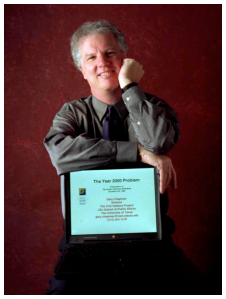
Remembering Gary Chapman

Diego Latella – CNR/ISTI – USPID – ISODARCO

ISODARCO Winter course – Andalo (TN) – Jan. 9 – 16, 2011



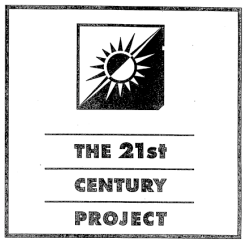
Dear All, first of all let me say that what I'm going to talk about today will be a mix of personal remembering, issues which Gary has been contributing to, emotions ...

The first time I met Gary, it was at one of the first Castiglioncello International Conferences organized by Unione Scienziati Per Il Disarmo (USPID); probably it was at the first of this series of conferences, in 1985. That was also the first time I was attending a meeting organized by the Pugwash-USPID-ISODARCO community: I had graduated in Computer Science in 1983; I was associated researcher with the Dept. of Computer Science of the University of Pisa (IT) and I had quite an optimistic and positive view on the possibilities of this discipline, I was not very familiar with the motto "Question Technology", the motto of Computer Professionals for Social Responsibility (CPSR), the association which Gary had just become Executive Director of, on Jan. 1, 1985.

The following is a short description of Gary which appeared in the CPSR Newsletter issue for welcoming him as the new Executive Director:

> *Gary's background includes military service, academic research, and organizational experience. He served in the United States Army Special Forces ("Green Berrets")* [as a doctor assistant, helping wounded] *where he became familiar with many high-tech weapon systems. He received his B.A. in political sciences, with honors at Occidental College* [Los Angeles] *and went on to the doctoral program at Stanford University. His research work there has focused on political philosophy, artificial intelligence and application of AI by the military.*
>
> [Gary Chapman – CPSR's New Executive DirectorThe CPSR Newsletter, 3(1), winter 1985, pag. 1]

Gary's research and knowledge dissemination work was amazingly manifold. Here I'll mention only a few of the very many initiatives and projects he has been conceiving, leading and implementing. As Executive Director of CPSR he lead the association in one of the most difficult as well as exciting periods, the war of reason and knowledge against Reagan's Star Wars. And CPSR was among the winners since it succeeded in building awareness of conceptual as well as technical flaws in the very idea of Strategic Defense Initiative (or SDI, the official name of Star Wars) within the computer science community, in USA and worldwide. But Gary was not only a



Logo for The 21st Century Project, designed by Coco Raynes Graphics, Inc., in Boston. This design was the result of a democratic process of choosing from several alternatives—members of the Boston and Palo Alto chapters participated in the selection.

Source: The CPSR Newsletter 9(4) – fall 1991

sophisticated thinker and intellectual. He was also *deploying* his ideas, putting into practice what he considered the *good side* of IT. After his CPSR experience, he directed the 21st Century Project

dedicated to expanding public participation in the development of new goals for science and technology policy in the post-Cold War era.

[The 21st Century Project web site]

The project, which had started already at CPSR, was funded for several years by the NSF and its implementation took place mainly at the Lyndon B. Johnson School of Public Affairs, the graduate school of public policy at the University of Texas in Austin, which Gary was also on the faculty of. The 21st Century Project's recent initiatives have included, among others, work on

- bringing computers and the Internet to low-income neighborhoods in Austin,
- responsible use of the Internet by young people,
- the deployment of broadband Internet connections in rural Texas,
- helping the State of Texas in reform of mental healthcare,

As channels for his dissemination work, he used not only specialized newsletters and magazines like the *CPSR Newsletter*, or the *Communications of the Association for Computing Machinery* or *The Bulletin of the Atomic Scientists*, but also newspapers: for six years he wrote the *Digital Nation*, the bi-weekly newspaper column on technology and society published in and syndicated by *The Los Angeles Times*. Recently he was writing a bi-weekly column for *The Austin American-Statesman*. But he has been writing for several newspapers, including *The New York Times*, *The Washington Post*, *The New Republic*, *Technology Review*.

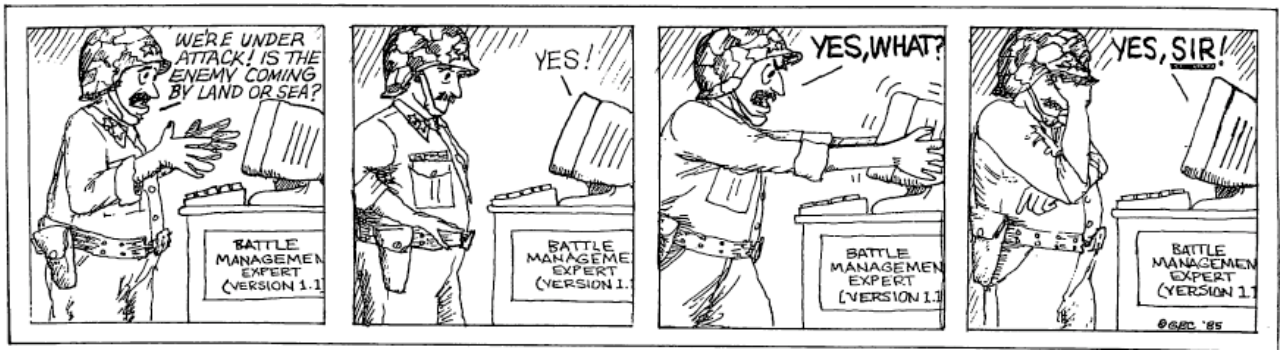
In 1987 he co-edited the book *Computers in the Battle. Will They Work?* noted as the Best Computer Book of the Year by the National Computer Press Association. He also co-authored other books in the field of computer science and society. He was also author and co-author of other books.

Gary's expertise and sensitivity on the relationship of (computer) technology and society brought to his appoinment, in 1999, to the selection committee for the ACM Turing Award, the highest award in computer science, the equivalent of the Nobel Prize for computer scientists. A few years later, Gary, "the leading thinker on social implications of computing"---as he was called for his appointment---became the Chair of the Committee.

Gary was also an ISODARCO and USPID friend. He took part at several Castiglioncello Conferences and lectured at ISODARCO courses (summer 1998, 1999, 2002, winter 2009). I had the pleasure and the priviledge to co-organize with Gary the two summer courses of 1999 and 2002. The first one was on *Computers, Networks, and the Prospects for Eurpean and World Security* and was held in Rovereto (TN) while the subject of the second was *Cyberwar, Netwar, and the Revolution in Military Affairs – Real Threats and Virtual Myths* (Trento). Steve Wright et al. edited the book *Cyberwar, Netwar, and the Revolution in Military Affairs* (Pelgrave MacMillan) based on the lectures presented at this last course.

In the sequel I'll focus only on some of Gary's contributions published in *The CPSR Newsletter.*

During the mid 80ties, the discussion on SDI kind of obscured information on another important military-funded research initiative, the Strategic Computing Program (SCI, $600 million, 5 year DARPA program). CPSR, and Gary in particular, contributed in raising awareness on such a program, on its practical implications as well as its philosophical impact on the military doctrine of those days. In a nutshel, the aim of the program was to develop AI devices for automating several aspects of field battle, from autonomous vehicles with combat missions, to aicraft pilot artificial assistants---meant to even take control when the human pilot was fainting due to strong accelerations---to battle monitoring and expert systems providing situation assessment and decision making support to Air Force and Army comanders. These last systems, and in particular the DARP/Army Airland Battle system, were strongly connected to the new *Airland Battle Doctrine.* Gary produced a thorough and detailed study on these new concepts, which he published in *The CPSR Newsletter* Fall 1985 and Winter 1986 issues.



Source: The CPSR Newsletter 3(4) – fall 1985

His analysis goes back to historical examples, including the german *blitzgrieg* and the Vietnam experience, (which he knew very well!) for presenting the principles of the new US Doctrine, based, roughly speaking, on soldiers' flexibility and initiative in the field, depending on the specific events which take place, including unpredictable ones, rather than on blind execution of orders. Such flexibility and decision making capabilities are complemented and supported by hy-tech, computerized weapons systems, since the basic assumption is that *information* is the most valuable tool for defeating the enemy, especially when one cannot count on numerical superiority:

> *There is a similarity* [in the description of the Airland Battle doctrine in military magazines] *with advertisements for business computer systems that promise small companies the competitive advantages of larger companies without the expense of more capital and personnel. This "doing more with less" spirit is now a fundamental part of American Army planning, despite the enormous defense budget. The managerial revolution in America business has finally penetrated the American military. Thus it is not surprising to find that a new buzz word in military planning is the oxymoron "Battle management".* [. . .]
>
> *Electronic intelligence gathering used as an aid in fighting wars is not completely new.* [The Vietnam experience is shortly described]. *It has been argued that the use of* [...] *sensors, and the unreliability of both the sensors and the computer programs used to analyze their data, contributed significantly to the fact the United States dropped three times more bomb tonnage in Southeast Asia than was dropped by all powers in all theaters of WWII.*

> *During the Vietnam war, studies done at the National War College also suggested that routine bombing from very high altitudes, using only coordinates and electronic information as target identifiers produced a tendency toward over-killing.* [. . .] *The conclusion of these studies was that those who deliver death remotely, with little or no human contact with their victims, are much more willing to call large amounts of firepower into play.*
>
> [G. Chapman. Airland Battle Doctrine. Part II. The CPSR Newsletter, 4(1), winter 1985, pag. 5-6]

We should keep the above remarks in mind when we take *drones* into consideration. Unfortunately, I'm afraid, Gary's warnings have not been taken seriously by computerized weapons engineers. And Gary goes on as follows:

> *It is likely, however, that highly automated, rapid pace, maximally destructive weapons and battle management systems will turn most soldiers into either bystanders or casualties. The very first lesson that Army officers are tought at West Point---and apparently the first one they forget when they leave---is that "no battle plan survives contact with the enemy". The very systems that are being created today are those that are likely to increase the complexity, confusion and destructiveness of war.*
>
> [G. Chapman. Airland Battle Doctrine. Part II. The CPSR Newsletter, 4(1), winter 1985, pag. 6]

Then, the Automatic Target Recognition (ATR) is mentioned as an example and a piece by a technical paper is quoted about how AI could be used for coping with the information bottleneck, and Gary's rebuttal is:

> *There are a series of "ifs" chained together in such a process, but some AI researchers seem almost cavalier about the appropriateness of using computers in the chaos of battle decision-making. B. P. McCune, for example says* [paper citation] *that "In contrast with humans, AI systems are good at handling the myriad details of complex situations, such as often occur in military settings". Such an assessment seems completely at odds with the experience of most AI researchers, who have been able to construct systems only in domains where the variables are constrained to a well-understood range. Even more alarming was a recent report that AI researchers at General Electric are working on a battle management system which will attempt to deal with "missing or contradictory information."*
>
> [G. Chapman. Airland Battle Doctrine. Part II.The CPSR Newsletter, 4(1), winter 1985, pag. 7]

It is interesting to note that some of this language returns into fashion from time to time, as it is the

case nowadays, with, for instance, some interpretations of *autonomic computing*. To a certain extent, and strictly speaking, there are computing paradigms where each *agent* operates only on the basis of partial/local information while the (so called) *intellingent* behaviour of the system *emerges* from the simple behaviours and interaction of large polulations of agents. This is the case, e.g. of *swarm intelligence*. It is by the way worth noting that this kind of intelligence is rather low level: it might make the system able to cross a river or choose a shortest path or so (see e.g. ants swarm intelligence). Much less than complex battle management. It is, in a sense, reassuring that in the late 90ties a *promotion* movie produced by US military agencies seeking for fresh new collaborations has been shown to me and other CS collegues in my institute and they were still speaking of exactly the same things and scenarios Gary describes in his article, the same *vision* of the battlefield of the future; it is even more reassuring that essentially the same movie has been shown no longer than three years ago, during an ISODARCO winter course ...
I hope, and I also believe, that *every year* in the future a variant of that movie be shown around as the vision of the battlefield of *the future* ...
Gary's comment on General Electric work was simply and acutely:

> *A computer that can produce useful analyses with missing information will truly be a marvel.*
>
> [G. Chapman. Airland Battle Doctrine. Part II.The CPSR Newsletter, 4(1), winter 1985, pag. 7]

I like to conclude quoting part of the conclusion of two papers by Gary:

> *One would probably hope in vain that the military would rein in its enthusiasm for AI and battlefield management computers upon hearing Alan Perlis' wise comment that "Good work in AI concerns the automation of what we know how to do, not the automation of things we would like to know how to do". We might like to be able to "manage" the living hell that modern battle is likely to produce, but the chances of achieving that seem remote. We have decided to build military systems that outstrip our ability to understand war, which has always been the most chaotic and less understood human activity. Automating our ignorance of how to cope with war will produce only more disaster.*
>
> *The idea that people might be sent off to kill, and be sent off to their deaths, because of the decisions of a machine is also a concentrated form of modern barbarism. There is no known way to hold a machine responsible for its actions. Machines given the capacity to kill are capable of murder, probably even more senseless murder than humans, because machines would have no motive whatsoever. But they are incapable of remorse, suffering, guilt or a sense of responsibility, and thus incapable of being punished. There has not yet to my knowledge been a demon in the world's entire history that was capable of murder but incapable of being punished. But we are on the path to building such a demon, and the consequences of such an historical act would be profound, and probably as irreversible as the development of nuclear weapons.*
>
> [G. Chapman. Airland Battle Doctrine. Part II.The CPSR Newsletter, 4(1), winter 1985, pag. 7]

> *Finally, the use of autonomous weapons should raise profound questions about our political philosophy. Just as the use of robots in factories has made some people wonder what jobs are really for---producing goods or allowing people to live productive and meaningful lifes---the use of autonomous weapons should make us stop and reflect on why and how to deploy force. If it is becoming true that war, because of modern weapons development, is too lethal even for humans to fight, then we should recognize the deep, fundamental irrationality of our current system of providing for national security. If we stop to think about the monstrous crime of sending a person to his or her maker by a machine which can have no regret, no sense of historical tragedy, or any sense of empathy and despair, then maybe we will think more concretely about the world we are leaving to our children, a world which should be free of such nightmares, one where we instead devote our best intellectual skills and our greatest financial resources to building peace and understanding.*

[G. Chapman. Thinking About "Autonomous" Weapons. The CPSR Newsletter, 5(4), fall 1987, pag. 7]

Gary's papers were also rich of technical details and political analyses (and campaining) which I deliberately skipped in the above examples and which can be found abundantly also in e.g.:

- G. Chapman. The Politics of the Strategic Defense Initiative. The CPSR Newsletter, 4(3), summer 1986, pag. 1.
- G. Chapman, C. Johnson. The NTB, the SIOP and Arms Control. The CPSR Newsletter, 6(2), spring 1988, pag. 11.
- G. Chapman. A Look at Computers in the Soviet Union. The CPSR Newsletter, 7(2), spring 1989, pag. 1
- G. Chapman. Computer Science and the Bush Administration. The CPSR Newsletter, 8(1-2), winter - spring 1990, pag. 1
- G. Chapman. News from the 21st Century Project. The CPSR Newsletter, 9(4), fall 1991, pag. 17.

NTB: National Test Bed
SIOP: Single Integrated Operational Plan

Since I met Gary in 1985, as member of CPSR, thanks to Gary, I learned more and more about the role of Computer Scientists in Society and I got in closer and closer connection with him, discovering that besides being an incredibly knowledgeable expert in each and every issue concerning computer ethics and social responsibility he was also a warm and deep man, always ready to help. And he also very much liked to enjoy life! He learned quite a lot of italian and italian cuisine and I guess the first italian word he learned was *grappa*. As time went on, we strengthened our friendship and professional relationship. Without any doubt, the organization of the ISODARCO courses with Gary was the deepest and most interesting experience in my professional life, as computer scientist with an eye open on the role of

our profession in Society. I had met my real tutor and we ended up organizing courses together ...

We all lost one of the pillars of Practical Computer Ethics and Social Responsibility of Scientists and I've lost one of my Best Friends.

We are enormously grateful to having met Gary; his wisdom, humanity and deep thoughts will always remain an important inspiration, for us, and I'm sure, for many others.