

LOUIE PALU/THE GLOBE AND MAIL

A sprawling industrial complex that produces about 40 per cent of Canada's petrochemicals surrounds the Aamjiwnaang Reserve on the outskirts of Sarnia. The reserve, founded in 1827, is downstream from where the so-called Sarnia blob of dangerous chemicals was found on the bottom of the St. Clair River in the 1980s.

Where the boys aren't

Living with constant pollutants emanating from a dense concentration of chemical plants, a native band struggles to understand why women are giving birth to a disproportionate number of girls

By MARTIN MITTELSTAEDT
SARNIA

Over the past five years, the Aamjiwnaang First Nation on the outskirts of Sarnia has had nearly two girls for every boy, an unusual run of female births.

Last year, it was nine boys to 19 girls. The year before it was 10 boys to 21 girls. And the year before that, only six boys to 15 girls. In the mid-1990s, baby girls began dominating around 1993, but the trend to female births has become most pronounced in recent years. After a decade of a girl-baby boom, boys often complain of not having friends nearby to play with, and it's never a problem to fill a girls' sports team.

But the long string of female births is starting to cause deep unease. Many women have also reported multiple miscarriages, and local elementary schools, a large number of children have been identified as having developmental delays.

"We're in almost a period of denigrity now. This can't be. There are so many things wrong, it can't be," Darren Henry, a band member, says.

His wife, Kim Henry, who works as a native counsellor at one of the schools, fears that living so close to any chemical plants is affecting the reserve's children. "Are our kids going through all of this because of the chemicals here and the leaks that are happening?" she asked.

At the reserve, there usually isn't much doubt about what sex a child will be these days. Lisa Joseph has had four girls and one boy, all under

"I have the one and only boy in my part of the family," she says.

Two of her sisters have had six girls between them and a third sister now pregnant. "She is probably going to have a girl," Ms. Joseph says.

In Canada, and in most industrialized countries where sex ratios have been studied, the percentage of boys born has been in a slight,

long-term decline for reasons that are not entirely clear. This trend began in Canada around the start of the 1970s.

Some researchers suspect that environmental pollutants, many of which act like female hormones, could be a factor. Several chemicals, including dioxin, PCBs (polychlorinated biphenyls) and hexachlorobenzene, a chemical used in rubber manufacturing, have been associated with excess female births.

Samples taken from around a creek that winds through the reserve have been found to be contaminated with both PCBs and hexachlorobenzene, among other chemicals.

"There is certainly growing evidence that environmental chemicals, even at fairly low levels, can alter sex ratios," says Shanna Swan, a professor in the department of family and community medicine at the University of Missouri-Columbia, who has conducted research linking poor sperm quality to pesticide exposure.

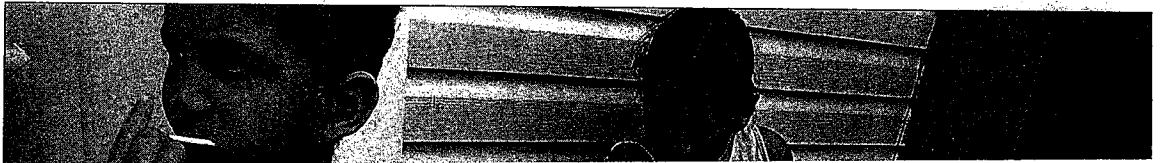
Fertility drugs, such as clomiphene citrate, also lead to more girls being born.

The normal state of affairs in the human sex ratio has been for a slight surplus of males, with about 106 boys born for every 100 females. At the time of conception, the ratio is even more dramatic, with about 120 males for every 100 females.

That more boys generally are conceived and born is thought to be the way humans evolved to compensate for the higher fragility of male fetuses and the higher mortality rates among males once they are born.

"It's a feedback mechanism that protects against excess male attrition," says John Jarrell, a gynecologist at the University of Calgary, who helped compile the study showing the decline in the ratio of male births in Canada.

At Aamjiwnaang, the expected situation — slightly more male births than female — prevailed among the band's approximately 1,500 members from 1984 to 1993. It is not clear why the ratio sud-



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The Josephs are a typical family on the Aamjiwnaang Reserve — most of them are girls. Seen here, from left, are Jocelyn, 6, Jimmy, 9, Shyanna, 4, and Nicole 10. Their father, Allen, is holding Shawna, seven months. Below, men remove soil where toxic waste was dumped on the reserve.



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denly tipped the other way.

Ada Lockridge, one of the band's councillors, suspects chemical exposure and says one major incident occurred around the time of the change. She shows visitors an article from the local paper about an evacuation that took place at the reserve in December of 1993, after a

fire and chemical release at the nearby Suncor plant.

Sarnia's chemical valley has been built literally to the edge of the reserve, with a who's who of major companies often just across the road or around the corner. Besides Suncor Energy Inc., the neighbours include Imperial Oil Ltd., Shell Can-

ada Ltd., Dupont Canada Inc., and Dow Chemical Canada Inc. Residents say they have watched workers protected by space suits go about their jobs, while they stand watching from the reserve.

The native community was granted its land at the southern edge of Sarnia in 1827. Much of the 14-square-kilometre reserve remains forested and is dotted with suburban-style homes, an incongruous sight in the middle of a sprawling industrial complex that has 20 per cent of Canada's refineries and produces about 40 per cent of its petrochemicals.

The reserve is also located just downriver from where the so-called Sarnia blob of dangerous chemicals was found on the bottom of the St. Clair River in the 1980s.

Residents complain there is almost always some sort of stink in the air. Sometimes it's like rotten turnips. Other times it's like rotting eggs. Each corner of the reserve has a slightly different stench.

Being hemmed in by big chemical complexes means any exposure to harmful compounds is likely to be far greater than in Sarnia itself, where most residents live kilometres away from the plants.

There are about 20 chemical

plants or refineries in the area whose emissions are large enough that they must be reported to Environment Canada's national registry of pollution releases.

Earlier this year, Ontario sent its environmental SWAT team to Sarnia because of the high number of chemical spills. The St. Clair River near Sarnia is also one of the sites where federal environmental scientists have found male wildlife species with blurred sexual characteristics.

Finding explanations to the puzzling birth trend will require a major study comparing the reserve to other similar native communities that don't have such high chemical exposure, according to Dr. Jarrell.

On the ground in the reserve, Mr. Henry, who helped coach teams, says girl squads were easier to assemble. "I know it was a lot, lot easier to raise a team of girls to play sports than it was for boys. It just seemed like there was a whole lot of girls here."

Edna Cottrelle, who lives about 10 houses down from the Suncor plant, says her son Nodin, 11, finds the shortage of boys acute. "There are no boys his age along the river," she says. "He's always complaining."