Social interaction

Survival in extreme isolation

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WE think of ourselves as members of a social species for whom solitary confinement is the cruellest punishment, social isolation breeds psychopathology, and breakdown into small isolated groups leads to individuals becoming prone to malfunction. Interest in these issues is growing with concerns (for example, ref.1) about whether any fragments of humanity left after a global nuclear war would survive the ensuing isolation. The best guides to these questions are several 'natural experiments' in prolonged extreme isolation, the longest of which ended 75 years ago.

On 29 August 1911, a starving, terrified, grief-stricken Indian man appeared at a corral in northern California, having just emerged from 41 years of hiding in a remote canyon. Ishi (as he became known) belonged to the Yahi tribe, who initially numbered several hundred until most were massacred by white Californian settlers between 1853 and 1870. In 1870 the 16 survivors of the final massacre went into concealment in the Mount Lassen wilderness and continued to live as hunter–gatherers. By 1894, their numbers had dwindled to five; by 1908 to four. In November 1908, surveyors stumbled upon the last Yahis' camp and took all their tools, clothes and winter food supply, with the result that three of the Yahis (Ishi's mother, his sister and an old man) died, leaving Ishi alone for three more years. Eventually he could stand it no longer and walked out to white civilization, expecting to be lynched there. In fact, he was employed by the University of California Museum at San Francisco, where he helped anthropologists to reconstruct his former lifestyle[2,3].

There have been a few documented cases of isolation similar to Ishi's, the most famous being the 18-year concealment of the HMS *Bounty* mutineers on Pitcairn Island (1790–1808)[4]. Less well known are the 18-year isolation of a lone Indian woman on San Nicolas Island (1835–1853)[5] and the Japanese soldiers who remained concealed for decades in the jungle after the end of World War II on the Pacific islands of Guam, Morotai and Lubang[6,7]. The marked differences among these groups or individuals in morale, health and death rate provide sobering lessons for prospective nuclear-war survivors. At one extreme, murderous dissension, suicide and alcoholism wracked the Pitcairn colony until 14 of the 15 adult men were dead. At the opposite extreme, the morale of the San Nicolas woman and especially of Lubang's last soldier remained excellent, even though they had to endure complete isolation. If one compares the successful with the less-successful isolates, seven qualities notably absent in the *Bounty* settlers and present in the Yahis stand out:

1. Long familiarity with the local environment. Only the Yahis and the San Nicolas woman had spent their entire lives in their outdoor prison and already knew how to find and extract its resources. In contrast, some of the Japanese soldiers starved.

Ishi on 29 August 1911, the day he emerged from 41 years of hiding. (Lowie Museum of Anthropology, University of California, Berkeley.)

2. Long harmonious experience as a group before isolation. The Yahis, unlike the other isolates, were a pre-adjusted group that had grown up together from infancy. The *Bounty* settlers were a mixture of three groups (from England, Tahiti and Tupuai) who met only months before sailing for Pitcairn.

3. Cultural homogeneity. The Japanese soldiers of Guam and Lubang, although they had not spent their lives together, had a common culture and language, whereas the Polynesians and English on Pitcairn had great cultural differences that were resolved by inter-racial murder.

4. No attempts by some group members to parasitize others. Although all members of the Yahi and Japanese groups shared the work, some *Bounty* mutineers treated the Polynesians as slaves.

5. Non-competitive egos. Yahis were notably formal, polite and non-competitive, but sexual competition triggered a suicide and some murders on Pitcairn. Although the last surviving mutineer, Alexander Smith, is traditionally depicted as a saintly father-figure, he may actually have instigated the murders of other *Bounty* mutineers to get their wives[4].

6. Willingness of individuals to assume new roles. The San Nicolas woman had to assume all the tasks traditionally associated with men; the Japanese soldiers assumed women's tasks such as cooking and sewing; and the Yahi men and women shared tasks. One seemingly trivial example that the last Lubang survivor cited to illustrate role flexibility was that when his group had dwindled to three, the procedure for haircuts was to rotate the roles of barber, client and sentry.

7. Shared belief in a righteous purpose. The Japanese soldiers on Lubang maintained their morale, even when only one survived, because they believed that the war was continuing and that they were fighting for Japan. They continued to light signal fires for Japanese ships that they hoped would be in the vicinity, even in the 1970s. Ishi's morale crumbled only after the deaths of all his companions had left him as the last survivor of a doomed race.

In the United States, groups called 'survivalists' have recently been practising how to live in rural wildernesses in the aftermath of a nuclear holocaust. How will they and the rest of us fare[1], compared with the Yahis? Post-holocaust fragments of humanity may well share the Yahis' advantage of cultural homogeneity, and the survivalists may be pre-formed groups. On the other hand, egos, attempts at parasitism, loss of sense of purpose and unwillingness or inability to broaden roles pose obvious risks. As for local knowledge, we may prove incapable of extracting metals, with the experts dead, the smelters destroyed and those ores accessible to simple technologies mined long ago. Who will be capable of rediscovering neolithic techniques that took *Homo sapiens* millenia to invent, and Ishi many decades to learn from his teachers? □

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2. Kroeber, T. *Ishi in Two Worlds* (Univ. California Press, Berkeley, 1961).
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4. Kennedy, G. *Bligh* (Duckworth, London, 1978).
5. Hardcare, E. in *The California Indians* (eds Heizer, R. & Whipple, M.) 272 (Univ. California Press, Berkeley, 1971).
6. Onoda, H. *No Surrender: My Thirty-Year War* (Kodansha, Tokyo, 1974).
7. *Asahi Shimbon* correspondents *Twenty-eight Years in the Guam Jungle* (Japan Publications, Tokyo, 1972).

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