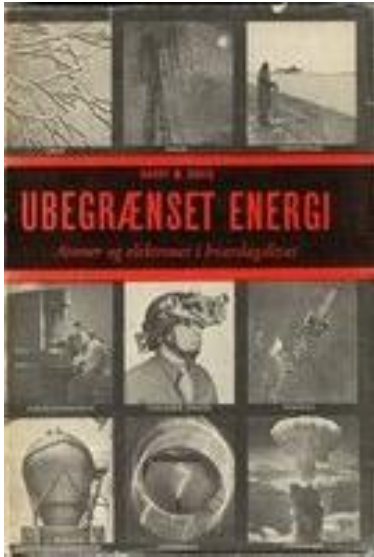


BIOTECHNOLOGY



ENERGY UNLIMITED

"Energy Unlimited" by Harry M. Davis was published in Danish 1948. It is too late to review the book, but it was fascinating reading for a teenager.

Now 60 years later energy unlimited is still not within reach and we will need to economize on the fuel we have got.

Thirty years ago there was a growing concern for running out of everything. "Limits to Growth" threw shades into direction offices all over the world. That was the case in "Grindstedværket", Grindsted

Products, my employer at the time. The Academy of Technical Sciences" (ATV) put our resources and opportunities on the agenda for years and it was my fate to participate in these meetings and predict the future - applied future science - not to be taken by surprise.

I recall a homemade tool from that time. It was a mathematic model of the world food supply. In this model I have presumed a tripartite globe - one third as a nature park with no access for humans, one third as recreational areas without residents and one third for humans and their activities.

Based on FAO's agricultural and climatic data the yield of farming could be calculated for various input of energy and with various animal husbandry. The data were transferred to punched tape and General Electric Mark I time-sharing FORTRAN in USA did the arithmetical problem. No wonder for the thoughtful reader it turned out that the globe could feed a pre-industrial population - one billion - and no more without any fossil fuels.

It was comforting then as it is now, that with a family policy of two children per family (equivalent to an average birth rate of $1\frac{1}{2}$ per woman) we can get down to a pre-industrial population in less than three hundred years. This is actually the rate experienced in most European countries today. This will give us time to develop energy sources and technologies - even with a substantial livestock.

Probably mankind cannot agree to that. One thing for sure is that our coal supplies will be burnt no matter how much we economize and it will come to blows.