

Supporting Information

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SI Text

Genetic Evidence of Differentiation. Our mean genetic distance is more than an order of magnitude smaller than that reported in Bowles' study (1) where non-neighbors were included in the analysis. The source data available to (1) is not sufficient to recompute his F_{ST} values for nearest neighbors only. One of Bowles' primary sources (2) does report an autocorrelation analysis suggesting that some of the genetic variation in Central Asia and Siberia is clinal. Those data refer to Y chromosome variation. The F_{ST} estimates in (1) derived from (2) are corrected for the higher rates of drift for Y (1/4 as many copies in a population as autosomal genes) compared to autosomal loci, but (apparently) not for their higher rates of mutation. Mitochondrial DNA and Y chromosome variants are used to trace the recent ancestry of populations because high rates of mutation lead to many new population specific alleles on time scales of a few thousand years. From the multidimensional scaling analysis in (2), it is apparent that most near neighboring groups are closer genetically than the average populations. Some of the populations in (2) that are most different genetically appear to have no close neighbors in the sample. Groups that tend to have high pairwise F_{ST} , such as Lapps in the European Arctic and Chukchi in Eastern Siberia, have probably not been neighbors for many millennia (3).

Similarly, when distantly related groups come into contact, migration often lowers genetic distances. For example, in (3, Table 4.11.1), the F_{ST} for neighboring Siberian Eskimo and Chukchi is 0.025 although the Chukchi-Alaskan-Eskimo figure is 0.056 and that for more distant North American populations is even higher. The mean F_{ST} for neighboring groups in (3, Table 4.11.1) is 0.041 (but on p252 the summary figure for all of N Asia is given as 0.0264!!). The value for Indigenous circumpolar Eurasian populations of 0.076 in (4) appears to be a genetic variance, rather than an inbreeding coefficient which would be a smaller value. Two Wahlund F estimates are given in (5), 0.0067 and 0.0028, based on different subdivisions of the !Kung specified by the authors. The estimate in (6) was not corrected for biases due to sample size.

It is not always clear in source material whether corrections for sample sizes have been applied in calculations of F_{ST} . Samples from arctic foragers and other small societies that presumably most resemble Pleistocene populations are often very small, as is reflected in standard errors of the estimates for many pairs of populations in (3, see e.g., Table 4.11.1).

Summary data reported in (23, p 252) report that the average genetic F_{ST} for Arctic populations, mostly derived from small foraging populations similar to the populations used in (1), to be

0.0264 ± 0.0125 . The variograms presented in (3, p122–124) necessitate that the F_{ST} between neighboring groups be far smaller than this average level.

Comparison Between Cultural and Genetic F_{ST} . (see Table S1)

Cultural F_{ST} for four small-scale societies. Twenty-one questions from (7) on four east-African tribes is used to compute a pairwise cultural F_{ST} (Table S1).

- Would you rather own good farming land but no cattle, or good cattle but no farming land? p 169
- Is it better to have many friends or many kinsmen (who are not clansmen)? p 174
- Under what circumstances can a younger brother tell an older brother that he is wrong? P 178.
- Responses to values picture 7: Woman watched by man, mention of sex or not, p 185
- Responses to values picture 8: Man and woman together inside a house, p 186
- How does a psychotic person behave, p 188
- What is the most important thing for a young woman to know before marriage? p 60
- Do wives obey their husbands and is it right for them to do so? p 143
- What makes a man a good friend? p 141
- How do people feel about a rich man? p 137
- Under what circumstances can a young adult man tell a mzee ("old man") that he is wrong, p 135
- Do the [population] prefer sons or daughters, and why? p 322 appendix
- What is the most important thing for parents to teach a toddler? p 322 appendix
- What is the worst thing that can happen to a man? p 322
- Do unmarried females have sexual relations and is it right? p 323 appendix
- What should a man do if three of his cattle suddenly die? p 323 appendix
- If a man could have anything he wanted, what would he choose? p 323 appendix
- To be considered wealthy, what must a [population] own? P 342 appendix
- Whom can a person trust? p 324 appendix
- Is there one person you can trust beyond all others? p 325 appendix
- Why do people kill themselves? p 325 appendix

(see Table S2)

1. Bowles S (2006) Group competition, reproductive leveling, and the evolution of human altruism. *Science* 314:1569–1572.
2. Karafet TM, et al. (2002) High levels of Y-chromosome differentiation among native Siberian populations and the genetic signature of a boreal hunter-gatherer way of life. *Hum Biol* 74:761–789.
3. Cavalli-Sforza LL, Menozzi P, Piazza A (1996) in *The History and Geography of Human Genes* (Princeton Univ Press, Princeton, New Jersey).
4. Rychkov YG, Sheremet'eva VA (1980) The genetics of circumpolar populations of Eurasia related to the problem of human adaptation. In *The Human Biology of Circumpolar Populations*, ed Milan FA (Cambridge Univ Press, Cambridge, New York), p 381.

5. Harpending H, Jenkins T (1974) !Kung population structure. In *Genetic Distance*, eds Crow JF, Denniston C (Plenum Press, New York).
6. Harpending H, Jenkins T (1973) Genetic Distance Among Southern African Populations. In *Methods and Theories of Anthropological Genetics*, eds Crawford MH, Workman PL (University of New Mexico Press, Albuquerque).
7. Edgerton RB (1971) in *The Individual in Cultural Adaptation; A Study of Four East African Peoples* (University of California Press, Berkeley).

Table S1. Genetic and cultural F_{ST} estimates reported in this study

		Genetic F_{ST}	Cultural F_{ST}
Albania	Greece	–	0.0923
Albania	Italy	–	0.0849
Albania	Macedonia, Republic Of	–	0.0571
Albania	Serbia And Montenegro	–	0.0830
Algeria	Morocco	–	0.0828
Argentina	Brazil	–	0.0509
Argentina	Chile	–	0.0323
Argentina	Uruguay	–	0.0534
Armenia	Georgia	0.024	0.0484
Armenia	Turkey	0.02	0.1116
Australia	New Zealand	–	0.0251
Austria	Czech Republic	0.0036	0.0842
Austria	Germany	0.0019	0.0329
Austria	Hungary	0.004	0.0852
Austria	Italy	0.0043	0.0415
Austria	Slovakia	–	0.0597
Austria	Slovenia	–	0.0651
Austria	Switzerland	0.0012	0.0518
Azerbaijan	Armenia	–	0.0323
Azerbaijan	Georgia	–	0.0439
Azerbaijan	Russian Federation	–	0.0666
Bangladesh	India	–	0.1144
Belarus	Latvia	–	0.0395
Belarus	Lithuania	–	0.0539
Belarus	Poland	–	0.1036
Belarus	Russian Federation	–	0.0305
Belarus	Ukraine	–	0.0212
Belgium	France	0.0032	0.0329
Belgium	Germany	0.0015	0.0428
Belgium	Great Britain	0.0015	0.0391
Belgium	Netherlands	0.0012	0.0535
Brazil	Colombia	–	0.0660
Brazil	Peru	–	0.0469
Brazil	Uruguay	–	0.0966
Brazil	Venezuela	–	0.0859
Bulgaria	Greece	–	0.0725
Bulgaria	Macedonia, Republic Of	–	0.0547
Bulgaria	Romania	–	0.0778
Bulgaria	Serbia And Montenegro	–	0.0437
Bulgaria	Turkey	–	0.1868
Canada	United States	–	0.0206
Chile	Peru	–	0.0455
China	India	–	0.1548
China	Japan	0.00174	0.1631
China	Pakistan	–	0.2545
China	Philippines	0.0315	0.1320
China	Republic Of Korea	0.00353	0.1568
China	Taiwan Province Of China	–	0.1165
China	Viet Nam	–	0.0835
Colombia	Peru	–	0.0747
Colombia	Venezuela	–	0.1531
Croatia	Bosnia And Herzegovina	–	0.0578
Croatia	Hungary	–	0.0772
Croatia	Italy	–	0.0355
Croatia	Serbia And Montenegro	–	0.0604
Croatia	Slovenia	–	0.0543
Czech Republic	Germany	0.0052	0.0692
Czech Republic	Poland	0.0064	0.1371
Czech Republic	Slovakia	–	0.0459
Denmark	Germany	0.0016	0.0708
Denmark	Germany West	0.0016	0.0678
Denmark	Great Britain	–	0.0710
Denmark	Norway	0.0036	0.0590
Denmark	Sweden	0.0019	0.0458

		Genetic F_{ST}	Cultural F_{ST}
Dominican Republic	Puerto Rico	0.0064	0.0555
Estonia	Finland	–	0.1059
Estonia	Latvia	–	0.0268
Estonia	Russian Federation	–	0.0375
Estonia	Sweden	–	0.1432
Finland	Norway	–	0.0592
Finland	Russian Federation	0.0153	0.1501
Finland	Sweden	0.0082	0.0658
France	Germany	0.0027	0.0614
France	Great Britain	0.0024	0.0487
France	Italy	0.0034	0.0670
France	Spain	0.0039	0.0600
France	Switzerland	0.0023	0.0644
Georgia	Russian Federation	–	0.0634
Georgia	Turkey	–	0.1111
Germany West	Belgium	0.0015	0.0477
Germany West	France	0.0027	0.0698
Germany West	Great Britain	0.0022	0.0464
Great Britain	Germany	0.0022	0.0732
Great Britain	Northern Ireland	–	0.0579
Greece	Italy	0.0077	0.0407
Greece	Macedonia, Republic Of	–	0.0603
Greece	Turkey	–	0.2498
Hungary	Romania	–	0.0842
Hungary	Serbia And Montenegro	0.0136	0.0746
Hungary	Slovakia	–	0.0585
Hungary	Slovenia	–	0.0649
Hungary	Ukraine	–	0.0684
Iceland	Great Britain	–	0.0653
Iceland	Ireland	0.0099	0.0926
Iceland	Northern Ireland	–	0.1100
India	Kyrgyzstan	–	0.0579
India	Pakistan	–	0.1503
Indonesia	Philippines	0.00341	0.1144
Iran (Islamic Republic Of)	Iraq	0.00168	0.0997
Iran (Islamic Republic Of)	Pakistan	–	0.1148
Iran (Islamic Republic Of)	Saudi Arabia	0.00321	0.1149
Iran (Islamic Republic Of)	Turkey	0.00075	0.1830
Iraq	Jordan	0.00116	0.0456
Iraq	Saudi Arabia	0.00373	0.0662
Iraq	Turkey	0.00112	0.0999
Ireland	Great Britain	–	0.0645
Ireland	Northern Ireland	–	0.0229
Israel	Jordan	–	0.2083
Italy	Bosnia And Herzegovina	–	0.0536
Italy	France	0.0034	0.0670
Italy	Malta	–	0.1240
Italy	Slovenia	–	0.0654
Italy	Switzerland	0.00044	0.0695
Japan	Republic Of Korea	0.0137	0.0954
Japan	Russian Federation	–	0.1297
Japan	Taiwan Province Of China	–	0.0871
Latvia	Belarus	–	0.0395
Latvia	Lithuania	–	0.0471
Latvia	Russian Federation	–	0.0456
Latvia	Sweden	–	0.1573
Lithuania	Poland	–	0.0756
Lithuania	Sweden	–	0.1925
Luxembourg	Belgium	–	0.0132
Luxembourg	France	–	0.0264
Luxembourg	Germany	–	0.0406
Macedonia, Republic Of	Serbia And Montenegro	–	0.0509
Malta	Italy	–	0.1240
Mexico	United States	–	0.0661
Morocco	Spain	–	0.2211

		Genetic F_{ST}	Cultural F_{ST}
Netherlands	Belgium	0.0012	0.0535
Netherlands	Germany	0.0016	0.0794
Netherlands	Germany West	0.0016	0.0406
Netherlands	Great Britain	0.0017	0.0544
Norway	Great Britain	0.0025	0.0688
Norway	Sweden	0.0018	0.0439
Philippines	China	0.0315	0.1320
Philippines	Viet Nam	–	0.1689
Poland	Germany	0.0047	0.1607
Poland	Slovakia	–	0.0693
Poland	Sweden	0.0082	0.2116
Poland	Ukraine	–	0.0644
Portugal	Spain	0.0048	0.0456
Puerto Rico	United States	–	0.0563
Puerto Rico	Venezuela	–	0.0591
Republic Of Moldova	Romania	–	0.0589
Republic Of Moldova	Ukraine	–	0.0322
Romania	Serbia And Montenegro	–	0.0850
Romania	Ukraine	–	0.0659
Russian Federation	Turkey	–	0.1705
Russian Federation	Ukraine	–	0.0139
Serbia And Montenegro	Bosnia And Herzegovina	–	0.0600
Singapore	Indonesia	–	0.1131
Slovakia	Ukraine	–	0.0568
South Africa	Zimbabwe	–	0.0525
Spain	France	0.0039	0.0600
Sweden	Germany West	0.0039	0.0565
Sweden	Norway	0.0018	0.0439
Switzerland	Germany	0.001	0.0680
Taiwan Province Of China	Philippines	–	0.1372
Uganda	Tanzania, United Republic Of	–	0.0729
United States	Great Britain	–	0.0777

Table S2. Estimates for cultural F_{ST} derived from (7) on the lower diagonal, with bootstrapped standard errors in the upper diagonal

	Hehe	Kamba	Pokot	Sebei
Hehe	–	0.003	0.004	0.003
Kamba	0.113	–	0.004	0.003
Pokot	0.123	0.109	–	0.004
Sebei	0.087	0.099	0.105	–