

Unwritten knowledge

Preliterate societies depend on the wise words of the older generations.

Jared Diamond

Thanks to modern science and public health, most women *Nature* readers will live to experience menopause. About half the journal's readers of both sexes will experience their eightieth birthday, and many will reach their nineties. But severe social problems await our elderly — and also their middle-aged offspring, who must care for aged parents and young children simultaneously. The root of those problems is that modern society has no productive role for old people: they are considered useless, and both they and their caretakers know it. How did we get into this miserable situation?

It is often claimed that old age and menopause are artefacts of improved modern living conditions: that few women used to reach the age of menopause, and few individuals of either sex survived to 60. I believe instead that menopause and old age have been human hallmarks for a long time. Together with our large brain and upright posture, they played a decisive role in human evolution.

My views are based on my observations of dozens of human societies in New Guinea, many of them only recently contacted, living largely traditional lifestyles, and receiving little or no medical care. In every village, I encounter many people in their fifties (as estimated by their memories of datable events), and some in their seventies and eighties. The condition of these old people differs greatly from that of aged Westerners in three respects.

First, they remain integrated in the societies where they grew up. They live in the same huts as their children, surrounded by relatives and friends. Descriptions of retirement homes and Sunday visits provoke astonished outrage in New Guineans.

Second, younger relatives care for infirm old people in ways surprising to us. For example, many old New Guineans are virtually toothless, so they eat food that their children have chewed until soft and spat into a bowl for them.

Finally, old people are the repositories of knowledge in preliterate societies. In my field studies of New Guinea birds, I start work in a new area by gathering the oldest hunters and quizzing them. Out pour accounts of the 127 bird species (and hundreds of other animal and plant species) known to them, each given some name in the local language, with incredibly detailed information about behaviour, diet, habitat, nest and edibility or other uses.

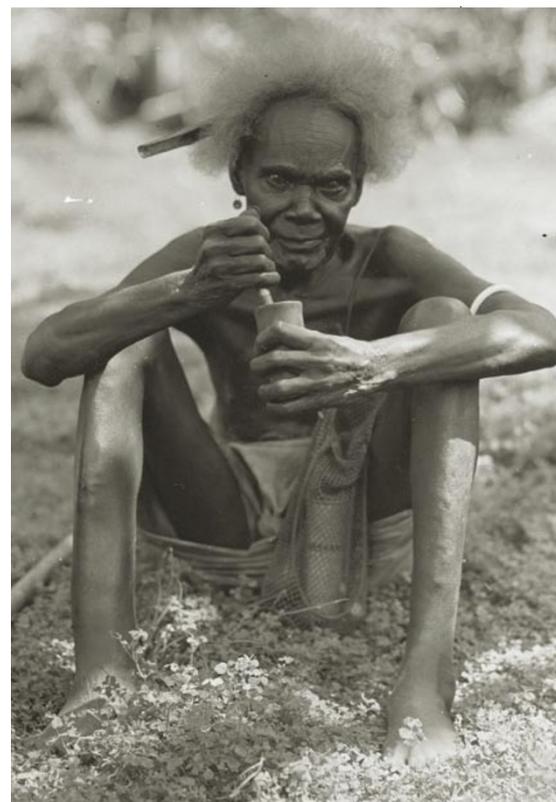
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When the hunters are stumped by my asking about some especially rare bird, they answer: "We don't know, let's ask the old man (or woman)." We go into another hut, where we find a blind and toothless old person who can describe a rare bird last seen 50 years ago.

Some of that stored information is essential to the survival of the whole village, whose members include most living relatives of the old person. The information encompasses wisdom about how to survive dangers — such as droughts, crop failures, cyclones and raids — that occur at long intervals but that could kill the whole tribe if it did not know how to react. For instance, on Rennell Island in 1976, I was quizzing local people about trees: for each tree species, what (if any) animal ate its fruit, and did people also eat it? I soon learnt that trees were divided into three categories: fruit inedible to humans, fruit normally eaten by humans, and fruit eaten only in famine times such as "after the *hungi kengi*". I had never heard of a *hungi kengi*, and my middle-aged Rennellese informants did not know what fruits to eat after it. Instead, they led me to a hut in which lay a frail old woman, who named a dozen fruits to eat during that time.

It turned out that the *hungi kengi* was the most destructive cyclone in modern Rennellese history, datable to around 1910. It had destroyed gardens, forcing people to rely on 'famine foods' that were normally not eaten but that old survivors of the previous cyclone remembered as safe and nutritious. In 1976 that old woman must have been in her early eighties, because she said that she had been a child not quite of marriageable age when the *hungi kengi* struck. Upon her knowledge would hang the survival of villagers bearing her genes, when another cyclone should strike.

For us moderns, all information essential to survival is transmitted in writing. We cannot conceive of a preliterate society's absolute dependence on old people as the equivalent of libraries. We forget that



Wisdom of age: the knowledge of elders is passed by word of mouth in preliterate societies.

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all human societies were preliterate throughout 99.9% of human evolution, from our evolutionary divergence from apes five million years ago until the first writing around 3400 BC. As a species, we are unique in the degree to which our survival depends on detailed knowledge transmitted culturally through language rather than genetically. We are also unusual even among primates in our large and persistent social groups, complex social relationships, and long lives.

I suspect that the value of old people to their relatives' survival arose with language and was the selective factor behind the evolutionary slowdown of human senescence. It also drove the evolution of human female menopause, because a woman's risk of death in childbirth and lactation was traditionally high and increased with age, whereas men never die from childbirth and lactation. Similar considerations may have driven the evolution of menopause in killer whales and pilot whales, which also live in lifetime groups with complex relationships and culturally transmitted survival techniques. While watching individually recognized killer whales recently, I saw an 85-year-old, long post-menopausal, female still accompanied by her 55-year-old son. How can we now restore social value to old people and cope with the tragedy of growing old in our literate societies? ■

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