Science, Secrecy and Power

Opening speech by Madame Alva Myrdal, Sweden, (former Cabinet Minister in charge of Disarmament)

Your Majesty, Mr. President, Ladies and Gentlemen. Among the distinguished specialists here assembled I have no domicile rights neither by training nor by my professional work.

Rather, I stand before you to represent all the alert citizens who have been following with admiration how your new science and technology have brought about a tremendous expansion of the human brain's capacities to combine elements of knowledge, and combine them with unbelievable speed. We are, really, filled by admiration, but also by wondrous awe, at the remarkable development, which automated processing of information is generating in all azimuths over the horizon.

The programme for this Congress amply testifies to the vast range of achievements already made and aspirations of new discoveries and applications to come.

We are, of course, also aware that it must leave out some fields and even tends to create new problems.

Human and social relations are of a kind and a dimension that can never be completely fitted into even the most intricate machine. Because the human mind does not deal only in logics, we must give the computer scientists right when they argue that any tasks, defined in rational terms, can be handled better by their machines than by our brains, with fewer errors and incomparably greater speed. Outside all what is not so rational but represents all the charming, odd, creative, adaptive qualities which make man supreme because he is human.

Computer, science, cybernation, or how you prefer to name it, must leave unresolved such deeper problems of the human life and the organization of society. There are also signs that it is exactly in those domains that the new technical conquests themselves contribute to create new problems. So, a public debate has been unrolling itself in many countries, focussing on the problems connected with the social role of computers. Just in the present era and particularly just in this country, this debate has been very lively, to say the least. Therefore, expectations on part of the general public are probably rather different from your own expectations of what this Congress will give.

It goes without saying that as explorers and inventors you must at this Congress give the lion's share to an exchange of technical ideas. But we hope also to get some guidance as to important problems connected with the transition from specialized idea-exchange to public debate. But perhaps the experts are as baffled as are citizens at large, in regard to the social impact of their own creation.

So I can quite understand if the Congress may have wanted to get such guidance from this very opening speech. A masterly vision of how to deal with this cardinal question of where the interface must be considered between men and machines, the confrontation between computerized knowledge of facts and human desires, between problemsolving in the deterministic terms of automated logic and society's strivings to change. I can do much less.

I have given my talk the title Science, Secrecy and Power, in order to remind us all, by some brief points, how your field is "situated" in our culture, and how at

the bottom of all your specialized concerns there lie a host of ethical problems. I hope that they will be ventilated at the open sessions foreseen. I also venture to express the hope that these discussions, on the social impact will go deeper into the complexities than the current popular debate. It has come to concentrate on but one aspect, which is of course of legitimate and pressing concern, but does not fully probe the problem field. This debate has evolved around the rights of individuals as human beings, the protection they want for their integrity as persons, and a maximum of individual leeway for them to take responsibilities of their own as citizens, as workers, yes, as patients and as family-members.

In order to help to widen the forthcoming debates on the social impact of computer science and technology, I venture just to raise a few points, which are reflected in my chosen title:

SCIENCE–What is really the driving motivation for advances in science and sophistication of technologies? How far can it go in its inborn lust for perfection? Does it risk to turn into "technology for its own sweet sake"? Can perfectionism become too costly for society? But this is a question for your own "science policy". I leave it for the second point for which I have chosen the watchword POWER. KNOWLEDGE IS POWER–we all know. But power for whom? The manifold, yes millionfold, expansion of knowledge you present to the world means an increase in power. But power to be used by whom? The computer technologies are, of course, neutral in themselves. This neutrality is symbolized in the fact that–in the Programme–the occupational affiliation of the participants is not given, whether they belong to academia, to industrial, administrative or military establishments. All of these are important employers of the talents you represent.

The overarching problem for society as a whole is just: by whom are the new instruments for increased knowledge to be used? When somebody finances them they do not function in the refined air of theoretical interests. They always contribute to an accumulation of power. An inescapable consequence is that those who possess the most advanced systems–be they nations, firms or groups–also wield the greatest power. How can this power concentration be made socially responsible?

Let me take two examples, widely different, as far as this ethical question of power, but both derived from the most advanced combination of information theory and systems analysis, coupled with the possibility electronically to computerize information from satellites, these new super eyes in the skies. The first one is like a fairy tale of the miracle success that computerization has brought a field like weather forecasting. When the pioneer of modern dynamic meteorology, L. F. Richardson wrote his "Weather Forecasting by Numerical Processes" in 1922, he outlined–for putting his theoretical dream into practice–a system using "human computers", but he needed 64 000 of them, working in a "Forecast factory".

Today, weather prediction problems requiring many million times more computing capacity are solved many times a day as a routine. And now comes my sensmoral: this is done in the service of mankind, without danger of misuse of the power of that accumulated knowledge. We have internationally organized a World Weather Watch. This is my positive, I might say glorious example of how your devices may be used to great benefit. The other example refers to military applications, a subject I know somewhat better but have not found mentioned at all in the programme. The two superpowers, US and USSR, who are the only ones to possess satellite capacities worth mentioning, have used these not for pooling observations, but for their own interests. A telling example was given in the last Israel-Arab war, the so-called Yom Kippur war. The new yearbook from SIPRI–Stockholm International Peace Research Institute shows the trajectories

travelled during this period, by US as well as by Soviet reconnaisance satellites. They demonstrate how closely the battlefield was scanned by these supereyes, and the observations registered computerwise nearly instantaneously, in what I believe you call real-time terms. These examples ought to teach us that the technical developments may be encouraging, but only under the proviso that there is *open sharing of the information.*

I want to underline that this is a conclusion that must be drawn not least in civilian, e. g. economic and political connections: The problem of power over the information, now so much more effectively collected and stored, becomes over-awing. Democracy is really being made more difficult. While the multiplication table was a democratic device, available to every-man, the computers are per se shutting off information from the ordinary people. As citizens we must all be vitally concerned with the question who wields the power over information processing and distribution?

So I arrive at my third point–SECRECY–the dilemma between openness and secrecy. Those who are the masters in control, the owners of the computer-stored information must be confronted with a most vexious ethical problem: when to apply secrecy and when openness in the circulation of computer-stored information. A key to this delicate choice may in general terms be found in a distinction of whether it is social or human relationships that are involved and may be revealed.

For society as a whole I hold it to be adamantly important that information of concern to social matters should be laid wide open. Information in the anonymous form of statistics is necessary for carrying out social reforms. But openness is needed more generally in order to defend and effectivize democracy. Citizenship must be based on knowledge. Information of value for social and political decisions should not be allowed to be buried by any power group to be used at its own discretion, perhaps at the detriment of others. This is a lesson I have painstakingly learned from my participation in international negotiations. To let the world know your strength is much more effective than having it guess about your weaknesses–and that holds in commercial dealings as well as in disarmament discussions.

The military have been the greatest protagonists of secrecy. It has led us into a kind of weapons culture where their policy of secrecy even justifies the practice of espionage as a counterpart. But we have also learned enough about the disastrous blunders caused by their mutual secretiveness. The most calamitous for the whole world, to see and to suffer from, was of course the development of the atom bomb in the mistaken belief that Hitler was about to have it.

The conviction emerging that all secretiveness about facts of importance to society is unethical is very much strengthened when information is becoming stored in the concentrated and highly effective way of computers if we accept as a truism that "knowledge is power" then it should follow that "secret knowledge is illicit power".

This is the pivotal point around which so much hot air has lately been turning in the public debates concerning your field of interest in country after country: Who has power over all this information? and–more personally–Do they get power over me?

Here we come to the one sector where the interest in secrecy must outweigh that of openness. It is where the individual human being is concerned. The debate of today largely hovers around this question of preserving human integrity, yes, one might say about the human being's protection from an almighty machine culture.

The debate in this country which is host to your Congress may be of some interest as we have defended rather in extremity the respect for the double aspects, laid down by our system of government, of on one hand open access to public

documents in general but also on the other a deep respect for the integrity of the individual. This was not so much of a dilemma in olden times when free access to public documents still shielded them from excessive curiosity of neighbours by the sheer trouble of travelling to the non-centralized documents of individual bureaucracies. Computerization of personal data and the possibility of linkage between various registers has changed all that.

The situation has become particularly delicate in Sweden on account of at least three social factors that are typical of our society:

(1) the near-sacrosanct principle that all kinds of documents shall be openly available to the public,

(2) the multiplication of what must be considered as documents, data, information occurring through the very rapid application of computer processing, and

(3) the fact that every Swede is given a personal indentification number.

Thus it is made particularly easy to cross-reference computer registers and through linkage obtain any amount of personal data.

The international literature has now told the story how we have sought to handle the manifold problems, first and foremost by establishing a Data Inspection Board with sweeping powers over Data Banks. The law provides penalties not only for unauthorized operation of a data bank and for improper disclosure of information gained through employment in a data-processing activity, but also for the offence of "data trespass", i. e. unauthorized access to computerized records. So here we have got what is probably the first Data Ombudsman with responsibilities encompassing a whole nation. From the point of view of the individual citizen it is important, not only that his integrity be protected but that the law also gives him the explicit right to obtain information as to what the registers tell about him, be they kept by public administrations, or banks, or employers, etc. (But I hasten to add that the law only went into effect on July 1st, so perhaps you should "wait and see".)

Similar reforms are having a break-through in many more countries. You know that better than I do. (Also that these trends are given close attention in various international bodies, OECD, the Council of Europe, the International Commission of Jurists, and United Nations itself.) A close watch is certainly needed to keep up what should amount to a Code of Ethics for information processing. For those working in the field this becomes a personal concern. It is interesting to find that attempts are now being made to formalize such Codes of Professional Ethics also for the engineering and computer sciences–such as exists for medicine since Hippocrates day. If I reveal a certain suspiciousness it is because I personally have learned most about computer use in the military field to increase kill-effectiveness, and the computer is, as we all know, very much a brain-child of the war industry. This of course does not create any heredity of original sin for the whole field.

At another Congress, rather for engineers, such a draft code has recently been proposed. It lays down in one article, the rule

Inform yourself about the possible consequences, direct and indirect, immediate and remote of projects you are working on.

In Article 14. To the greatest extent possible, focus on work that you deem on balance to be of positive value to humanity.

In Art. 15 Where abuses of the public interest are encountered in the course of professional activities, speak out in whatever form is best calculated to lead to a remedy, and in

Art. 16 Help inform the lay public about technological developments and of the alternatives they make available.

Any code for information processing must bear a double task in mind, both to promote and to protect. We must look to a future where on one hand is exploited to the utmost the blessings which your new miracle methods of information processing promise, but where on the other hand the privacy of individuals can be respected as sacred.

With these words, may I end by saying how happy it makes a layman to see such a great number of experts ready to exchange experiences and views on what lies right on–and even beyond–the frontier of the new science and technology of processing information, making possible an explosive expansion of human knowledge. We wish you success, certain that your success will serve us all.