useful to make a historical analogy with the development of the awareness of the nuclear physicists in the 1930s, of the possibility of a chain reaction when splitting the uranium atom. At the time, that is immediately after the announcement of the splitting, very few nuclear physicists thought hard about the consequences to humanity of life in a nuclear age and the possibility of a large scale nuclear war in which billions of human beings would die.

Some intelligists feel that a similar situation is developing now with the connectionist revolution. The intelligists concerned, are worried that if the artificial intelligence community simply rushes ahead with the construction of increasingly sophisticated artielects, without thinking about the possible long term political, social and philosophical consequences, then humanity may end up in the same sort of diabolical situation as in the present era of possible nuclear holocaust.

Within a single human generation, computer scientists will be building brain-like computers based on the technology of the 21st century. These true “electronic (optical, molecular) brains” will allow neurophysiologists to perform experiments on machines instead of being confined to biological specimens. The marriage between neuroengineers and neurophysiologists will be extremely fruitful and artificial intelligence can expect to make rapid progress towards its long term goal of building a machine that can “think”, a machine usually called an “artificial intelligence”, or “artielect”.

However, since an artielect is, by definition, highly intelligent, (and in the limit, ultra intelligent, that is, having an intelligence which is orders of magnitude superior to ours), if ever such a machine should turn against humanity, it could be extremely dangerous. An atomic bomb has the enormous advantage, from the point of view of human beings, of being totally stupid. It has no intelligence. It is human beings who control it. But an artielect is a different kettle of fish entirely.

Artielects, unlike the human species, will probably be capable of extremely rapid evolution and will, in a very short time (as judged by human standards), reach a state of sophistication beyond human comprehension. Remember, that human neurons communicate at hundreds of meters per second, whereas electronic components communicate near the speed of light, a million times faster. Remember, that our brains, although containing some trillion neurons, has a fixed architecture, as specified by our genes. The artielects could choose to undertake “Darwinian experiments” on themselves, or parts of themselves, and incorporate the more successful