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During his entire life Dutch media theorist and net activist Geert Lovink has been thinking about, and struggling with, the issue of institutionalisation of social movements and independent media. He would probably dislike the fact that he is now described as an “established figure” of media theory and net criticism... or maybe not, as he made this decision by himself, to act as a bridge between European theories – especially German theory – and others. And he has certainly achieved this.

Geert Lovink stands at the crossroads of several players and stages of 1990s cyberculture, trying to assemble a disparate crowd of media activists and media artists, programmers, designers, cultural producers and researchers. He is what we might term a “cultural smuggler” or “cultural mediator”, who played, and continues to play, an important role in the development of digital culture.

At the time of this interview (13 April 2018)[1], the founding director of the Institute of Network Cultures and the author of numerous books such as *Dark Fiber: Tracking Critical Internet Culture* (2002), *Uncanny Networks* (2002), *My First Recession* (2003), *Zero Comments: Blogging and Critical Internet Culture* (2007), *Networks Without a Cause: A Critique of Social Media* (2012) and *Social Media Abyss, Critical Internet Cultures and the Force of Negation* (2016)[2] was leading a new initiative with the #deletefacebook movement,[3] but he still found time to speak to us about his life, looking back at his childhood, the events of 1968 – whose 50th anniversary we are marking this year – his involvement in *Mediamatic* magazine from 1989 till 1994, and the co-creation of the community access network De Digitale Stad Amsterdam, which started in 1994 as a freenet initiative in Amsterdam[4] and the nettime email list in 1995.[5]

Valérie Schafer: First of all, could you tell me when you discovered computers and computer-mediated communications?

Geert Lovink: My first encounter with the world of computers was at the end of my primary school, in the late 1960s. This was a rather intense time for the Magic Centre of Amsterdam and the hippie movement, a rather turbulent time. I got influenced by the promises of computers from the hippie perspective, how people can communicate, influenced by the psychedelic movement, which of course one can read back in Fred Turner’s book[6]. This context is closely tied to the questions of how software should

look like and how the user should be positioned in there. This topic is something I was really intimately familiar with when I grew up.

VS: Did your parents work in this field?

GL: No, I grew up near the Vondelpark in Amsterdam, behind the Concertgebouw. Almost next door to my primary school was the Hilton hotel where John Lennon and Yoko Ono stayed when the hippies took over the park where I played, in 1969. Of course, I'm not from the '68 generation, I'm younger, from the punk generation, I entered the scene in 1977. But as a child I was very influenced by the counterculture that happened in front of where I grew up. My first direct encounter with computers was somewhat odd. I was twelve, thirteen years old. With a friend of mine I decided to become a member of a rowing club in Amsterdam. We started rowing on the river Amstel and while we were doing these explorations from the water we came across a strange metal junk yard where the first generation of mainframe computers were dumped and recycled. We could access the yard via the water. We often went there to have a look at these machines. At that time, my friend and I were interested in DIY electronics, in particular transistors. We then traded the large circuit boards we took from there with our friends.

A couple of years later, when I studied political science in Amsterdam at the university, of course I encountered these mainframes again. That was in 1978-1979. We had to learn SPSS and data processing. This was done in the tradition of the Baschwitz institute, which studied public opinion. Kurt Baschwitz is one of the founders of mass communication and he was introducing computers in social sciences. We had to do questionnaires and then process the results using these mainframes.

Around 1983-1984 the personal computer became affordable and available, with the introduction of the IBM PC combined with MS-DOS, the Microsoft operating system. We started to use it. We were running a weekly magazine for the squatter's movement in Amsterdam and very early on we used the computer to do text processing. Friends of mine also started to use the computer to build databases in the early 1980s, to trace neo-Fascist groups and map housing speculators. These were early database and mapping exercises. The use of computers and databases in social movements goes back a really long time. Activists gathered names, dates and observations. There are archives that try to conserve the autonomous social movement heritage and I'm also playing a role in this preservation effort at the

International Institute of Social History (IISG),[\[7\]](#) which is in Amsterdam. IISG has extended its archives, which focused on Marx, Bakunin, early trade unions and the Spanish civil war to contemporary movements such as feminism and ecology.

When the squatter's episode of my generation came to a close, in 1987, with the help of my father, I purchased my first personal computer.

VS: Did you feel early on that there was a need to archive this history?

GL: My studies started with a visit to the Institute of Social History. The first paper I wrote, I was 19 years old, was on the history of the provo movement[\[8\]](#) which I had witnessed as a child. Back then I was too young and I couldn't really understand much of it. I went back to the archives, to study that movement ten or so years later - a movement that had had a big impact on Amsterdam and was foundational to the squatter's movement. Archival work has always been an important task for social movements to pass on collective experiences, images, concepts and debates.

VS: Would you say that your investment in digital cultures and social movements is a continuity of this starting period?

GL: For sure. We're aware of similar struggles before WWII. But we also knew, in particular in the city of Amsterdam that was so severely hit by the Holocaust, that the rupture of WWII and the following decades of conservative reconstruction created a gap in the collective memory. We met few people in our field, only one or two, that were able to bring the memory of the pre-war back. It was a bit more common with the 60s movement. Memory and its transition from one generation to the next, a strong theme in the work of Bernard Stiegler that I admire, were at the forefront when I grew up.

VS: You bought your own computer in 1987.

GL: It was a big investment: a PC, a huge and heavy monitor and a matrix printer. Before that, there were some collective machines in activist work spaces that we shared, but usually people didn't have a personal computer. We had electronic IBM typewriters. And even some of those machines had small chips and electronic memory: you could formulate a sentence and then print it out. They had very simple text editing capacities. But it was very obvious around that time that the arrival of the computer on our personal

desks was going to be a big thing, and it was! We immediately understood that these machines would do nothing if not connected. From the very beginning, already in 1987, it was clear that the computer was not a stand-alone device. This was this big difference between the computer and the typewriter. The computer was from the very beginning conceived as a part of a wider information ecology. But it took a little bit of time.

During this period, it was about connection to Bulletin Boards. My first encounter with Internet itself was during an event in which I got involved as a free radio maker, the famous Galactic Hacker Party in Paradiso in August 1989,[\[9\]](#) just before the fall of the Berlin Wall. There I saw a variety of computer networks such as CompuServe, BBS and the possibilities that the different architectures offered. And Internet at that time was just one of the 4 or 5 possible models.

Soon after the same scene around Caroline Nevejan organized the Seropositive Ball,[\[10\]](#) which was a continuation of the Galactic Hacker Party that focused on the gay community which was facing the massive HIV-AIDS crisis at the time. The cultural event was a way to assist the gay movement in establishing global real-time computer networks. Direct relations were important, a network in which one-on-one, but also trans-continental one-to-many and many-to-many communications were made possible.

VS: From your point of view, were networked computers a tool to organize in order to give a voice to their users?

GL: Our theory collective ADILKNO[\[11\]](#) has written a book about this precise question during the period, because this was the main question we struggled with in 1989. The book is entitled *Squatting beyond the media*.[\[12\]](#) It was first published in Dutch and then translated into German and English. *Bewegingsleer* directly addressed the question of how the social movements related to media questions. Is it nearly mediation? Is it only communication? What's the relation between the Event and its image? Are media becoming an intimate part of the way social movements organize themselves? Already at that time we knew that media were becoming a vast separate realm that was taking over every aspect of our daily life, including the political and social struggles.

VS: Did your interest on media theory and net theory start with these movements?

GL: Like many of my generation I started publishing in the student magazine of the high school I attended. The first magazine I founded was the neighborhood bi-weekly of the squatters that lived in the historical canal area (we lived in a baroque house from 1730), called *De Grachtenkrant*. Soon after I was part of a large group that founded *bluf!*, the squatters weekly. During my political sciences study we published several books, two of them on the strategy of the Dutch anti-nuclear movement. Later on, in 1987, we started our own publishing house, related to the movement, called Ravijn. I would still classify my activities along these lines: the self-organization of social movements through (new) media.

Squatting beyond the media was the first book I co-wrote on a computer. In 1987 was an important moment of transition for me personally. Before, I was more an activist. I was in my late twenties, unemployed, I had no idea how I was going to make a living. In that year I decided to become a media theorist, but I had no idea what this implied. I had definitely burnt all bridges with the university. There was no way I was going back. Hitchhiking between Amsterdam and West-Berlin at the time, I strongly felt I had to make a decision about my life. I could have decided to become a journalist or a cultural producer, but I decided to become a media theorist, in the German tradition.

VS: What did that mean? It wasn't turned to new media.

GL: I was influenced by Klaus Theweleit and Friedrich Kittler, two theorists whose ideas and straight-forward personal writing style really spoke to me. At that time, their topic and angle had a lot to do with processing the Fascist past, the traumatic past of Europe in the period of Fascism and WWII. I was also influenced by Jean Baudrillard, Paul Virilio and Elias Canetti. I was raised at the university as a mass psychologist, this was the period before there was "mass communication". There were a lot of elements that led me into this direction, but what does it mean to be a media theorist... I was completely baffled by this question myself: what are you going to do? You wake up and nobody is going to tell you what to do during the day...

Another encounter with new media happened through video art. There were a lot of initiatives in Amsterdam such as Montevideo and Time-based Arts, it was an open-minded artistic community. Mix this with my squatting background and the junk aesthetics of industrial music that surrounded me, and there you go... In early 1989 I became a member of the editorial board of *Mediamatic* magazine.[\[13\]](#) This was completely new to me as I had a

background of political science, maybe philosophy and social movements. The encounter with contemporary art and video art opened up a whole new area for me. It was something that defined all the work I did during the 90s. That encounter between politics and aesthetics is something I have been doing since then.

VS: The *Mediamatic* magazine was based in...

GL: In Amsterdam. Its design looked very cool. Next to me is the 'Zero One' edition. The topic was hearing and radio. In 1987, when I encountered my existential crisis, I also made the decision that I was going to do radio, which I did from 1987 to 2000. Every week I produced my own theory radio show and next to it developed my own radio theory. Here is the famous *Mediamatic* edition about Otaku. A special feature was that it was bilingual. For the first time my writings were becoming available in English. I developed a bit more of a sensitivity for the English language. Before that, I was totally focused on German which still is my theory and thinking language. Needless to say, that English opened up another field of communication and possibilities for me.

VS: I would like to link this last point with a previous one, as you mentioned BBSs. Were they international or more local BBSs?

GL: You started with local and then you started to connect with others and switched to English. We had close contact with the Chaos computer club in Germany too. In 1990 I had my first modem and started to actively get involved in them. And when I went to Japan in 1990, I also got my first laptop. This first Toshiba laptop was recently exhibited in Leipzig, and I wrote a short piece about it. [\[14\]](#)

VS: Are you interested in media archaeology?

GL: For sure, I always had an interest in it. It's my starting point. The first thing I did in *Mediamatic* was to introduce German media theory of the Kittler circle for an Anglo-Saxon audience. And I'm still doing this today. Maybe this is a Dutch thing? I see building this interface between the specific world of German thinking and the world outside as one of my tasks. Recently I have made the decision that once a year I will write one substantial piece about history. I recently wrote about the exchange in 1984-1985 between the Amsterdam and the Berlin squatter movements in terms of ontology of social movements. One fundamental question raised by

Baudrillard was about appearance but also disappearance, and the possibility people have to stage, to perform their own disappearance. Not only to stage their appearance but their disappearance too. Can we leave the stage together or is fragmentation and despair our destiny? To collectively decide it, in the Japanese suicide way, to collectively decide not only your beginning but your end, which is a powerful act. Otherwise other people are doing it for you or you disintegrate and you go through a very painful process. The whole idea of enacting a collective disappearance was a very important element in the first development of social movements.

VS: Did you achieve this collective disappearance in movements like Nettime?

GL: In some cases, the answer is yes, in others, no. If you manage to take control, you can do things like that. But certain structures are very interesting from an institutional perspective. Nettime this was really the case. It was totally non-institutional, but it became an institution of sorts. In a few years into it we faced a crisis of institutionalization. Today, we also face a crisis of institutionalization for counter-cultural movements because events happen so fast that it is difficult for social and artistic movements, and even for tech movements to establish themselves. Today the issue is no longer about appropriation, the main issue today is that the movement has gone before people realize that they were in fact in a movement. The question of appearance and disappearance is back on the agenda but in a different manner. People are not able to continue the social dynamic because things change too fast. In terms of organization this is a serious problem because you have to start every time all over again.

VS: You were also involved in the Eastern European events. In 1993 you were one of the co-founders of the Press Now support campaign for independent media in South-East Europe during the war in former Yugoslavia.

GL: This was probably the most politically important event that happened in Europe after the fall of the Berlin Wall. I was 30 years old at the time it happened and was actually in Berlin when the wall fell. I had already an interest in Eastern Europe before that. I knew people. We were in contact with young opposition movements in Budapest, Prague and East Berlin. For instance, I married a lesbian poet from the scene in 1985 to get her out of the country. This was a big hack, also for myself. It took a year to get her out. Of course, for us, it was really difficult to accept that after the fall of the

Iron Curtain, which we had supported, in late 1991, nationalist tensions and civil wars started to emerge. In particular the disintegration of Yugoslavia, which still is the biggest war of your lifetime and my lifetime in Europe. When this tragedy started, we immediately contacted artists and media activists there that were supporting the antiwar efforts. I was in particular part of the antiwar movement in Zagreb (ARKZIN[15]) and the radio station B92 in Belgrade. We put pressure on the Ministry of Foreign Affairs in The Hague to protect journalists and support independent media. We were acting as a political lobby, like an NGO campaign, out of De Balie.

In 1992 I decided I could not continue to be unemployed and I quit this minimum existence of living to become a freelancer. I started to teach a little bit, primarily in Eastern Europe. My first teaching in media art and theory was in Bucharest, in Romania, at the art academy. I started to become a little more known, mainly through my writings in English in *Mediamatic* magazine, and most of all in the German-speaking countries, where I published three books, so I was able to get more money, writing pieces, giving lectures.

VS: This activism was through press, radio, new media?

GL: We tried to connect media activists and media artists. I was still a member of *Mediamatic* Magazine. I quit in 1994 after we had a disagreement over the commercial direction of the magazine. At that time the economic situation started to change when the whole Internet thing was taking off. I had my first modem in 1991 and was part of the *Hack-Tic* scene. I was with Patrice [Riemens] and Caroline [Nevejan] and other main organizers of the hacker party. Early 1993 I had my first internet account through Hacktic, which was later renamed into XS4ALL.[16] We had internet access earlier here and there but it was difficult as it was under the monopoly of academic networks that had to be hacked. XS4ALL was rapidly spreading. It all started with the first Next 5 Minutes convention in Paradiso. We brought together the so-called tactical television people who were producing video art and documentaries, and combined that with computer networks and radio, to discuss the media activist strategies. It was all broadcasted live on the Amsterdam cable network. The term tactical media came later (in 1995).

VS: And the World Wide Web? The Mosaic browser appeared in 1993.

GL: I remember the first time I saw it clearly, it was in the *Mediamatic*

office. There, in spring 1994, I saw the first Web page. We used Internet but we didn't have a graphic user interface, no one had color monitors at home. It took a while. Before the WWW we used Telnet to do email, Gopher and IRC. The Internet had already a lot of functionalities but remained green on black, text only.

VS: This field was moving fast. Were there people with technical skills?

GL: Yes, that helped everybody else. I had followed the computer scene since 1983-1984. So, we knew all the players. The problem of access was the most urgent one for a long time. That was our main domain: access for all, we want bandwidth.

VS: It was not just about price but how to get access?

GL: Yes. In 1994 we put everything in place in terms of new institutional initiatives. It started late 1993, when we were preparing the De Digitale Stad, which launched in January 1994. It was text only. There was no World Wide Web version yet, this came in mid-1994. That's what we call the second generation of DDS. It was also the time the ISPs were growing rapidly. DDS moved in the same building as Mediamatic and XS4ALL. By the mid-90s this building consisted of three main players. The computers were there, the band too.

In spring 1994 I also started an internet art space together with a big group of artists. It was called desk.nl. We rented permanent internet access together, an ISDN line. In this way we could be online all the time, without dialing in through the phone from our home, sitting there, isolated. In this way we could be online 24/7, think of it as the precursor of the today's co-working spaces. I started desk.nl with the main organizer Walter van der Crujssen. He found a big room above the experimental jazz club Bimhuis on the Oude Schans. Downstairs there were concerts. In the back room was the editing room of the famous documentary film-maker Johan van der Keuken. The place was low-key but a productive environment packed with interesting characters, it's not really well-known today, but it played an important facilitating role in establishing the Amsterdam tactical media/net art scene. In November 1993 Marleen Stikker (De Balie) and Caroline Nevejan (Paradiso) came together to create a new institution for digital culture, De Waag: Centre for Old and New Media. I was working together with both of them at that time (and still are, in a way). Waag linked two cultures Amsterdam is known for: the centre for debates on culture and politics De

Balie and the music temple Paradiso. They were next to each other and they started to collaborate, first through the Galactic Hacker Party, the Seropositive Ball, Next 5 Minutes, [17] and then the next step was to create this new centre, De Waag Society. They found the oldest building in town on the Nieuwmarkt square, from which the Jewish museum had just moved out. It was empty and somehow the city agreed that Waag Society, as it called now, could move in.

VS: Could you tell me a bit more about DDS? It was a big community network, open to the general public?

GL: Yes, and this was a big discussion we had in the past. There were two directions in Internet activism: the “access for us” faction around APC and the universities and us, who demanded “access for all”. The Association for Progressive Communication was in favor of “access for us”. They wanted to give access to NGOs, not especially to the general public. We said: OK, but what about artists? We refused to make the distinction between important political activists and others. We didn’t want access for some, but access for all. We thought from the beginning in a multidisciplinary way. A networked movement could only grow and exist if it had a diversity of skills, agendas and backgrounds.

VS: DDS probably became very popular and less manageable?

GL: Yes, by the end of the 1990s, in the violence of the dotcom mania, it was totally overrun by contradictory expectations and business plans. The late 1990s in Amsterdam was a mad house. There was so much money, so many people were coming to Amsterdam, setting up companies (similar to 2017/2018). Should DDS start to work with venture capital? What was the role of community in all this? Against the commercial violence, the DDS as a ‘commons’ infrastructure had no chance. As always, our local public access network became way too early.

VS: Did politicians get involved in DDS?

GL: The city funded the experiment at first. Local politicians were not so much present on the internet but on the local cable channels. Don’t forget that the Netherlands in the late 1990s were overrun by neo-liberal privatization. The idea that the city council should do something with internet access remained an alien idea. The symbol for this absent policy became the sellout of the public access cable network to the American cable

company UPC. In the late nineties we felt that we had lost a valuable public infrastructure that was held by the city of Amsterdam. This privatization was probably more significant than DDS having a future, yes or no.

VS: Related to this changing context, let's talk about the Tulipomania Dotcom conference you organized in 2000.

GL: It was an event happening in Amsterdam (De Balie) and in Frankfurt (Kunstverein), which is one of the main financial centres in Europe. The beginning of the Dotcom Tulipomania conference goes back to the crucial turning point in 1997 when we started to understand the political economy of the Internet. In the early-mid 90s we had no idea about the coming economic players and their agendas. It was probably after the IPO of Netscape that we started to realize that the game had changed. This was the first Internet company that went in the American stock exchange and it completely surprised us. We were still coming from the idea of public access building out the Internet as a public infrastructure, in line with the university tradition of the internet as a neutral facility for staff and students. The fact that we were living in a neo-liberal age where everything was going to be privatized, this was really something... maybe we were not surprised, but certainly we were not prepared for the violence, the magnitude of that change in the telecom market. After 1997 the nettime scene looked back at our naive days, the utopian days of the first Internet years, when we discussed so passionately about concepts and possibilities. Already in 1997 we were acutely aware of this loss of innocence.

VS: The year before, John P. Barlow had announced the "Declaration of Independence of Cyberspace".

GL: Barlow came to the second Next 5 Minutes, in January 1996 to discuss this with us. We had set up Nettime in 1995 to facilitate these debates between West and East Europe and the United States. Around that time Pit Schultz and I were building the network and the expertise of the artistic computer network that built on the earlier art network, coordinated out of New York called thing.net. Nettime would not have existed without thing.net. Born in German-speaking countries thing.net was a network of BBS nodes that ran more or less parallel to the Internet. At some point it got an email gateway. It had no web interface and ran on separate BBS software. Nettime was a similar discussion forum, especially in the beginning, related to thing.net. Late 1995 we started to interface with a lot of cultural organizations and events that happened. Nettime organized its

own meetings and public debated and until 2000 we were part of the European festival circuit. We grew further during our three-month presence from June to September 1997 at Documenta X in Kassel under Catherine David's supervision, who invited us to do the Hybrid Workspace project in the Orangerie. Just before that we organized the only nettime gathering in Ljubljana, Slovenia. There was so much to discuss, to plan and coordinate. Hybrid Workspace was a network of networks, where cyberfeminists had their own week to come together, the Syndicate networks from Eastern Europe had their time slot, and so on. No One is Illegal was founded there as well. It went on for three months. After this turbulent period, we documented all this in the Readme book, edited by nettime and published by Autonomedia in New York.

VS: Who's the nettime audience?

GL: Nettime still exists. It's a classic tactical media mix: artists, activists, programmers, designers, cultural producers and researchers.

VS: How many people participated?

GL: In the first four years nettime had grown. We knew there was going to be a change in the dynamics of the community when you go over 500 members. New people start to show up and the informality slowly disappears. We reached that moment in 1998. It led to a big crisis of governance. There were trolls, there were people we didn't know, people who used it as a stage for their artistic interventions, for their academic work, etc. We struggled with that. Groups started their own lists and debates. And then the Kosovo war happened. I quit soon after. Late 1999 I moved to Australia.

VS: Why did you leave nettime?

GL: We could not find an agreement about the essence of the network. Pit and I had emphasized the importance of meetings, gatherings, coalitions, notably with the festivals that would facilitate debates. When nettime started growing and became more and more international, this mode of operating became hard to maintain. Of course, we encouraged growth, we had the Dutch Nettime, the French Nettime, a Latin-American Nettime, Nettime in Chinese. It was the time of a rapid expansion of the Net itself. We quit, but the community continued. Nettime is now 23 three years old and still going strong with 7000 or more members.

VS: We arrived in late 1990s. You moved to Australia. We won't enter the next decade. Let's close this interview and discuss the spirit of the 90s decade.

GL: What's so special about this episode was the way in which the utopian, psychedelic elements of cyberculture were combined with a fresh continental post-Cold War European culture of negativity and relativism. We saw it was a turbulent time of change in which French theory played an important role, there were a lot of ideas, about alternative 'interface cultures', people were looking for their own values and things to achieve. This combination defines our 'techno' 90s. There is certainly a psychedelic element in it. Techno parties, raves, ecstasy... these were important elements in the story. After all, nettime was born in former East-Berlin, in the heart of the techno club scene... This is where we come from. It is important to understand that we aimed for a one-off mix of utopia and the critique, which, of course, is diametrically opposed to the American imagination of happiness, PR and marketing. Even today you can't be utopian and critical at the same time. Either you're a loser, an outsider and a critic, or you sign up for the party and become a YouTube influencer, marketer or app developer. You can't be both... but that's what we did!

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[1] I would like to sincerely thank Gerben Zaagsma and Sarah Cooper (University of Luxembourg) for their help during this transcription and Geert Lovink for this generous interview.

[2] For a more complete biography:
<http://networkcultures.org/geert/biography/>.

[3] Facebook Liberation Army Link List (12 April 2018). Compiled and edited by Geert Lovink & Patricia de Vries (Institute of Network Cultures):
<https://www.wired.com/beyond-the-beyond/2018/04/facebook-liberation-army-link-list-april-12-2018/>.

[4] See <https://waag.org/en/project/digital-city-dds>.

[5] See <http://www.nettime.org>.

[6] Turner F. (2006), *From Counterculture to Cyberculture. Stewart Brand, the whole earth network, and the rise of digital utopianism*, Chicago, The

University of Chicago Press.

[7] <https://socialhistory.org>.

[8] Dutch countercultural movement founded in May 1965, followed by the hippie movement.

[9] <https://hart.amsterdam/nl/page/33469/1989-the-galactic-hacker-party>.
The Galactic Hacker Party was the first public international hacker convention in Europe.

[10] To learn more about these events and the history of DDS see Nevejan, C. and Badenoch, A. (2014), "How Amsterdam Invented the Internet: European Networks of Significance, 1980-1999", in Alberts, G. and Oldenziel, R. (Eds.), *Hacking Europe: From Computer Cultures to Demoscenes*, London: Springer, pp. 179-205.

[11] The Foundation for the Advancement of Illegal Knowledge was established in Amsterdam in 1983. See <http://thing.desk.nl/bilwet/adilkno/TheMediaArchive/>.

[12] Adilkno (1994), *Cracking the Movement: Squatting beyond the media*, Automedia. <http://thing.desk.nl/bilwet/Cracking/contents.html>.

[13] This paper magazine, which discussed media, art and television, was published from 1985 to 1999. All issues are available at <https://www.mediamatic.net/en/page/10342/mediamatic-magazine>.

[14] Lovink, G. (2018), "The Story of my First Laptop: the Toshiba DynaBook": <http://networkcultures.org/geert/2018/01/15/the-story-of-my-first-laptop-the-toshiba-dynabook/>.

[15] ARKZIN was a periodical published in Zagreb from 1991 to 1998.

[16] One of the first ISPs in the Netherlands. Founded in 1993 as an offshoot of the hackers club *Hack-Tic*, it first offered dial-in services via modem: <https://en.wikipedia.org/wiki/XS4ALL>.

[17] The first Next 5 Minutes conference took place in Paradiso from 8 January to 10 January 1993 with the aim of exploring and discussing the role of independent media in networks and societies.