

Work in Progress presentation at 2010 SIGCIS Workshop on Materiality and Immateriality in the History of Computing

Main Point:

The material aspects of Stephen Willats' Meta Filter (1973-75) included the interactive console that he designed and built with Derek Aulton. The immaterial included the performative approach that Willats fostered, which was taken up by the operators in order to create self-organizing systems--people and machines in a communication network. Both humans and machines adapted to each other.

Questions for the SIGCIS Group:

How does Meta Filter and related works (ie, the Edinburgh Social Model Construction Project, 1973) fit into the history of interactive computer design? What further sources should I consult?

Meta Filter: Coming to Agreement with Interactive Computer Technology

A 2010 Call for Workshop Papers for the Fourth IEEE International Conference on Self-Adaptive and Self-Organizing Systems began: "Techno-social systems are ICT [information and communication technology] systems in which many people collectively coordinate and cooperate to achieve their goals without central control. These systems, for example, Wikipedia, eBay, Web2.0 sites, social networks and peer-to-peer networks, have both self-organizing and self-adaptive aspects."¹ The artist Stephen Willats was an early proponent of such ICT systems and it is his work from the 1970s that is the focus here. Willats's projects provided models of systems that could be imbued with meanings that emerged from human-to-human and/or human-to-machine interactions, adapting to and changing with the complex relationships that developed.²

Stephen Willats (b. 1943) is a London-based artist who has been creating cybernetically-informed projects since the 1960s. In 1975, following two years of collaborative work with an electrical engineer, Derek Aulton, and close contact with Gordon Pask's System Research, Inc., in Richmond (UK), Willats first exhibited Meta Filter, an interactive system for two participants. The installation consisted of two image screens on opposite sides of a console and a processor connected to a slide projector. (Figure 1) In order to operate Meta Filter when it was on display, people made appointments for one of the two sessions available each day.

¹ <http://www.st.ewi.tudelft.nl/qteso/> Accessed September 4, 2010. This workshop of the Institute of Electrical and Electronics Engineers (IEEE) conference is being held in Budapest, Hungary in September 2010.

² Stephen Willats, "Art Work as Social Model," *Studio International* (March/April 1976): 104. "Models of self-organising systems as parameters of social structures represent a shift in the prescriptive content of art from determinism towards self-determinism.... The layout of such models enables the audience not only to decide what cognitive relationship it will establish with a work, but also allows it to conduct its own search for references that will give the model meaning."

The two operators (as they were called) were not visible to each other but worked simultaneously to come to agreement in answering questions about the projected images. They simultaneously viewed an image of people, as individuals or in relationship, and then each selected a word or word phrase from a posted numbered list—a thesaurus of about 1000 words--to describe the emotional or social dynamic they perceived in a photograph. As each operator made a selection, s/he entered the number for their choice on a keypad as well as wrote down their answer in the Problem Book. Their counterpart could see the number that they chose on their display. Both participants were in a relationship with Meta Filter and each other, with a goal of coming to agreement about what they thought was going on in the images displayed. (Figure 2) That was the point of the piece: “[T]he purpose of the work is the processes the two participants go through to understand each other’s perceptions and to work together to find a state of agreement.”³

The twelve sequences of images displayed were determined by the operators’ choices; as people interacted with Meta Filter, the sets of images changed depending on the selections made by the participants. (Figure 3) If they could not agree on one set, Meta Filter presented another set from the same social category. It usually took two hours for pairs of operators to work through the Problem Book. Meta Filter and other related works by Willats are material objects that aimed to develop the immaterial—bringing people together around their perceptions of relationships (in this case) using controlled sequences of images. In addition to the ephemeral interactions with Meta Filter, copies of the completed Problem Sheets were posted on the walls as part of the exhibit, evidence of people’s process of decision-making. (Figure 4)

Willats’ projects are complicated, as physical installations, as theoretical models, and as interdisciplinary structures. Willats drew on group process studies in psychology, advertising research, cybernetic experiments, learning theory, linguistics and conceptual art. Further, to understand these projects, I draw on performance theory and history. This paper begins to place Meta Filter and one other related work by Willats, the Edinburgh Social Model Construction Project of 1973, into a genealogy of installations that explored computer-mediated human collaboration. Willats’ goal was to build consensus among people using a customized system as the catalyst. Willats explored how people responded to visual cues seen in projected images, and in that process, created a “communication network.”

Background on Stephen Willats

From his teenage years to the present, Willats has been concerned with art’s role in society; early on, he moved out of the gallery world, even disclaiming authorship of many projects in order to stress the interactions necessary to his practice. Born to middle-class parents in London, he worked at Drian Gallery and New Vision Centre Gallery in London as a youth; London in the 1960s offered a bright young man many arenas for exploration of cutting-edge ideas. Formative for Willats was his 1961 participation in the first cohort of the Ground Course at Ealing School of Art in west London with Roy Ascott. Ascott created this course, “learning from the ground up,”

³www.stephenwillats.com Accessed August 31, 2010.

which stressed “behaviour and process...media dexterity, interdependence, cooperation, and adaptability.”⁴ Guest lecturers at Ealing included Gordon Pask (1928-1996), the influential cybernetician. Later in the 1960s, Willats taught at Ipswich Civic College and Trent Polytechnic in Nottingham (now Nottingham Trent University.) Further, the Institute of Contemporary Arts (ICA) was actively organizing artists and scientists in symposia and exhibits about mass media, computer technology, and other cross-disciplinary discoveries in information and game theories.⁵ While artists in London in the sixties had little to no access to computers in what was still a specialized and militarized realm, conversations and concepts related to computers were frequent and diverse in avant-garde circles; for example, the Computer Arts Society was organized in 1969. These organizations, exhibitions, and exchanges created the context for do-it-yourself (DIY) practices such as those by Willats in the 1970s.

Theoretical Framework

As Andrew Pickering wrote in *The Cybernetic Brain*, there were resonances between cybernetics and counter-cultural activities in the sixties and seventies that had fruitful results in scientific and artistic experiments.⁶ For Willats, these experiments centered on cooperation, or mutualism, as he called it, not only *representing* cooperation but also *enacting* it in art projects. Pickering writes about the “performative epistemology” and “ontology of becoming” in second-order cybernetics that created synergies among the arts, sciences and everyday experiences. “Cybernetics...stag[ed] for us a *performative epistemology*, directly engaged with its performative ontology—a vision of knowledge as *part of* performance rather than as an external controller of it.”⁷ Performances with Willats’ machines were embodied in the participants and recognized the agency of the machines as well. Willats’ art projects gave material form to the “immaterial” by using computers and other devices to catalyze and enable open-ended exchanges.

For this discussion, I will focus on a 1976 article by Willats in *Studio International*, “Art Work as Social Model.” (Figure 5) Willats argued for expanding what he called “Art’s Social Environment.” Social diversity demanded of the artist “an examination and reform of previous practice.” In his own practice, then, Willats recognized the relativism of many perspectives in the context “of a more pluralistic, interactive and disparate social setting than previously.” In response, Willats searched for deep homologies, what he saw as “common parameters” fundamental to “the behaviour of a system.” The example he offered was that “the way in which a

⁴ Catherine Mason, “A Computer in the Art Room,” pp. 2-3 <http://www/chart.ac.uk>

⁵ Whitechapel Gallery in 1956 had already organized the exhibit, *This is Tomorrow*, which included the Independent Group (critics and artists interested in mass media and new technologies) with whom Ascott was associated.

⁶ Andrew Pickering, *The Cybernetic Brain: Sketches of Another Future* (Chicago: University of Chicago Press, 2010), p. 353.

⁷ Pickering, pp. 19-22; 28-30. Emphasis in the original. Pickering is concerned with the “reciprocal coupling of people and things...in time.” Science as a “performative engagement with the world” was always in the making, and cybernetic machines staged material performances.

person codes his greeting to another person might vary, [but] the function of a greeting remains the same.” (This aspect of his thinking he credited to Basil Bernstein. See n. 12 below.) Willats experimented with structuring social interactions around these parameters by inviting participant-observers into his open-ended systems in order to form relationships and change “social consciousness.” In his words, Willats proposed that the artist construct “possible states concerning the relationship between coding systems within society, and the parameters that underlie different social behaviours.”⁸ Less abstractly, Willats built interactive systems that allowed people the opportunity to learn about their own “codes” as well as compare and contrast them to those of others with whom they interacted while engaged with Willats’ art, aiming for understanding if not agreement about certain underlying social-emotional experiences.⁹ Critic Richard Cork recommended visiting Meta Filter with a total stranger, “preferably someone with a different social background who could vigorously contest all your responses and oblige you to take into account a way of thinking you might never have encountered before.”¹⁰

Willats’ cybernetic approach meant that he constituted *and* represented open-ended, multidimensional, somewhat fluid roles in his artwork. His art was a social model, as he described it. He repeatedly insisted on the “multi-channel vision” and complexity of human beings; his work had a reciprocity between people and machines that underscored the “communication network” in which we operate, then and now. While Michel Foucault wrote about networks in 1986, was he commenting on something that manifested itself in the late sixties and early seventies in cybernetic experiments?¹¹ It seems to me that Willats was in the forefront of what Manuel Castells called the network society.¹²

Willats contended that the underlying rules of a system only became evident “in the real world...through the establishment of formal relationships between people.... Thus the fundamental unit of social organization is the group, and as such it is an important area of attention for the artist.”¹³ Thus with Meta Filter, Willats invited operators to perform “coming to agreement” about different coded behaviors of people in photographs. He also staged group performances because

⁸Willats, “Art as Social Model,” *Studio International* 191(Mar/Apr 1976), p. 100.

⁹Tate Britain Archive TG 92/428/1 *A State of Agreement* (Pamphlet) The Gallery, London, 1975 and Midland Group Gallery, Nottingham, February 1976. “[T]he work develops a common territory of references between operators where they bridge the differences in their perceptions.”

¹⁰ Richard Cork, *Everything Seemed Possible: Art in the 1970s* (New Haven: Yale University Press, 2003): PAGE.

¹¹“We are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed. We are at a moment, I believe, when our experience of the world is less that of a long life developing through time than that of a network that connects points and intersects with its own skein.” Foucault, “Of Other Spaces,” *Diacritics* 16(1986): 22, quoted in Edward Soja, *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places* (Malden, MA: Blackwell Publishers, 1996): 155.

¹²Manuel Castells, *Vol. I: The Rise of the Network Society*. Malden, MA: Blackwell, [1996] 2000.

¹³Willats referred to the work of social psychologist James H. Davis, *Group Performance* (Addison Wesley Publishing, 1969).

observers would watch the operators at work, interacting with them and each other as they gathered around the console. Willats recognized that each participant brought along her/his own social history, so he called these “Life Codes.”¹⁴

Willats viewed a group of people as similar to psychiatrist-cyberneticist W. Ross Ashby’s homeostat, in that “the most important factor underlying a group maintaining its identity is the internal drive towards social stability, which results in pressure from the group on the individual to conform by fulfilling expected roles and normative behaviours.”¹⁵ (Figure 6) Willats then aimed to counteract this social pressure to conform by creating a communication network that promoted new understandings. That network for Willats, then, took the form of models, “a set of individual representations which have been interconnected in order to depict in some determined way a more complex structure. Thus a model is used as a symbolic set of relationships that pares down the infinite variety of the world into a simplified form, exposing its essence.” Despite this simplification, Willats argued that the audience had to be included in the model, an “*evolving* structure [that] presented the audience with a process in which they could gradually develop their own cognitive relationships with the presented possible states.” I emphasized “evolving” in the previous quote to stress Pickering’s idea of “ontological becoming” and “performative epistemology;” each of Pickering’s concepts is embodied, temporal and shifting in nature. Willats’s audience could alter “its relationship to the presented structure,... or the structure [could] change its relationship to the audience. The model becomes a programmed sequence of interrelated events.”¹⁶

In terms of group process, Willats thought that the “net-like structure” would aid cooperation, “maximizing the potential information held by the whole system.” I interpret this idea to mean a philosophical field that takes into account a wide range of approaches and adjusts to the input it receives.¹⁷ Of this system, Willats maintained: “All nodes or elements are richly connected with each other (linked by a two-way channel of command), so that the communication between a system’s parts is fully facilitated.”¹⁸

Direct Experience as a Means of Communication

Willats aimed to provide direct experiences and interactions in his art projects by setting up representational structures that served “as an incomplete

¹⁴ Willats, “Art as Social Model,” *Studio International* 191(Mar/Apr 1976), p. 101: “The basis of interpersonal behaviour is largely conditioned by the internal representations a person constructs of another as a response to his display of ‘Life Codes’.” Willats credits Basil Bernstein for his thinking about codes. Basil Bernstein, *Class, Codes and Control: Theoretical Studies towards a Sociology of Language* (New York: Schocken Books, [1971], 1975).

¹⁵ Willats, p. 101. W. Ross Ashby built his first Homeostat in 1948. For more on Ashby see Andrew Pickering, *The Cybernetic Brain: Sketches of Another Future* (Chicago: University of Chicago Press, 2010). On the homeostat, see pp. 98, 416n62.

¹⁶ Willats, p. 102. Emphasis on “evolving” is mine.

¹⁷ The use of the word “field” as I use it here can be found in Lynne Sharon Schwartz’s novel, *Disturbances in the Field* (Bantam, 1985) and Arnold Mindell’s *The Leader as Martial Artist: Techniques and Strategies for Revealing Conflict and Creating Community* (Lao Tse Press, 2000).

¹⁸ Willats, p. 102.

matrix of cues in the form of references.” The missing cues were to be filled in by the participants out of their own frames of reference. “[T]he audience,” then, “is able to reinforce the meaning of the work by an *active process* of construction.” (Emphasis mine) This process, orchestrated by Willats, was a “learning system,” where “tasks become problems, each one being formulated to enable the audience to gain access to some part of the model.” In order to move ahead in the model, the participant had to solve a problem, albeit an open-ended one. In other words, there was no right or wrong answer, but rather the solution arose out of the participant’s past and current experiences. In using questions to prompt responses, Willats intended to catalyze communication and create a relationship, mediated by the cybernetic object that Willats had built. These problems were ambiguous enough so that the “audience establish[ed] its own readings,” again exemplifying the open systems that Willats represented.¹⁹

Edinburgh Social Model Construction Project

While I won’t have time to discuss the 1973 Edinburgh Social Model Construction (ESMC) Project by Willats, let me describe it briefly (as I understand it at this point), since Willats considers it, and several other projects, all related to the better-known Meta Filter.²⁰ The ESMC had to be disassembled because Willats could not afford to store it, so that it certainly one reason that people don’t know about it. On the other hand, during its installation in the city, 1500 people participated, according to Willats. Commissioned to create a piece during the Leith and Edinburgh Festivals in August 1973, the artist mobilized entire neighborhoods to participate.

While Meta Filter moved from gallery to storefront, to museums, it was spatially compact compared to ESMC, which included teams of people going door to door collecting paper Problem Sheets and delivering their collected information to a room at the computer center of the university. Four neighborhoods of Edinburgh participated: Leith (Area One); Morningside (Area Two); Slateford (Area Three); and Silverknowles (Area Four) around central core (Figure 7). Each of these areas represented “a social group distinctly different and physically separated from the others.”²¹ For five days, open-ended questions were posed to about 32 people per area, who had agreed to fill in their responses on a daily basis. Project team members gathered the results; others at the computing center processed them and selected new problems for the next day.²² The aim of ESMC project was to externalize the idea that anyone could influence decision-making, and to “increase

¹⁹Willats, p. 103.

²⁰Conceptually-related works: Visual Meta Language Simulation (1972); Edinburgh Social Model Construction Project (1973); Meta Filter: A State of Agreement (1973-75; exhibited 1975, London); Freezone (1997; 2009) Creativeforce, Sheffield (1998); Visual Simulation Information Mesh (date?) Author interview with Stephen Willats, London, June 30, 2010.

²¹Stephen Willats, *Art and Social Function*, London: Ellipsis [1976], 2000, p. 161.

²²Stuart Pound was the programmer; at the time, he was head of the Society for Social Responsibility in Science. The archive of this project in Scottish National Gallery of Modern Art, Edinburgh. Willats, *Art and Social Function*, p. 167.

the participant's awareness of his own coding behaviour." Five problem categories covered "a wide range of behaviour conventions" in relation to family, neighborhood, social resources, work environments, and social groups.²³ (Figure 8) Each morning (8:30-9am), the project organizers would distribute new questions (problems) that arose from the previous day's solutions. Thus there was a feedback loop among the machines, the organizers, and the participants. The problem sheets and summaries of "consensus tendencies" were displayed in the local libraries, a community center, and a golf club, printed out on a teletype machine (although carbon paper was provided to the respondents.) The new-to-the-UK Xerox machine was used to copy the problem sheets.

In true festival fashion, a teletype machine was installed for Festival-goers as a "Casual Audience Participant Group." They could monitor the project and also provide their own responses to problems, though their activities were processed separately from the four areas selected.

One example of a problem category was family mealtimes. People were asked to describe how they could change mealtimes to meet their needs, and to describe how meals typically occurred in their household. Then the team that processed the responses came up with these tendencies: In Project Area One, "Mealtimes performed a formal social communicative role with a set seating arrangement. The jobs in the area were seen as predominantly trades and services. Staggered starting times for jobs led to little interaction between family members in the morning, but led to cooperation in a tight schedule." In Project Area Two, by contrast, "There seems to be no set pattern for mealtimes. People were able to relate to the telephone photo, but not to the other signs shown. Family activity determined by family size. A strong feeling of property shown by the returns."²⁴ The subsequent problem categories concerned "more formal and public behaviour conventions."²⁵

These summaries were the product of human and computer analyses carried out with the collected problem sheets each day. The texts, maps, and drawings were coded in order to compare among and between participant groups; summarize the participant responses; and provide an overall consensus about one problem category. Based on coded information, the computer program then determined the next day's problem. Rather than traditional survey research, Willats and his collaborators had a pre-set coding system, and punch card machines were used to enter the data.

As Willats described it, ESMC was designed as a homeostat consisting of "four interconnected nodes (project areas), which in themselves were comprised of subnodes (participants), which were linked together through a processing node, called the central core, the operational centre of the project." Willats hoped that the four interconnected nodes would achieve a "common information level."²⁶ He avoided arranging a final event at the end of the five days to stress the "stable" nature of the environment.

²³Stephen Willats, *Art and Social Function*, London: Ellipsis [1976], 2000, pp. 158, 162, 177.

²⁴p. 178.

²⁵*Project Operators Manual*, Social Model Construction Project, p. 3. Courtesy of the artist.

²⁶Willats, *Art and Social Function*, pp. 158-9.

Bryan Pfaffenberger argued that “[t]echnology...is at least partly a political phenomenon: Technological innovation provides an opportunity to embed political values in technological production process and artifacts, which then diffuse throughout society as a large-scale technological system arises.”²⁷ While there is much more for me to develop within this framework, I suggest that Stephen Willats was strategically using technological processes and artifacts ahead of the political curve. Recognizing the social dynamics and power structures in play in Edinburgh and the other areas in which he worked, Willats inserted computing innovations into the social realm in order to highlight class codes and behavior patterns. Informed by cybernetic concepts, Willats created open systems that allowed people to perform their “Life Codes” as well as change their performances with new awareness.

²⁷Bryan Pfaffenberger, “Technological Dramas,” *Science, Technology, & Human Values* 17:3(Summer 1992), p. 282.

References for SHOT Work-in-Progress

This paper relies on an examination of archival materials at the Tate Britain, and two interviews (to date) as well as correspondence with the artist Stephen Willats, to whom I am enormously grateful, and his self-published works and website: www.stephenwillats.com

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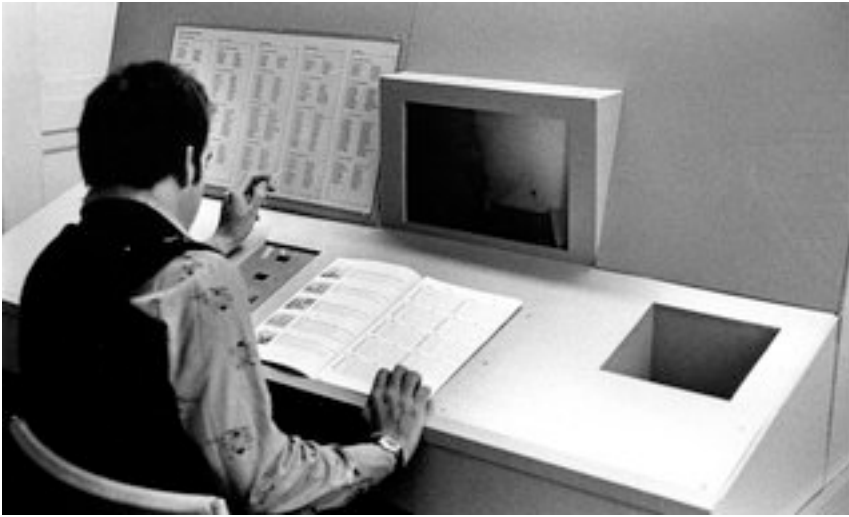


Figure 1. Stephen Willats, Meta Filter, 1973, with operator, screen, thesaurus, Problem Book, and key pad.

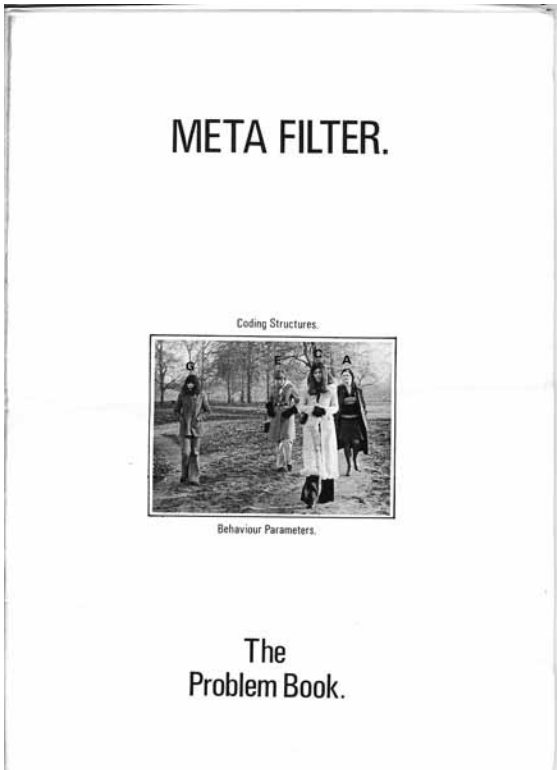


Figure 2.



Figure 3. Meta Filter. Operator Filling in Problem Book



Figure 4. Meta Filter. Console and Problem Sheets on Display

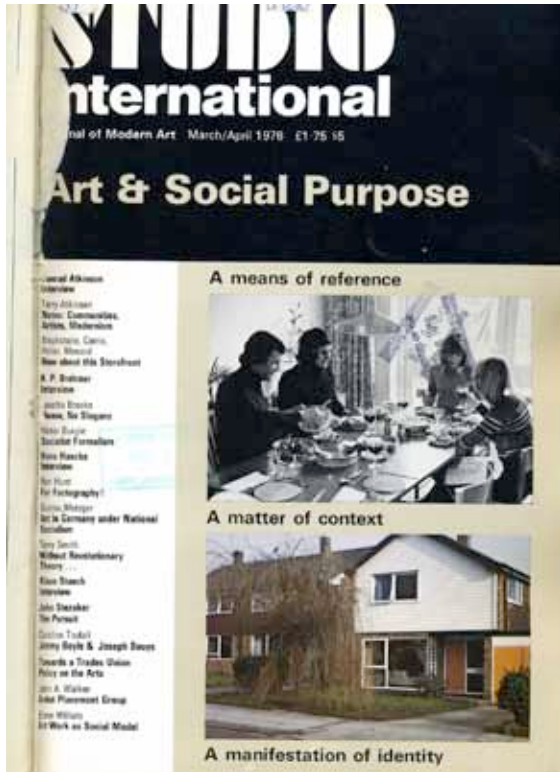


Figure 5. 1976 Issue of *Studio International*

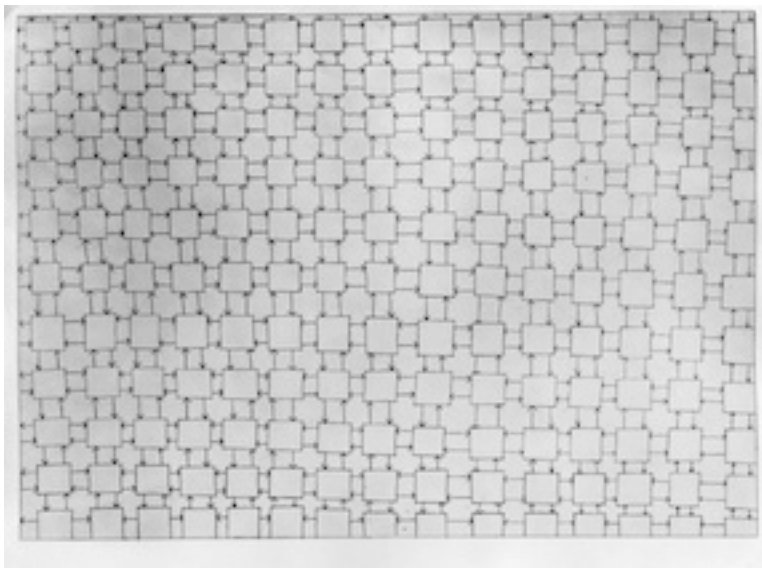


Figure 6. Stephen Willats, Homeostat Drawing, 1969

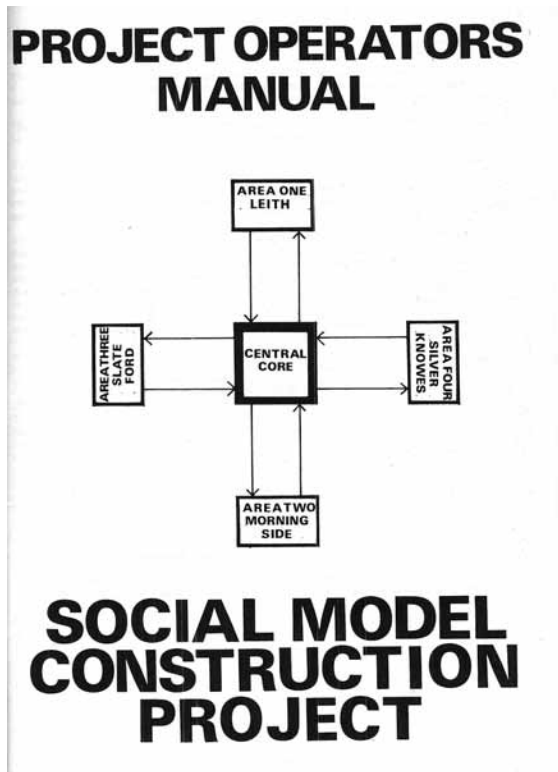


Figure 7. Stephen Willats, Edinburgh Social Model Construction Project Manual, showing the relationships among project areas.

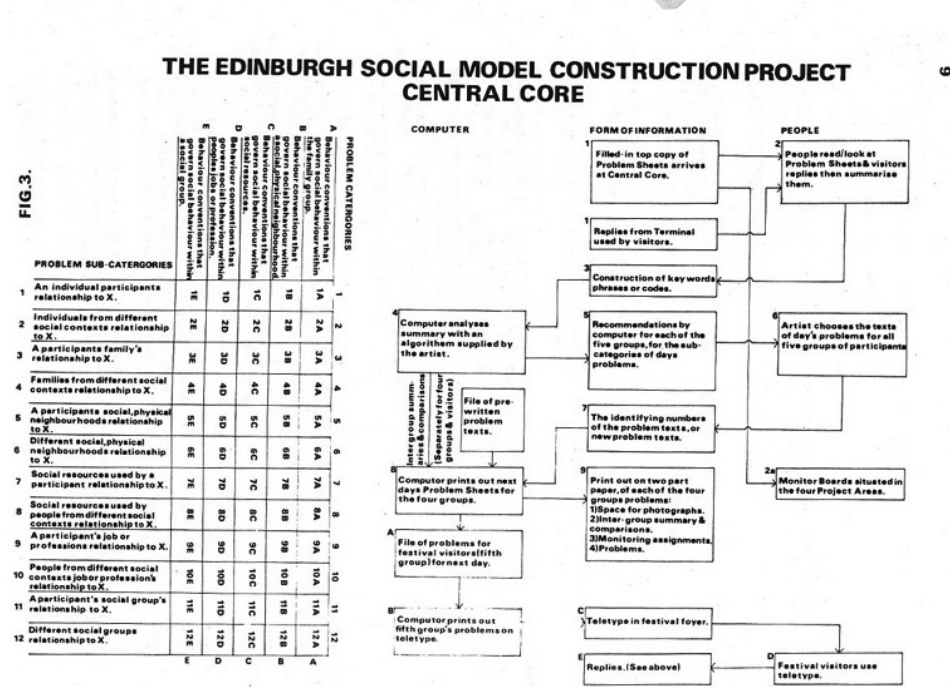


Figure 8. Chart from Stephen Willats, Edinburgh Social Model Construction Project