

# Stone Age Economics

## Introduction

This text draws much information from Marshall Sahlins' book 'Stone Age Economics'. First published in 1972. It does use the 2016 edition here. Sahlins himself finds the term 'economic anthropology' paradoxical. Among hunter-gatherers, there was no such thing as an economic sphere. Everything was culture. He characterises it as follows:

"The traditional economic terms of Fijians were not what our economic science would recognize as such. Their economic terms were "chiefs" (the recipients of tributes and dispensers of largesse), "sister's son" (a specially privileged relative), "be of good heart my kinsmen" (a near-imperative solicitation of material help), "sea people" (specialized clans of fishers and sailors), "whale teeth" (the pre-eminent valuables), "border allies" (contracted by gifts), "war god" (subject of lavish offerings), etc."<sup>1</sup>

Sahlins here refers to the Lapita culture, a people of seafarers who first began inhabiting the Fiji Islands from 500 to 1500 before our era. They did not arrive on the uninhabited islands as drowning people, but were able to reach the islands hundreds of kilometres apart unaided by boat. They had knowledge of agriculture and brought with them tuber crops, bananas, coconuts, dogs, pigs and chickens. So they are no longer the "immediate return" hunter-gatherers, rather fisher-gatherers like the Hadza and !Kung, but their culture has remained broadly the same. Completely autonomous food acquisition, sharing food is quasi-obligatory, caring for each other and helping each other is the logic itself.

There is a though a 'chief', but his role is limited to receiving gifts, distributing gifts and contacts with the outside world, a protocol function without substantial power. He partly replaces the 'inverse dominance hierarchy', the traditional practice of hunter-gatherers to counter hierarchy, but does not really replace it. That kind of 'Chiefs' and 'Headmans' are a late phenomenon. They may even be women as Kirk and Karen Endocott describe them among the Batek in 'The Headman was a Woman, The Gender Egalitarian Batek of Malaysia'<sup>2</sup>.

This shows that egalitarian democracy is also redundant. It does not collapse upon the amendment or appropriate substitution of a function just as an ecological structure does not when one organism is replaced by another with the same outcome. Of course, there are also limits to that substitution and direct democracy ceases when the essence of that function is lost. Another story, then, is the divine status of the chief of the Calusa, a non-agrarian people who lived on the west coast of Florida, from Tampa Bay to the Keys. There, egalitarian democracy did go haywire<sup>3</sup>.

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1 Sahlins, Marshall, 2016, Stone Age Economics, ark:/13960/t35190x6x, Internet Archive HTML5 Uploader 1.6.3, <[https://archive.org/details/StoneAgeEconomics\\_201611/mode/2up](https://archive.org/details/StoneAgeEconomics_201611/mode/2up)>, p. xx.

2 Endicott, Kirk & Karen Endicott, 2008, The Headman was a Woman, The Gender Egalitarian Batek of Malaysia, Waveland Press inc., ISBN 978-1-57766-526-7.

3 Greaber, David & David Wengrow, 2022, Het begin van alles, een nieuwe geschiedenis van de mensheid, Maven Publishing. ISBN 978 9493 213 26 5, ebook, pp. 33-46.

If Sahlins provided the framework, we can also draw on Frank Marlowe's statistics<sup>4</sup>. It is monk's work to extract median values from the bulk of ethnographies, because "the hunter-gatherer" does not exist. Like contemporary people, they are also partly determined by their environment and history.

But we also get a lot of information from contemporary research. The anthropology of prehistory has advanced by leaps and bounds thanks to palaeogenetics and more precise isotope dating. 'Last but not least' a lot of useful information can also be gleaned from the Cambridge Encyclopedia of Hunters and Gatherers<sup>5</sup>.

## Stone age Diet

Former research (2000) on the diet of hunter and gatherers by archaeologists and nutritionists might have over estimated the consumption of meat. Researchers claimed that 73% of the worldwide hunter-gatherer societies derived 56% to 65% of energy from animal foods<sup>6</sup>. This miscalculation is due to the fact that archaeologist can easily reconstruct the animal diet when they dig up bones. But of course de digestion of plants does not leave traces unless you analyse the bones of the previous living and food in-taking humans. Microbiological analysis can thus reveal the real composition of the diet.

To test this hypothesis researchers (2024) examined human bone stable isotope chemistry of 24 individuals from the early Holocene sites of Wilamaya Patjxa (9.0–8.7 cal. ka) and Soro Mik'aya Patjxa (8.0–6.5 cal. ka) located at 3800 meters above sea level on the Andean Altiplano, Peru. Contrary to expectation, Bayesian mixing models based on the isotope chemistry reveal that plants dominated the diet, comprising 70–95% of the average diet. Paleoethnobotanical data further show that tubers may have been the most prominent subsistence resource. These findings update our understanding of earliest forager economies and the pathway to agricultural economies in the Andean highlands. The findings furthermore suggest that the initial subsistence economies of early human populations adapting to new landscapes may have been more plant oriented than current models suggest<sup>7</sup>.

Hunter-gatherers have also knowledge of [herbal medicine](#). The bark of the copal tree was applied to eye infections, the juice of cat's claw vine is used to treat diarrhoea and crushed aromatic leaves are inhaled to alleviate colds and nausea. Many of the drugs used in western medicine today originate with tribble peoples, and have saved millions of lives. The poison curare which Yanomami hunters have long used on the tips of arrows to paralyse prey, has been appropriated by western medicine as a muscle relaxant.

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4 Marlowe, W. Frank, 2005, Hunter-Gatherers and Human Evolution, *Evolutionary Anthropology* 14:54–67 (2005), <https://doi.org/10.1002/evan.20046>,

[https://www.academia.edu/12030949/Hunter\\_gatherers\\_and\\_human\\_evolution](https://www.academia.edu/12030949/Hunter_gatherers_and_human_evolution)>

5 Lee, Richard B. & Richard Faly, editors, 1999, *The Cambridge Encyclopedia of Hunters and Gatherers*, Cambridge University Press.

6 Cordain, Loren, Janette Brand Miller, S Boyd Eaton, Neil Mann, Susanne HA Holt, John D Speth, Plant-animal subsistence ratios and macronutrient energy estimations in worldwide hunter-gatherer diets<sup>12</sup>, *The American Journal of Clinical Nutrition*, Volume 71, Issue 3, 2000, Pages 682–692, ISSN 0002-9165, <https://doi.org/10.1093/ajcn/71.3.682>. <<https://www.sciencedirect.com/science/article/pii/S0002916523070582>>

7 Chen, Jennifer C., Mark S. Aldenderfer, Jelmer W. Eerkens, BrieAnna S. Langlie, Carlos Viviano Chen JC, Aldenderfer MS, Eerkens JW, Langlie BS, Viviano Llave C, Watson JT, et al. (2024) Stable isotope chemistry reveals plant-dominant diet among early foragers on the Andean Altiplano, 9.0–6.5 cal. ka. *PLoS ONE* 19(1): e0296420. <https://doi.org/10.1371/journal.pone.0296420> <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0296420>>.

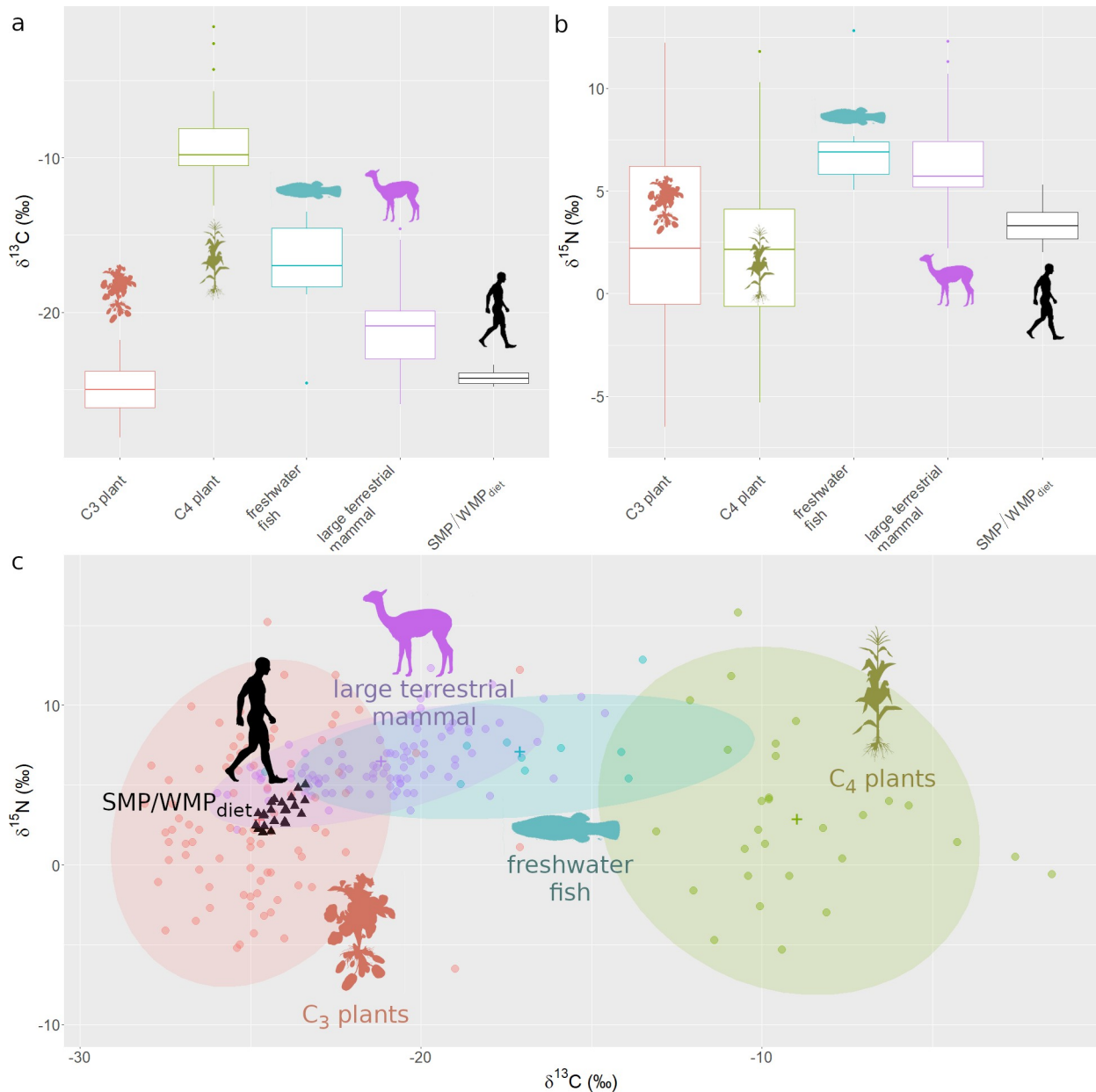


Figure 1: Carbon and nitrogen plots for control samples and 25 human bone samples from Soro Mik'aya Patjxa and Wilamaya Patjxa, indicating a plant-dominant diet. a)  $\delta^{13}\text{C}_{\text{diet}}$  values are consistent with those of C3 plants with slight enrichment from some other resource types. b)  $\delta^{15}\text{N}_{\text{diet}}$  values are most consistent with those of plants. c) Biplot of  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values are consistent with a mixed diet principally based on C3 plants with low levels of enrichment from some other resource. Dietary values assume  $\delta^{13}\text{C}$  TEF = 5.0‰,  $\delta^{15}\text{N}$  TEF = 6.0‰ based on mixing model results (see Table 4). Dots = individual samples, ellipses = 95% variance ranges for each category, and crosshairs = mean values by category (see Tables 1 and 2).

## Challenge to economic orthodoxy

"Hunter-gatherers are a challenge to economic orthodoxy"<sup>8</sup>. John Gowdy aptly sums it up:

<sup>8</sup> Gowdy, John, 1999, Hunter-gatherers and the mythology of the market, in The Cambridge Encyclopedia of Hunters and Gatherers, Richard B. Lee & Richard Faly eds.

“The most important challenges to economic orthodoxy that come from the descriptions of life in hunter-gatherer societies are that (1) the economic notion of scarcity is a social construct, not an inherent property of human existence, (2) the separation of work from social life is not a necessary characteristic of economic production, (3) the linking of individual well-being to individual production is not a necessary characteristic of economic organization, (4) selfishness and acquisitiveness are aspects of human nature, but not necessarily the dominant ones, and (5) inequality based on class and gender is not a necessary characteristic of human society.”<sup>9</sup>

The rationale of hunter-gatherers is their nomadic existence. Although they already knew techniques for preserving and storing food, this would tie them too much to the same place. Hunter-gatherers are very mobile. In the warm climate where they originally resided, seven times a year is the median number of times they move. 'Hoarding' becomes a nuisance when they have to explore and seek out new areas to acquire food, when in the area where they stayed the supply dwindled. But hunters' pride also inhibits the switch to farming. Better to be hungry for two days or even three days - says the Chihiné literally<sup>10</sup> - than to have to admit that you cannot make it with hunting alone<sup>11</sup>.

## Economy of Hunter-Gatherers

The diet of hunter-gatherers depended on what was available in wild nature. This varied from location to location. Fish if they stayed close to the sea or big rivers, meat elsewhere, in the dense forest and savannah. All kinds of plants and fruits, including tubers where they were in stock. For those tubers, though, they already needed sturdy tools. These could be quite deep. Large bones could be used to dig with. They hunted initially with axes, later with spears, bows and arrows.

Hunter-gatherers preferred to hunt 11 large animals in terms of size and risk. They were able to catch species from 0.6 to 535.3 kg, but avoided species smaller than 2.5 kg. Their prey preference was determined by whether the prey was arboreal or terrestrial, the threat the prey posed to the hunters and the body weight of the prey. The variation in prey size that hunter-gatherers pursued on each continent reflects the local size spectrum of available prey and historical or prehistoric prey depletion during the Holocene. The nature of human subsistence hunting reflects the ability to use a range of weapons and techniques to capture food, and the prey-poor nature where people with traditional lifestyles still live<sup>12</sup>.

They also needed sharp material for slaughtering, obsidian was sharp, and meat was roasted, broiled and cooked on stone early on. Later in pottery. It is also a misconception that they roamed the countryside as unprotected backpackers. They used what was available, including tall grasses to build shelters. The !Kung took eggshells from ostriches as pitchers. Lianas were always available in the forests. Animal skins were used to make clothes and slings. Some hunter-gatherers had canoes

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9 Gowdy, John, 1999.

10 Mentrak, Thom, Historical Interpreter at Ste. Marie Among The Iroquois, 1633–1634, The Jesuit Relations and Allied Documents Travels and Explorations of the Jesuit Missionaries in New France 1610—1791, Edited by Reuben Gold Thwaites, Secretary of the State historical Society of Wisconsin, Computerized transcription by Thom Mentrak, Historical Interpreter at Ste. Marie Among The Iroquois, <[http://moses.creighton.edu/kripke/jesuitrelations/relations\\_06.html](http://moses.creighton.edu/kripke/jesuitrelations/rerelations_06.html)>.

11 Sahlins, Marshall, 2016, pp. 30-34.

12 Cassandra K. Bugir, Carlos A. Peres, Kevin S. White, Robert A. Montgomery, Andrea S. Griffin, Paul Rippon, John Clulow, Matt W. Hayward, 2021, Prey preferences of modern human hunter-gatherers, Food Webs, Volume 26, 2021, e00183, ISSN 2352-2496, <https://doi.org/10.1016/j.fooweb.2020.e00183>. <<https://www.sciencedirect.com/science/article/abs/pii/S2352249620300434>>.

and dog sleds. It is also no coincidence that many remains of their settlements have been found in caves. Their possessions were what they could carry. Nothing more.

Scarcity is a cliché spread by Adam Smith and kept alive by European bourgeois ethnocentrism<sup>13</sup>. We also find the origin of that story in the Bible. Adam and Eve being driven out of the earthly paradise. A story probably created by the first farmers, whose lives were much harsher than those of the hunter-gatherers who lived alongside them for a long time. Farmers had no machinery back then. Sowing, ploughing, harvesting and walking behind a herd of animals was hard and not very exciting. The yield of their labours was unpredictable. Not to mention, farmers also continued to hunt as long as it was not banned by the nobility who claimed the hunting rights for themselves, and peasant women still went wild fruit picking, mushroom gathering and wood gathering where available until that too was banned.

Hunter-gatherers can be considered prosperous because they achieved a balance between resources and goals by having everything they needed and wanting little more<sup>14</sup>. The 'dopamine trap' as it is called in neurology had not yet taken hold of them. In contemporary humans, the dopamine system is constantly being thrown out of balance. Because once you are satisfied by that tasty biscuit or drink you get a craving for the next thing. That dopamine trap was first identified in experiments on rats in 1972<sup>15</sup> and confirmed in mice in 2025<sup>16</sup>. Meanwhile, science has also found out that this imbalance is the cause of addictions<sup>17</sup> <sup>18</sup>. And of course the food industry eagerly responds to this with flavourings, fats and sugars. So they had a huge amount of free time, which they spent chatting, telling stories, playing and visiting friends and other 'bands'.

## Social and cooperative

A second fact about the lives of hunter-gatherers is that their work was social and cooperative. Usually, they also found it pleasant. Hunter-gatherers with simplest technology, such as the Hadza and the !Kung, usually spent only three or four hours a day on what we would call economic activities.

These activities include the cooperative hunting of a large number of animal species and the cooperative gathering of a wide variety of plant material. Successful production depended on detailed knowledge of the characteristics and life history of the plant and animal species on which they depended for survival, not on capital goods<sup>19</sup>. Hunter-gatherers also slept intermittently during the day<sup>20</sup>. What we would call the "employment rate" today was much lower then:

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13 Sahlins, Marshall, 2016, pp. 3-4.

14 Sahlins, Marshall, 2016, pp. 2.

15 Crow, T.J., 1972, A map of the rat mesencephalon for electrical self-stimulation, Brain Research, Volume 36, Issue 2, 1972, ages 265-273, ISSN 0006-8993, [https://doi.org/10.1016/0006-8993\(72\)90734-2](https://doi.org/10.1016/0006-8993(72)90734-2), <<https://www.sciencedirect.com/science/article/pii/0006899372907342>>.

16 Minère, Marielle et al., Thalamic opioids from POMC satiety neurons switch on sugar appetite, Science 387, 750-758 (2025). DOI:10.1126/science.adp1510, <<https://www.science.org/doi/10.1126/science.adp1510>>.

17 Crow, T.J., 1972, A map of the rat mesencephalon for electrical self-stimulation, Brain Research, Volume 36, Issue 2, 1972, ages 265-273, ISSN 0006-8993, [https://doi.org/10.1016/0006-8993\(72\)90734-2](https://doi.org/10.1016/0006-8993(72)90734-2), <<https://www.sciencedirect.com/science/article/pii/0006899372907342>>.

18 Leeman RF, Potenza MN. A Targeted Review of the Neurobiology and Genetics of Behavioural Addictions: An Emerging Area of Research. The Canadian Journal of Psychiatry. 2013;58(5):260-273. doi:10.1177/070674371305800503. <<https://journals.sagepub.com/doi/10.1177/070674371305800503>>

19 Gowdy, John, 1999.

20 Sahlins, Marshall, 2016, pp. 19-20.

"So the ratio of food producers to the general population is actually 3 : 5 or 2 : 3. But these 65 per cent of the people "worked 36 per cent of the time and 35 per cent of the people did not work at all"! the people "worked 36 per cent of the time, and 35 per cent of the people did not work at all"! (Lee, 1969, p. 67). "<sup>21</sup>

## Sharing economy

Sharing food is the most familiar aspect of the life attitude of hunter-gatherers. It does have a rational basis. You can be unlucky and then sharing is welcome. Reciprocity, in other words. Besides, if you can't keep the food, it's better to share it than let it rot. That is the common rationale. Hannah M Lewis, Lucio Vinicius, Janis Strods, Ruth Mace and Andrea Bamberg show that populations of 'demand sharers' who move freely between camps survive in the unpredictable environments characteristic of hunter-gatherers, while sedentary and non-sharing families die out<sup>22</sup>.

Sharing is often a complex ritual to ensure that everyone gets their allocated share<sup>23 24</sup>. Material ownership of land and property is unknown to them. The perception of land ownership is easy to establish. You forbid others the usufruct of it or even access to it, which was installed in the 'free' West through the 'enclosure acts' and through laws after the French Revolution<sup>25</sup>. Even the capitalists do not come up with a conclusive explanation for this arbitrary appropriation. Their explanation is that land is owned by the person who works it. This is, of course, an after-the-fact rationalisation, because in the United States of America it was enough to be the first to file a 'claim' to a piece of land, and if there was no claim yet, it was - hokus pokus - your land.

## Respect for fellow human beings ≡ respect for nature

With hunters-gatherers, there also comes a tremendous respect for nature just as they had respect for fellow human beings. This was also lost in the "agricultural revolution". When the Romans conquered our territories, large parts of the Neolithic forest had already been cleared. It is certain that the forests of many European countries had already been cleared before the Industrial Revolution<sup>26</sup>. The Merovingians did so thoroughly. They cut down the trees and then let pigs loose on that piece of land, so that these ate the acorns to prevent the trees from starting to shoot back.

Homo sapiens, through sexual selection and auto-domestication due to hyper-methylation in the regulatory region of the BAZ1B gene, suppressed reactive aggression<sup>27</sup>. This has also been

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21 Sahlins, Marshall, 2016, p. 21.

22 Lewis HM, Vinicius L, Strods J, Mace R, Migliano AB. High mobility explains demand sharing and enforced cooperation in egalitarian hunter-gatherers. *Nat Commun*. 2014 Dec 16;5:5789. doi: 10.1038/ncomms6789. PMID: 25511874; PMCID: PMC4284614. <<https://pmc.ncbi.nlm.nih.gov/articles/PMC4284614/>>.

23 Gowdy, John, 1999.

24 Lee, R. B., 1980, *The !Kung San: men, women, and work in a foraging society*. Cambridge: Cambridge University Press. <<https://www.cambridge.org/be/universitypress/subjects/anthropology/social-and-cultural-anthropology/kung-san-men-women-and-work-foraging-society>>.

25 Kain, J.P.; Chapman, John; Oliver, R. (2004). *The Enclosure Maps of England and Wales 1595–1918 A Cartographic Analysis and Electronic Catalogue*. Cambridge: Cambridge University Press. ISBN 0-521-82771-X.

26 Kaplan, Jed O., Kristen M. Krumhardt, Niklaus Zimmermann, *The prehistoric and preindustrial deforestation of Europe*, *Quaternary Science Reviews*, Volume 28, Issues 27–28, 2009, Pages 3016-3034, ISSN 0277-3791, <https://doi.org/10.1016/j.quascirev.2009.09.028>. <<https://www.sciencedirect.com/science/article/pii/S027737910900331X>>.

27 Zanella, Matteo et al. , Dosage analysis of the 7q11.23 Williams region identifies BAZ1B as a major human gene patterning the modern human face and underlying self-domestication. *Sci. Adv.*5, eaaw7908 (2019). DOI:10.1126/sciadv.aaw7908. <<https://www.science.org/doi/10.1126/sciadv.aaw7908>>.



established neurologically<sup>28</sup>. As a result, he developed prosocial behaviour. In linguistics, it is argued by language scientists that this pro sociality was also crucial for language acquisition<sup>29</sup>. The obvious assumption is that this supported egalitarian relations for tens of thousands of years.



*Figure 2: The Yanomami are the largest relatively isolated tribe in South America. They live in the rainforests and mountains of northern Brazil and southern Venezuela. Courtesy Survival International, <https://www.survivalinternational.org/tribes/yanomami>.*

However, the biological and neurological potency is insufficient. The specific sociological explanation for egalitarianism is at least as important. Indeed, egalitarianism must still be borne by the group, the community. The explanation can be found in the way the relatively small populations of hunter-gatherers guarded their cohesion. The group ensured that no one could take charge, the 'inverse dominance hierarchy' described by Christopher Boehm<sup>30</sup>. But here, too, complex culture is at play. Ensuring that everyone got their fair share in the distribution of food equally countered conflict and fostered cohesion. What is crucial in this system is not only that it is cooperative but also continuously deliberative, there is constant deliberation.

28 Krach S, Paulus FM, Bodden M, Kircher T. The rewarding nature of social interactions. *Front Behav Neurosci.* 2010 May 28;4:22. doi: 10.3389/fnbeh.2010.00022. PMID: 20577590; PMCID: PMC2889690. [<https://pmc.ncbi.nlm.nih.gov/articles/PMC2889690/>](https://pmc.ncbi.nlm.nih.gov/articles/PMC2889690/).

29 Boecks, Cedric, 2023, What made us “hunter-gatherers of words”, *Front. Neurosci.*, 09 February 2023, Sec. Neurogenomics, Volume 17 - 2023, <https://doi.org/10.3389/fnins.2023.1080861>, <https://www.frontiersin.org/journals/neuroscience/articles/10.3389/fnins.2023.1080861/full>.

30 Boehm, C., 1993, Egalitarian behavior and reverse dominance hierarchy. *Curr. Anthropol.* 34, 227–240. [https://takku.net/mediagallery/mediaobjects/orig/3/3\\_christopher-boehm---egalitarian-behavior-and-reverse-dominance-hierarchy-pdf.pdf](https://takku.net/mediagallery/mediaobjects/orig/3/3_christopher-boehm---egalitarian-behavior-and-reverse-dominance-hierarchy-pdf.pdf).

## Gender equality

Gender equality is also an important aspect of foragers' culture. We will come back to that too, but we already mention it because it also played a role in production. Not only are all groups mixed, kin and non-kin, but both men and women participate in hunting or gathering<sup>31</sup>. It also plays an important role in the composition of activity groups, in which both men and women have their say<sup>32</sup>.

Although archaeologists sometimes interpret the discovery of beads and other artefacts as primitive money, and barter of goods is also seen by some anthropologists as the product of reciprocity, Marshall Sahlins proposes "a theory of value in non-exchange, or of non-exchange value"<sup>33</sup>. He summarises briefly:

"...from one point of view, the tribal plan presents itself as a series of concentric spheres, beginning in the close-knit inner circles of residence and hamlet, then expanding into wider and more diffuse zones of regional and tribal solidarity, to fade into the outer darkness of an inter-tribal arena. This is simultaneously a social and moral design of the tribal universe, setting behavioural norms for each sphere appropriate to the degree of common interest."<sup>34</sup>

But there was thus a system of sporadic trade or exchange. Archaeological research shows that obsidian tools in Africa, for example, were found in settlements while their sites were tens of kilometres away<sup>35</sup>. You can find several [maps](#) of obsidian routes on the blog of the Dept of Archaeology at the University of Sheffield. Below is a map for the period 14,000 to 12,000 BC.

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31 Endicott, Kirk & Karen Endicott, 2008, *The Headman was a Woman, The Gender Egalitarian Batek of Malaysia*, Waveland Press inc., ISBN 978-1-57766-526-7. p.5.

32 Dyble, M, Salali, GD, Chaudhary, N, Page, A, Smith, D, Thompson, J, Vinicius, L, Mace, R & Migliano, AB, (2015). 'Sex equality can explain the unique social structure of hunter-gatherer bands' *Science*, vol. 348, no. 6236, pp. 796-798,  
<[https://www.researchgate.net/publication/276356710\\_Human\\_behavior\\_Sex\\_equality\\_can\\_explain\\_the\\_unique\\_social\\_structure\\_of\\_hunter-gatherer\\_bands](https://www.researchgate.net/publication/276356710_Human_behavior_Sex_equality_can_explain_the_unique_social_structure_of_hunter-gatherer_bands)>.

33 Sahlins, Marshall, 2016, pp. 260-262.

34 Sahlins, Marshall, 2016, p. 262

35 Morgan, C., Harvey, D. C., & Trout, L. (2016). Obsidian conveyance and late prehistoric hunter-gatherer mobility as seen from the high Wind River Range, Western Wyoming. *Plains Anthropologist*, 61(239), 225–249.  
<<https://www.jstor.org/stable/26631275>>.



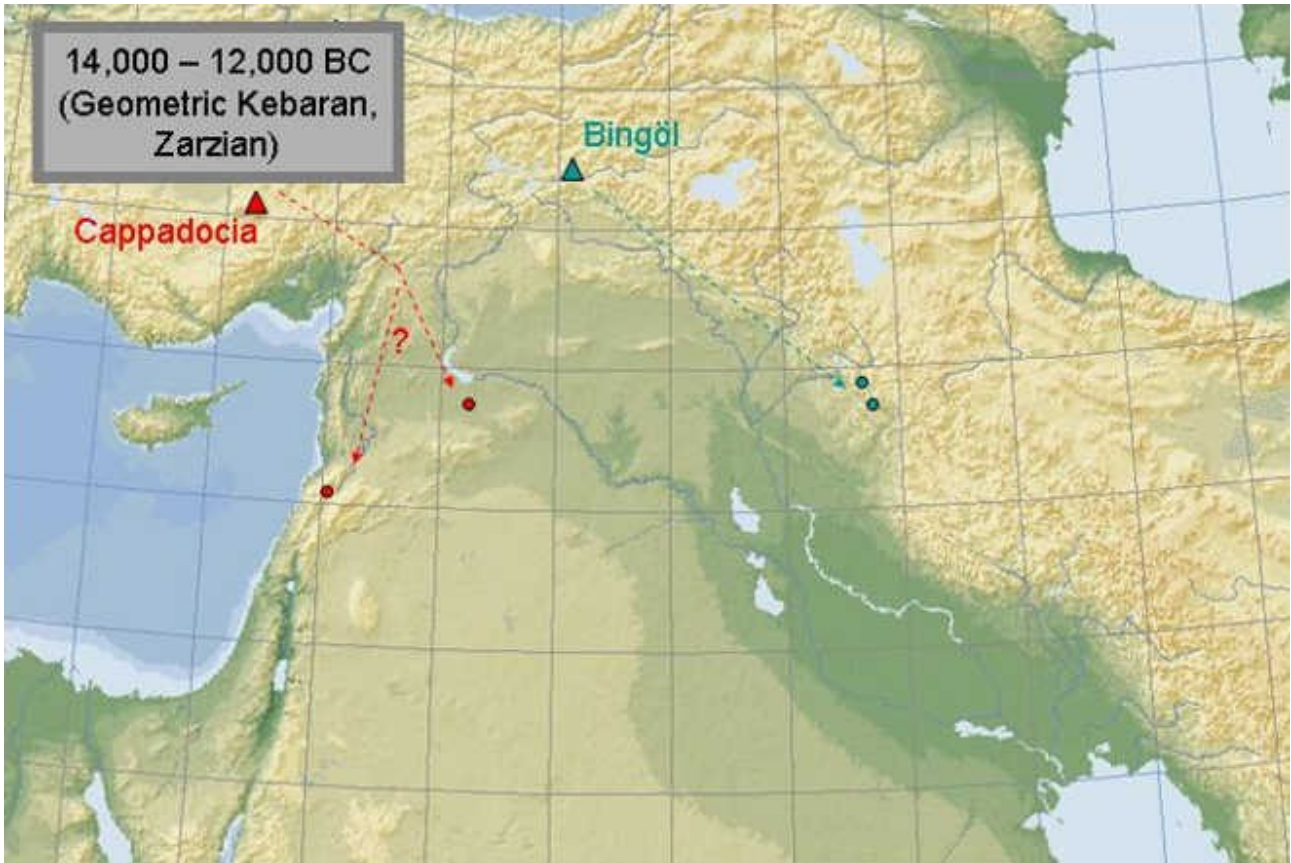


Figure 3: Obsidian routes, *Obsidian Atlas*: courtesy of Dept of Archaeology at the University of Sheffield, <https://www.archatlas.org/journal/asherratt/obsidianroutes/>