but also a very close relative of theirs, the Bonobo. This even more lovable Hobbit who lives in the remote rain forests of the Republic of Congo (formerly Zaire) has been described as “the Forgotten Ape”¹⁰ because it is rarely seen and until recently, scarcely studied. In 1997, primatologist Frans De Waal and nature photographer Frans Lanting published the results of their studies in the most comprehensive and wonderfully illustrated book “*Bonobo: the Forgotten Ape*” . In reviewing the book, on Global Gay News for Monday, 3 November 1997¹¹, Jack

⁹Richard Pillard, "The Genetic Theory of Sexual Orientation" in the Harvard Gay and Lesbian Review, Winter 1997, pp. 61-67.

¹⁰ Frans De Waal and Frans Lanting: *Bonobo, The Forgotten Ape*, University of California Press, Berkley, Los Angeles, London, 1997

¹¹ Global Gay News for Monday, 3 November 1997 (this is a subsidiary of BadPuppy)

Nichols said:

Chimpanzees are known for "male power politics, cooperative hunting, and intergroup warfare." Not so the Bonobo ape. Relationships between Bonobo males and females are egalitarian and peaceful. The Bonobo seems armed not so much by his or her fangs, but by pure empathy, an uncanny intuitiveness about what others are experiencing.

A self-identified “fossilised Hippie”, Nichols said that after reading this book, he fully believed that these “delightful, sweet natured creatures” embodied the ‘60’s counterculture slogan, "Make Love, Not War!" because in their society “there's a preponderance of casual sex and, therefore, almost no war-producing tensions.”



*Bonobos mating (or is it just “having fun”?)¹²
Apart from humans, bonobos are the only primates known to have sex not just for procreation, but also for pleasure and conflict resolution, with members of either sex - Photograph: Martin Harvey/Corbis*

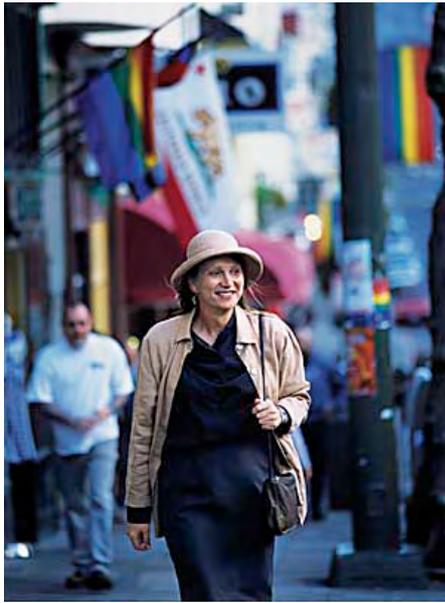
Bonobos, unlike other creatures, have sex BEFORE they have supper. They approach the "dinner table" relaxed and satisfied, unlikely, therefore, to fight over scraps.

What is even better, the Bonobo, the forgotten ape, is bisexual. One of the more charming photographs in this book shows two Bonobo females getting it on, their pink genitals expanding, looking lovingly into each other's eyes, while—interestingly enough—a couple of their offspring are curious witnesses to this lesbianism-in-action.

In another photo, two males enjoy rubbing their behinds together, celebrating what Walt Whitman called adhesiveness with erotic glee. Bonobos perform —with either sex — in every conceivable sexual position, including in their repertoire behaviors like oral sex and French kissing.

¹² <http://www.guardian.co.uk/environment/gallery/2009/may/27/bonobos-congo-wildlife?picture=347974156>

The problem for Evolution



*Dr. Joan Roughgarden*¹³

Interesting though these animal studies might be in demonstrating that many — I have seen various claims as to how many — species engage in same-sex sexual behaviour, it leaves unanswered an obvious \$64 question. As Jack Lucentini “*In Search of the 'Gay Gene'*” says¹⁴:

Evolutionary biologists have long wondered why homosexuality exists. Since homosexuality does not directly result in the passing of genes to future generations — evolution's driving force — it seems odd that it persists in so

many societies. A small but growing group of researchers, however, says evidence from both human and animal societies suggests that same-sex attraction does, in fact, have an important evolutionary function.

"The recognition of how widespread same-sex courtship is, and that it has an adaptive significance, is a growing trend," said Joan Roughgarden¹⁵, a biologist at Stanford University. The primary function that same-sex attraction provides, scientists like Roughgarden argue, is that it promotes the formation of alliances that help the parties involved out-live, out-perform and even out-reproduce competitors.

It is always helpful when science-literate word-smiths like Jack Lucentini summarize what has been studied, hypothesized, speculated and is still unknown in such places as book reviews and, as in this case, in feature articles in the magazine section of popular papers. Here, for example, Lucentini shows us in only a few column-inches what it has taken whole careers to establish. He goes on, first referring to the work of R.C. Kirkpatrick¹⁶, a biodiversity specialist with the Nature Conservancy, and Frank Muscarella of Barry University in Florida.

¹³ <http://www.stanfordalumni.org/news/magazine/2004/mayjun/features/roughgarden.html>

¹⁴ Special to The Washington Post Monday, February 19, 2001; Page A15

¹⁵ Joan Roughgarden: “*Evolution's Rainbow*”, actually published by University of California Press, May 1, 2004, ISBN: 0520240731 (paperback in 2005)

¹⁶ R. C. Kirkpatrick: The Evolution of Human Homosexual Behavior, *Current Anthropology*, Volume 41, Number 3, June 2000

The two researchers cite an array of examples that they say show how such activity could boost one's chances of survival and reproductive success. Kirkpatrick's paper cited studies on animals and on various stages of Greek, Chinese, Japanese and U.S. culture. Among the Sambia of New Guinea, homosexual interactions among warriors may solidify ties vital for mutual defense, Kirkpatrick argues. In some Melanesian societies, 17th-century Japan and ancient Athens, men were actually expected to be attracted to other men. The ancient Greeks' propensity for homoerotic bonds usually involved an older, higher-status male and a younger "client," who gained prestige and status through the liaison, the researchers say. In each case, homosexual bonds helped bring success and status, the authors argue. For males of most species, higher status means more access to mates.

This sets up a classic evolutionary argument: Organisms displaying homosexual activity would produce more offspring, passing their traits to successive generations. The examples the two researchers cite aren't limited to humans, or to males. Among bonobos, a type of chimpanzee, young females typically emigrate to a new group, where they promptly initiate sexual contact with dominant females. "They form 'friendships' and alliances with established females that allow them to become integrated into the group, and more importantly, allow them access to food resources," Muscarella wrote. He acknowledged that the theory has yet to pass crucial tests, such as a study of whether homosexually leaning animals indeed have more offspring.

In [her book] "Evolution's Rainbow," Roughgarden¹⁷ speculates that same-sex relations may have evolved as a glue for coalition-building among animals, including humans. This hypothesis "also explains homophobia," she said. "Same-sex coalition building is usually a threat to a hierarchy. That sets up a tension, and the alpha male is going to try to break up the coalition." No one has documented such events among animals, she acknowledged, but then again, "no one has looked."

Homosexuality and Adaptiveness

I would like to spend some more time on a paper written by one of the researchers just mentioned, R. C. Kirkpatrick¹⁸. At the beginning of his paper, Kirkpatrick states the problem confronting Evolutionists simply thus:

¹⁷ Roughgarden, J: *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People*, University of California Press, 2004 (Paperback 2005)

¹⁸ Op. cit.

In the Darwinian view of natural selection, individuals should seek to maximize reproductive success. Humans are a sexually reproducing species, and children result only through mating with members of the other sex; homosexual acts do not appear to aid reproduction. Homosexual behavior is too widespread to be a fluke or an aberration, but evolutionists in particular should be puzzled by its ubiquity. One could look at homosexual behavior as a value-free activity, such as grooming, but few societies do. In fact, much significance is attached to homosexual relations.



Males of many species have harems they must defend from other males. When they do battle, the victor takes the other's harem and destroys his offspring.¹⁹

Kirkpatrick goes on to propose that direct, positive selection for homosexual behavior occurs because although not reproductive it still has benefits, including

building and maintaining same-sex alliances which in turn aid in survival — for example, cooperating rather than competing for resources or mates, for mutual defence and so on. He sums this up in the following suggestions:

*In terms of the biological distinction between sexual and somatic reproduction, homosexual behavior is a **survival strategy, not a reproductive strategy**²⁰. If this is the case, homosexual behavior will be best explained by reference to the costs and benefits of reciprocal altruism.*

Kirkpatrick quotes the classic Ford and Beach's 1951 world sample²¹ which showed that homosexual behavior was considered normal in 64% of the societies for which the authors had been able to obtain data (n = 76 cultures), if not universally then within or between certain classes. He then outlined four types of hypothesis advanced for the evolutionary continuation of homosexuality in humans.

1. **Kin selection/ kin altruism/reproductive sacrifice:** The suggestion was that there is an evolutionary advantage if one or more members of a family

¹⁹ <http://graphics8.nytimes.com/images/blogs/tierneylab/posts/07seals.1.533.jpg>

²⁰ The emphasis is mine – BH.

²¹ Ford, C. S., & Beach, F.: *Patterns of sexual behavior*. New York: Harper and Row. (1951).

forego having children of their own and instead, help look after and rear the children of their brothers and sisters. A variation on this was the possibility that, in hunter, fisher and gatherer times, when the life expectancy was somewhere between 25 and 35 years, a child who looked after his or her aging parents would enhance evolutionary survival by freeing the more experienced members of the family to teach survival skills to the others in the family or mob. Kirkpatrick concluded there was little evidence to support this hypothesis.

2. **Parental manipulation:** Another hypothesis has been that parents sometimes manipulate their children's decisions about marriage and family and in doing so, encourage homosexual behaviour, presumably because it is not reproductive or there is some other perceived advantage. So, for example, in Renaissance Florence, families increased their standing in the community by encouraging their sons to have homosexual relations with the men of more influential families; so, too, in Ancient Athens, a powerful partner for a youth enhanced the power of his family. Kirkpatrick found there was a bit more support for this hypothesis but not overwhelmingly so.
3. **“Balanced polymorphism”:** this was a hypothesis suggested by G.E. Hutchinson²², one of the first biologists to consider homosexuality in an evolutionary context, He suggested that there might be a gene which determined sexuality and that this gene consists in two *alleles* one of which determined heterosexual orientation, the other homosexual preference. He argued that the homosexual allele conferred some advantage in much the same way that an allele which causes sickle-cell anemia confers immunity to malaria.
4. **Reciprocal altruism/alliances for survival:** Kirkpatrick indicated that, of the hypotheses as to why homosexuality continues to be selected for in an evolutionary sense, *“Support is strongest, however, for the hypothesis that homosexual behavior comes from individual selection for reciprocal altruism. Same-sex alliances have reproductive advantages, and sexual behavior at times maintains these alliances. Nonhuman primates, including the apes, use homosexual behavior in same-sex alliances, and such alliances appear to have been key in the expanded distribution of human ancestors during the Pleistocene. Homosexual emotion and behavior are, in part, emergent qualities of the human propensity for same-sex affiliation.”*

²² Hutchinson, G. E. 1959. A speculative consideration of certain possible forms of sexual selection in man. *Amer. Nat.* 93: 81-91.

He adds as a caution, however, that “*Adaptationist explanations do not fully explain sexual behavior in humans, however; social and historical factors also play strong roles.*”

It is important however, to remember that same-sex alliances are possible without necessarily having same-sex behaviour. Kirkpatrick quotes several societies in which strong alliances are maintained but which are celibate. These included the Lovedu of southern Africa²³ and the majority of 19th-century Mormons²⁴).

Homosexual behavior by adolescents appears to predict alliances as adults among the Dahomey of Nigeria, the Nambikuara of Brazil, and the Barasana of Colombia.²⁵ Homosexual behavior also occurs as part of sworn friendships among the Khoisan of South Africa and the Dinaric of Serbia²⁶.

One of the clearly “bonding” mechanisms of sex, no matter the gender of the parties, is pleasure. This emotional bond can persist long after sexual activity stops. Kirkpatrick quotes examples:

Among the Kiman of Melanesia, homosexual behavior stops after adolescence but "nevertheless, a lifelong emotional relationship often results from homosexual relationships"²⁷ this also appears to be the case for the Onabasulu²⁸. Among the Sambia, homosexual behavior occurs among initiates in a regional cohort of loosely joined militias. The Sambia are headhunters, often at war with neighboring groups; Herdt²⁹ argues that their homosexual behavior solidifies bonds that are vital for mutual defense.

Bisexuality rather than homosexuality is adaptive

No matter if homosexual behaviour improves the chances of individual survival, in strict Darwinian evolutionary terms, it is still maladaptive. Bisexuality, which provides the advantage when it comes to forming alliances but has the further advantage that it also permits reproduction, clearly would be the more successful. Such a combination of advantages would have to predict that bisexuality would be more common than homosexuality.

²³ Krige 1974;

²⁴ Quinn 1996

²⁵ Herskovits 1938, Lévi-Strauss 1943, Hugh-Jones 1979; see also Sorensen 1984.

²⁶ Schapera 1930, Tomasic 1948

²⁷ Serpenti 1984:305

²⁸ Ernst 1991

²⁹ Herdt 1984b

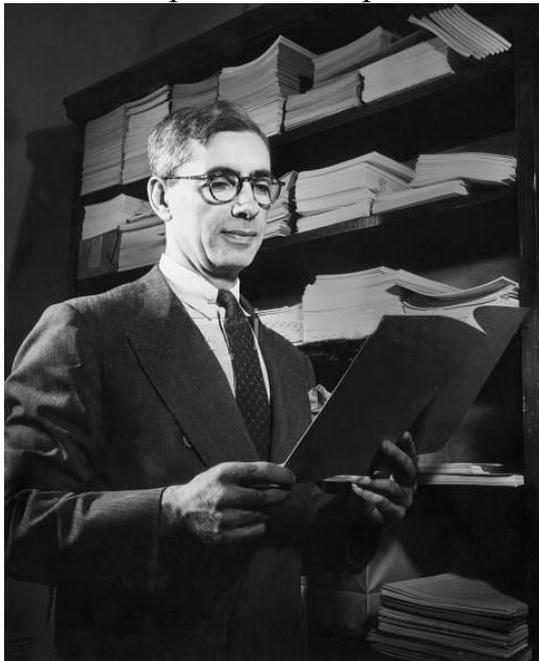
“The data strongly support this prediction”, Kirkpatrick says, commenting that “Most individuals who engage in homosexual behavior are, in practice, bisexual”

and he cites as examples *inter alia* much of Melanesia, classical Athens, and the contemporary United States (and if that is a surprise, look to Kinsey et al.!). The same applied to both 17th-century Japan and 15th-century Florence — Machiavelli himself was a case in point .

Another insight this review of the anthropological evidence reveals and which is in keeping with the prediction that bisexuality is probably the human norm, is the indication that homosexual emotion and homosexual behaviour can exist independently of one another. So for example, several researchers³⁰ have found that between 8 and 12% of Western men and women over the age of 15 experience homosexual attraction but do not act upon it.

No threat to the human race

One thing remains a bit of a puzzle in all this, and that is why it is an un-reproductive form of sex we use as the basis for forming alliances rather than some other part of the repertoire of human behaviours? The fact we might ask this



question simply points to the fixed way we view the world. Sexual behaviour in primates, us included, is rarely for procreation yet in Western society at least, we believe this is the primary reason. In some societies, the connection between heterosexual intercourse and pregnancy is not known.

British anthropologist Montague Francis Ashley-Montagu

Back in the 1930's the British anthropologist Ashley-Montagu³¹ reported that the Aranda people believed that intercourse was necessary only in that it

opened up the vagina sufficient for a little manikin, who emerged from a neighbouring waterhole, to enter the women while she slept. Waterholes were therefore very important in Aranda beliefs because it was through them that

³⁰ See Kirkpatrick *ibid*. He refers to Sell, Wells, and Wypij [1995](#); Davis [1929](#); Laumann et al. [1994](#): fig. 8.2; Pattatucci and Hamer [1995](#)).

³¹ Ashley-Montagu, Montague Francis: *Coming into being among the Australian Aborigines : a study of the procreative beliefs of the native tribes of Australia*; London:Routledge 1937

human spirits could pass from the so-called *Dreamtime* to this world and here take human form.

In another study of those sexy little Bonobos³², it was estimated that only in 1% of copulations did pregnancy occur so that the rest of the joy of sex was free to be used for other purposes, including building alliances. Homosexual behaviours therefore are not at an evolutionary disadvantage provided there is enough heterosexual procreative behaviour to ensure population numbers are maintained at an appropriate level. One researcher, Weinrich,³³ has suggested in fact, that in societies which require heterosexual marriage, it is unlikely that an individual's reproductive success is actually reduced by homosexual behaviour. Supporting this is the finding by Cardoso³⁴ who, studying a fishing village in Santa Catarina, Brazil, found that the men who had most insertive sex with other men also had the most sexual encounters with women.

³² Kirkpatrick quotes Wrangham (1993)

³³ Weinrich, James D. *Sexual Landscapes: Why We Are What We Are, Why We Love Whom We Love*. Charles Scribner's Sons. New York: 1987

³⁴ Cardoso, F.L. *Orientação sexual numa comunidade pesqueira*. Master's thesis in Anthropology. Universidade Federal de Santa Catarina, Brazil, 1994.