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ABSTRACT

The use of computers in the writing classroom changes the actual activities used in class, adapting some present activities and creating new paradigm activities, and also changes the arrangement of the classroom, forcing a radical rethinking of spatial design. The computer classroom is not a passive room, one where information goes out from the teacher to passive receptors; it is an active room where the information flows from writer to computer to readers in the room or on the network. Computers in the classroom change the location of authority, directing focus away from the teacher and the chalkboard and onto the screen, onto the text generated on the computer. In this setting, the teacher acts as facilitator, helping the information flow. Finally, computers in the classroom change the way teachers teach, encouraging veteran teachers to reconsider old ways of teaching composition while they cope with the new technology. (Two appendixes containing illustrations of computer classroom designs and a capsulated comparison between the traditional and computer classrooms are attached.) (KEH)

Computers and the Classroom:
A Look at Changes in Pedagogy

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COMPUTERS AND THE CLASSROOM: A LOOK AT CHANGES IN PEDAGOGY

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When teachers enter the computer classroom for the first time, they enter with expectations about the changes the computer will make for their students and their writing. One change they do not anticipate is how the computer will change the way they teach.

I would like to consider some of these pedagogical differences by looking at various classroom designs, various computer configurations, and various writing techniques.

Classroom designs.

The classrooms we are familiar with are basically rows of desks with the teacher's desk in the front. This type of classroom--let's call it the traditional classroom--is designed for lecturing. Thankfully, most of us know better than to lecture about writing. Instead, we use our large teacher's desk as a place for holding writing conferences and for stacking handouts and suggested extra readings; we make the students move their desks out of the neat institutional rows and into circles, sometimes large circles for whole class discussions, more often small circles for group work. Students quickly become used to the idea that English teachers like to move desks. But in a

computer classroom this is not possible. There's still a teacher's desk in most rooms; however, the students sit at tables of some sort, often bolted to the floor and held in place by the heavy equipment on top and the complex wiring underneath.

Let's consider the traditional classroom and the computer classroom according to several variables: method of interaction; accessories; time; and assignments. In the traditional classroom, the method of interaction is face-to-face: lecture, discussion, peer group work. In the computer classroom the method of interaction is face-to-screen. Students look at screens, their peers read screens, their instructors walk around and look at screens. In the traditional classroom, the accessories used are the chalkboard, texts, and handouts. In the computer classroom the accessories include whatever software is on the student's disk: word processing, text/lesson files, utilities (handbook, spell check, thesaurus). In the traditional classroom, the class time is assigned in rigid blocks, usually of 50 minutes duration, regulated by bells, the formal beginning of the lecture signaled by a teacher's arrival and departure, a call to silence and attention. In the computer classroom, the class time is nominally the same, but in actuality, it is determined by the student's arrival and departure. Students come early, begin working independently, and stay late. This is revolutionary. It should not be overlooked. In my class, students sometimes don't notice when I arrive, or if I leave to retrieve something from my office. I did, in fact, get sick one day last semester and the

class met and functioned without me. The students somehow had a sense of opportunity, time not to be wasted. In the traditional classroom, the assignments are usually done outside of class, often at a later time. Brief periods of the traditional classtime may be devoted to in-class writing--freewriting or journal entries--or to the simultaneous writing of class lecture notes. But work covered in the class, readings and compositions, is work previously completed outside of class. In the computer classroom, assignments are more immediate. Work is done in-class to take advantage of the computers. Assignments outside class are often supplementary readings and, more often, include editing and hard copy revision.

Classroom Arrangements and Implications

Understandably, the design of the computer classroom becomes very important for a teacher who is used to having students do group work. The advances we've made concerning the notion of writing as a social act seem to be defeated by computer classroom arrangements where students have little contact with each other in the act of writing. The design of the room is important because it contributes to or inhibits the creation of a community of writers.

The square.

The square classroom design uses the walls of the room as the boundary around which are placed rows of computers, sometimes

forming a U shape, leaving one wall free, the one with the blackboard or the entrance doorway. This type of classroom allows students easy access to the machines. The middle area of the room may be occupied by another table with computers, tables for work space, or left free. The students working at the computers face the wall and need to turn around to see their instructor moving in center of room or writing something on the board. The instructor moves from one terminal to the next, and the students converse with those next to them. The focus of the classroom is clearly upon the screen and what is taking place there. The students are absorbed in their own work, and any other activity is seen as a distraction. There may as well be small walls between the computers, as with carrels. The advantage of this classroom design is that students are intensely focused upon their writing, often to a degree not possible in a traditional classroom. Their writing is also more private than normal in a computer classroom because of the room design, students discouraged from reading the screens of their classmates by their placement in a square facing the wall. The teacher, the free moving agent, the only one not working at a terminal, is able to read over the shoulders of students, often without disturbing their work.

The circle.

A variation of the square classroom is the circle. One high school I heard about in St. Louis at the NCTE last November

had a room arranged with the computer tables away from the wall, allowing teachers and students to move about in the space between the wall and the computers. Some rooms have a table, or the teacher's desk, in the middle for students to work at non-computer activities. Because in this design the tables are arranged to form a circle, the students are able to look past their terminals to the open space in the center, where the teacher may move to address them. The theatre in the round approach.

The keyboard.

A variation of the traditional classroom with rows across rather than moving down, away from the teachers desk in the front, is what I call a keyboard classroom design. It is modelled on the old typing class design and the rows resemble, to my mind, the rows of letters on a keyboard. The keyboard design has the teacher in front and the students in rows, all facing the teacher, working on their machines, computers replacing Smith Coronas, attending to their jobs, with the teacher able to move about and monitor their work, seeing that everyone stays on task. There is little room to move within the row, except to take a seat. There is no center aisle. And the only access is by an aisle from doorway. There's a printer at the end of each row, so students can get up from their seats to retrieve a printout. But otherwise there's very little movement in the keyboard classroom design. This is the design of the computer room my daughter uses

at her school. When she and her classmates are in the computer room, they enter and immediately begin work. Directions are previously given on a handout and the teacher walks around, mostly solving mechanical problems. If Laura's teacher is helping someone in another row, it is difficult to get the teacher's attention. So, when she has a problem, she says she's learned to just try to figure it out and keep going.

The language lab.

A variation of the keyboard design is one in which students sit in rows, each station separate from the others in the row. I call this a language lab design because twenty years ago students used to listen to language tapes through headphones in a classroom like this; they now work at computers. These carrels are designed to promote individual work and provide isolation from distraction. The students cannot see those ahead of them in the room, and they cannot see what is on the desk or the screen of anyone sitting next to them. The computers-in-carrels language lab design has made writing an isolated activity. Once again, the writer is alone in her room.

The comb.

The comb design is a variation of the traditional classroom configuration and the keyboard design. There is a teacher's desk in front, as well as a chalkboard. It is a room clearly oriented to the front, unlike the square or circle where

there is no teacher's position or desk or board. The tables are much shorter and form rows off the wall, leaving a center aisle free, where the teacher and students may walk. However, the tables have computers on them facing back-to-back, forcing one half of the class to be directed away from the front and the teacher's traditional space. The advantage of this design is that students may form teams with those facing them across the computers or form clusters with those sharing the same chair space. This type of design allows students to work individually or in small groups, and it allows teachers to work from the traditional space in the front area or move about to the small groups. Although it seems a contradiction, this design allows the focus to be on the computer screen while not making the screen the only focus of the classroom, as happens with the square design. It allows the teacher to become the focus, without the rigidity of the keyboard room. It allows for the teachers to reach another desk easily, without a complete revolution in the circle design or an awkward move up and down the pews in the keyboard design.

There are a variety of designs not yet mentioned or seen. For example, an X configuration. Arranging computers, back-to-back on tables forming an X shape in the middle of the room would allow students to work in clusters across the arms of the X, but it might be awkward for the teacher to move around quickly because there would be no center space. Or the free-standing isles of computers--the equivalent of the peer group small

circle, only with tables, computers on top and chairs around.

The important thing, I think, is that you can see what each of these designs does to enhance or inhibit a sense of community in the classroom. Classroom arrangement needs be designed to keep the community active, the sharing alive. The teacher needs to use collaborative activities and networking that will foster interaction between students, not just between user and machine. I look to see whether students can communicate with each other or whether they are isolated. In evaluating the computer classroom's degree of community, it is important to ask how easy is it to receive help from peers, lab workers, and teachers.

Networks.

How do network setups fit into this sense of community? If the traditional classroom resembles face-to-face conversation, the network classroom resembles communication through the telephone and the U.S. Mail. Networks have the immediacy of face-to-face conversation but with even fewer of the paralinguistic cues than accompanies the telephone. Networks have the storage and permanence of mail, but they present all messages equally, mixing the important messages with the junk mail. In one sense, a network classroom becomes the perfect democracy, all voices equal, authority distributed and earned. In another sense, a local area network, in a star configuration, replicates a plantation hierarchy, where the teacher's machine on

the network acts as the master and the other terminals, those used by students, the slaves. The teacher's terminal in this configuration is sometimes called the server, sometimes the host, adding linguistic confusion to the metaphor. Whatever the name, the teacher in this setting has power analogous to that of Big Brother--distributing information to students and collecting reports from them. The teacher is also able to monitor any student's activities at any terminal on the network--a pedagogy of eavesdropping, possibly another remnant of the language lab model. A LAN, configured more democratically as a ring or bus, can be utilized so that students, without passing through a master or a file server, can send and receive text from each other, following the appropriate protocol for interrupting someone occupied at another task. This network configuration fosters an increased sense of community in writers. In the best of all possible worlds, the teacher will be just one more writer on the network, a network linking voices across the room and across the country. This was the vision of the original hackers who began the computer revolution--a global village à la Marshall McLuhan / Buckminister Fuller.

Another way computers in the classroom change the way we teach is that writing/rhetorical concerns are now complicated by production concerns. In the traditional classroom, no one has to teach how to produce assignments; no one explains typewriters, bic pens, erasers. But in the computer classroom, we have to give up time in order to teaching word processing. In fact, we

have to take time to teach computer literacy things such as DOS commands, keyboard skills, and printer procedures. Let's face it: a lot of time is going to be allocated for production concerns, forcing us to expand our idea of what it means to help writer's solve their problems. Last semester, it took my class a full month before the emphasis became, "how does this sound?" instead of, "how do you do this?" Some writing problems are actually matters of text production. Several years ago, a colleague and I studied the rate of production handwriting, seeing what effect it had on writers. This past summer, in my graduate workshop on Teaching Writing With Computers, keyboarding suddenly turned out to be a major concern. Maybe these two concerns are part of the same thing: writers in the computer classroom have to deal with production problems--keyboarding skills, word processing abilities, networking procedures--all far more complex than handwriting.

Conclusion.

The use of computers in the classroom changes the actual activities used in class, adapting some present activities and creating new paradigm activities. Computers in the classroom changes the arrangement of the classroom, forcing a radical rethinking of spatial design. The computer classroom is not a passive room, one where information goes out from the teacher to passive receptors. The room is an active room where the information flows from writer to computer to readers in the room

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Appendix A

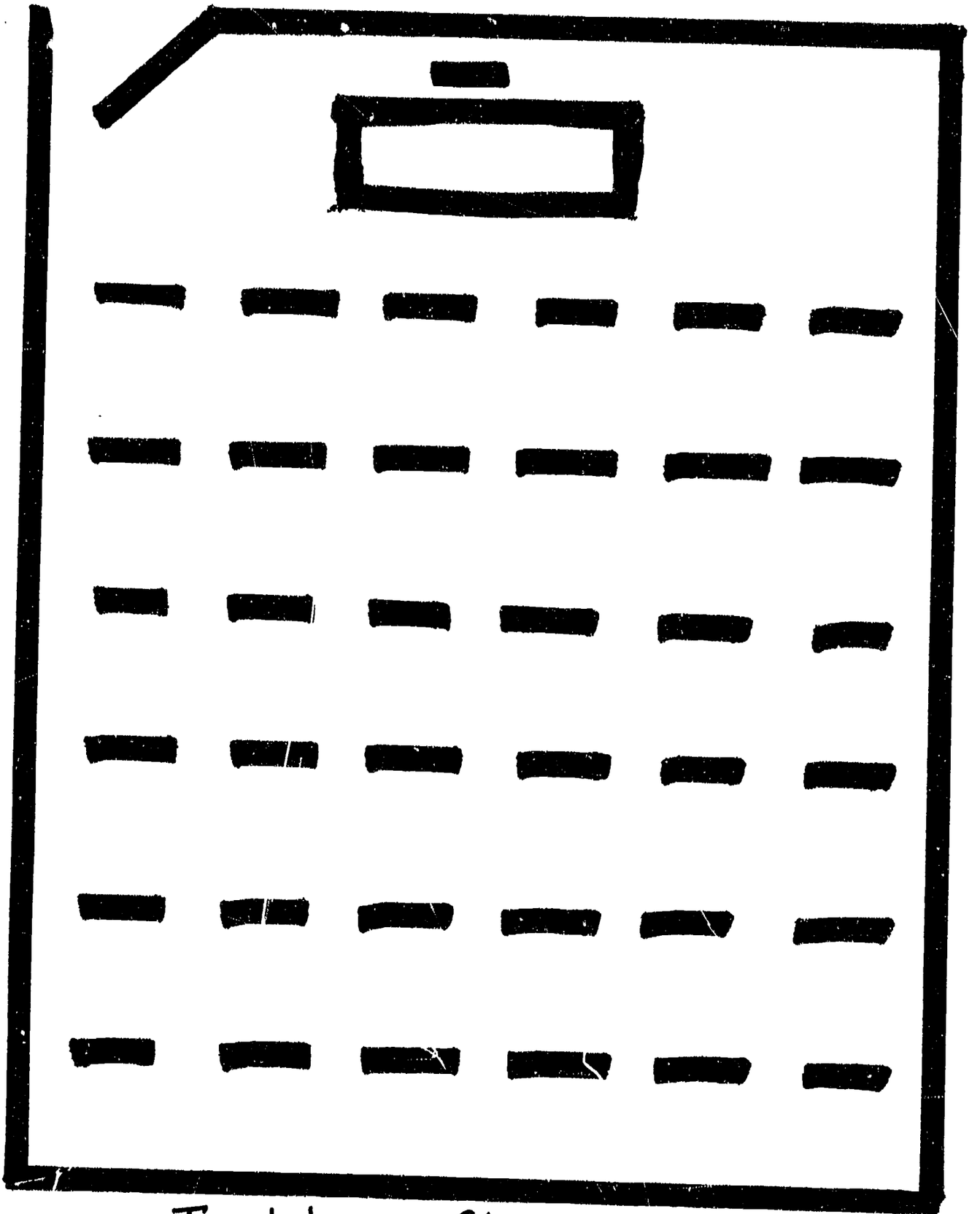
COMPUTERS AND THE CLASSROOM: A LOOK AT CHANGES IN PEDAGOGY

	Traditional Classroom	Computer Classroom
Method of interaction	face-to-face: lecture, discussion, peer group work	face-to-screen
Accessories	chalkboard, texts, handouts	software on student's disk: word processing, text/lesson files, utilities (handbook, spell check, thesaurus)
Time	rigid, signaled by a teacher's arrival/departure	independent, determined by the student's arrival/departure
Assignments	usually done outside of class in class discuss work previously completed	in-class to take advantage of the computers supplementary outside assignments include hard copy revision

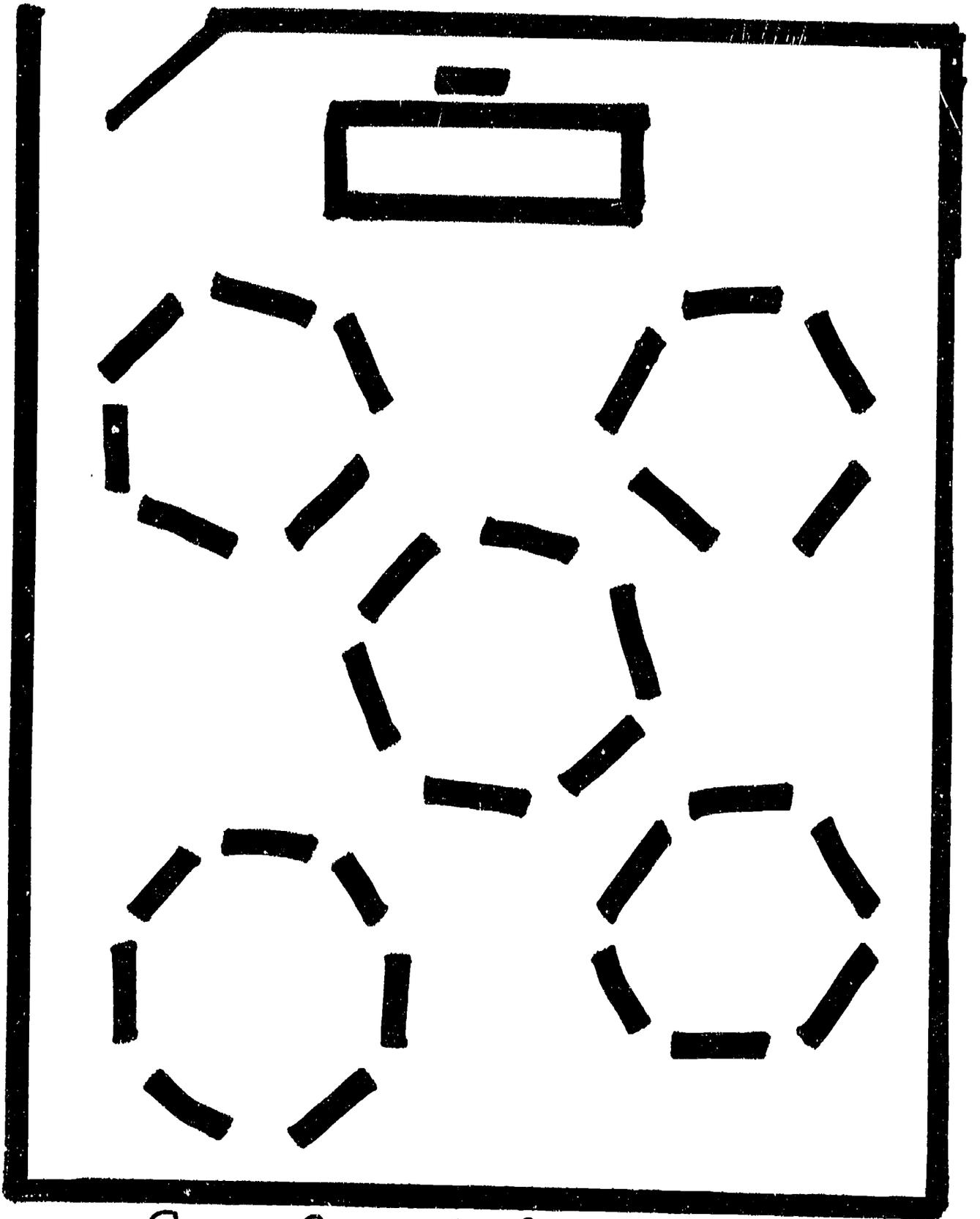
Appendix B

CLASSROOM DESIGNS

	Advantages	Disadvantages	Degree of Community
Traditional	moveable seats	designed for lecturing	move their desks form groups
The square	easy access focused private	cannot see others or teacher	isolation
The circle	easy movement can see teacher	cannot see others	eye contact
The keyboard	focused independent	teacher centered	isolation
The language lab	focused-no distractions	too individual	complete isolation
The comb	focus on screen & teacher	facing back-to-back	within same chair space

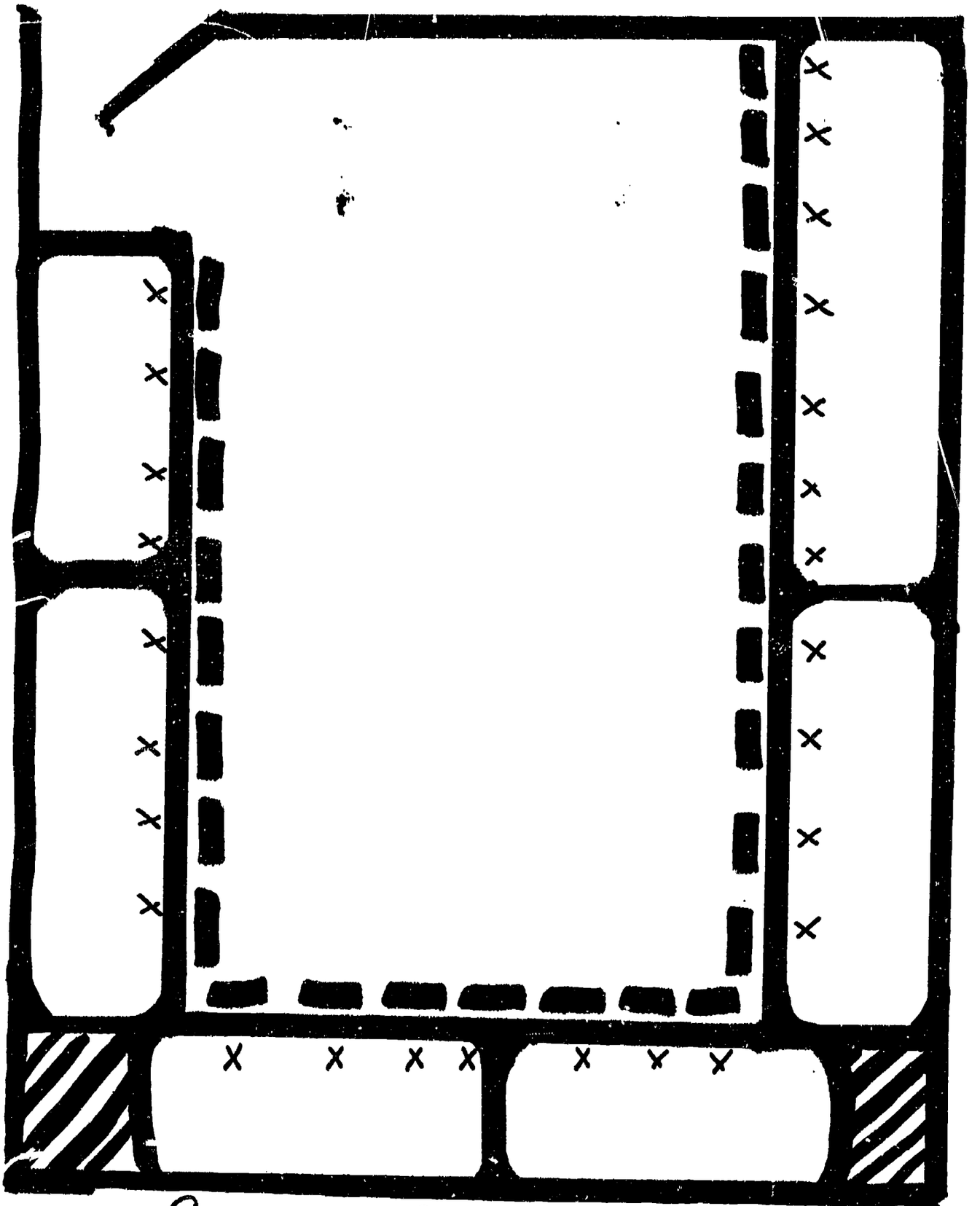


Traditional Classroom



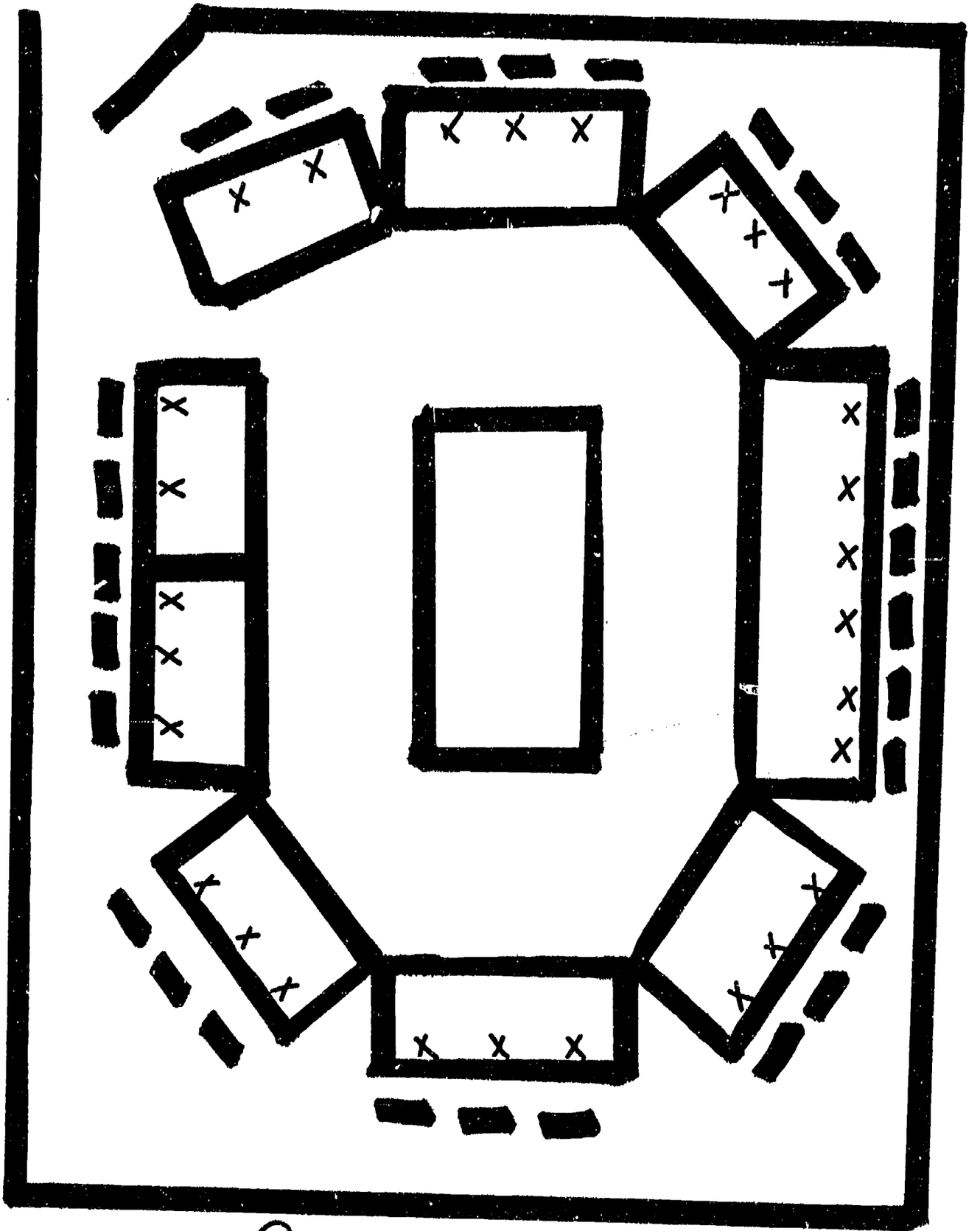
Small Group Configuration

2



Square - Computers along Wall [x]

3



Circle

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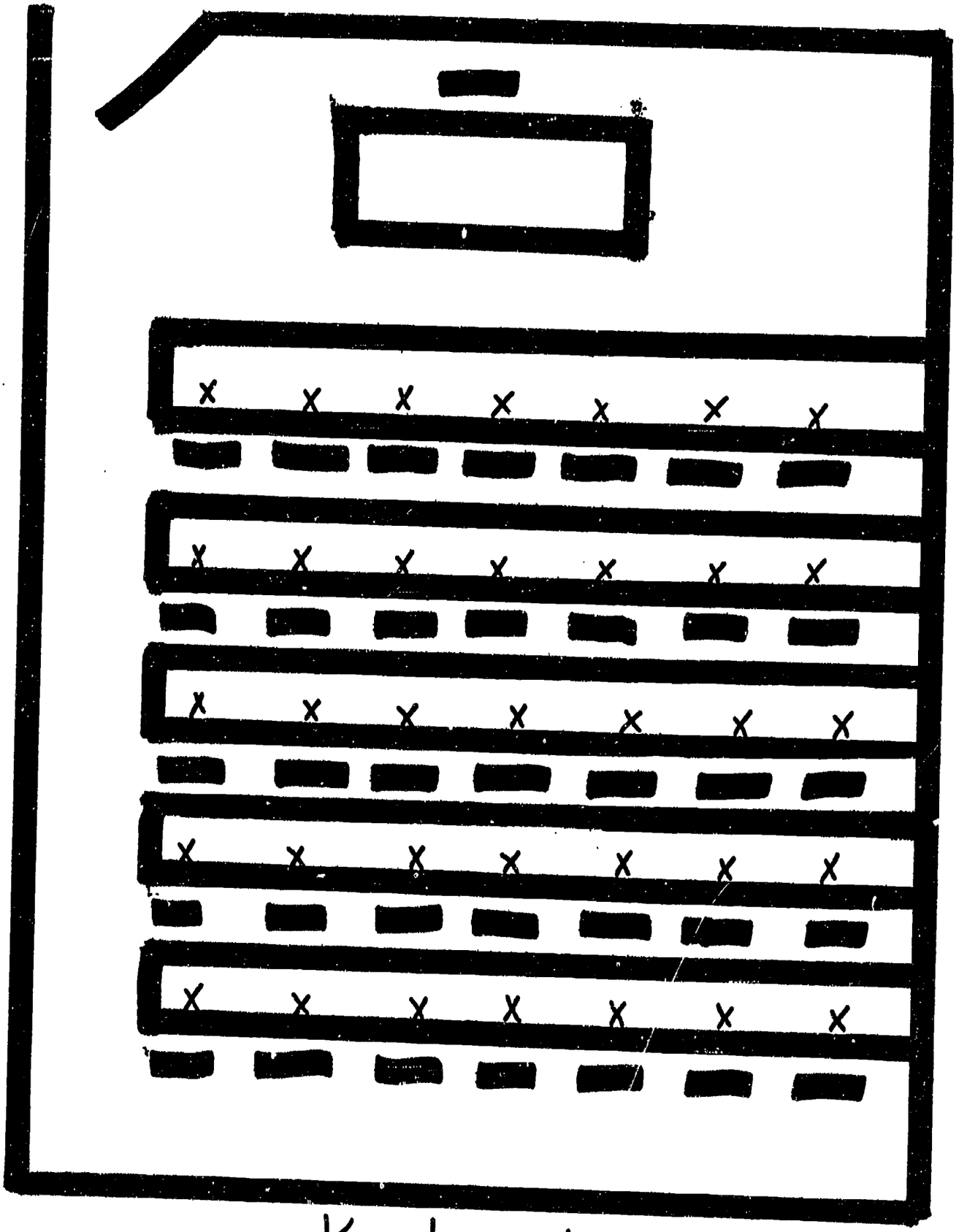

Keyboard

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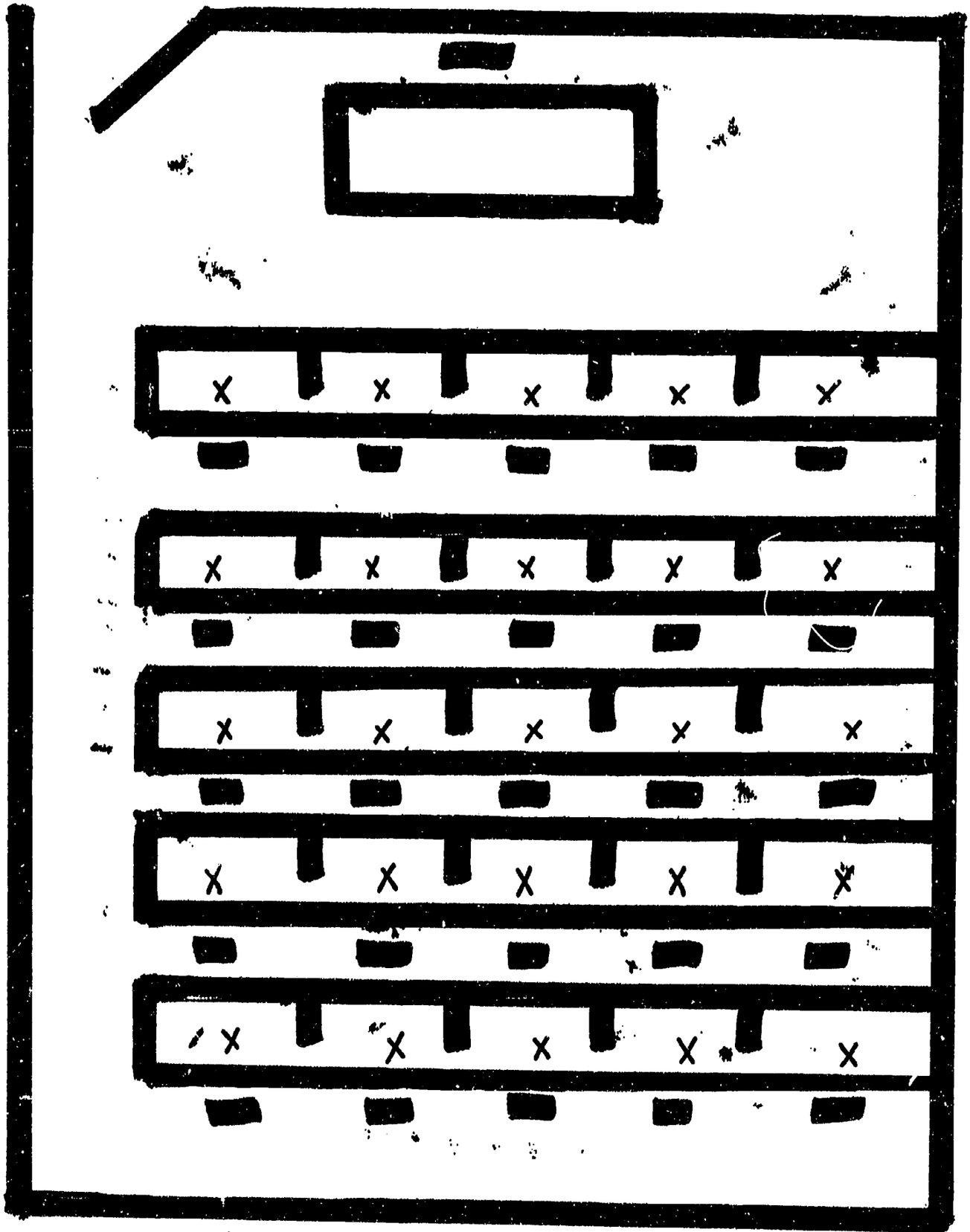

Language lab

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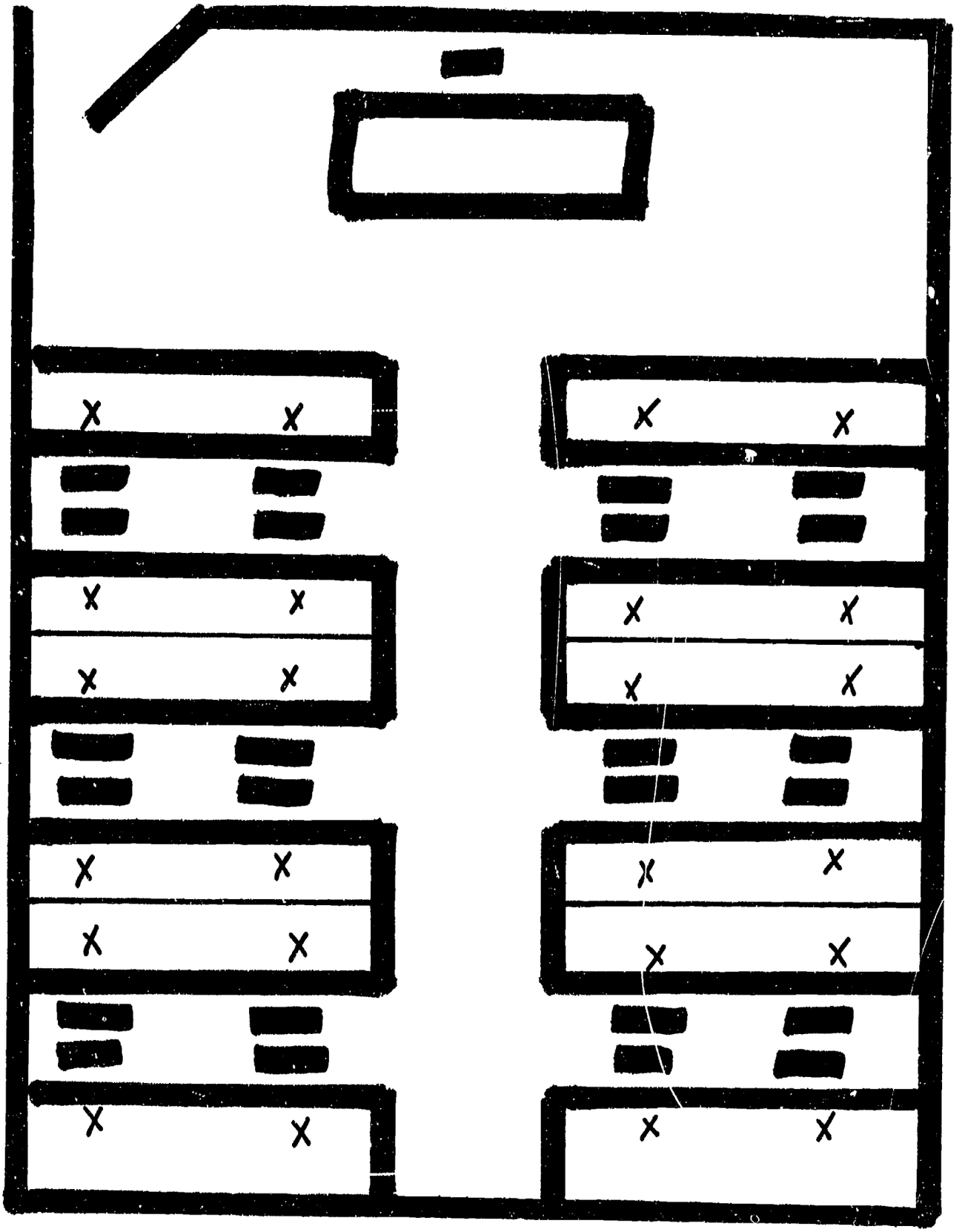

Comb

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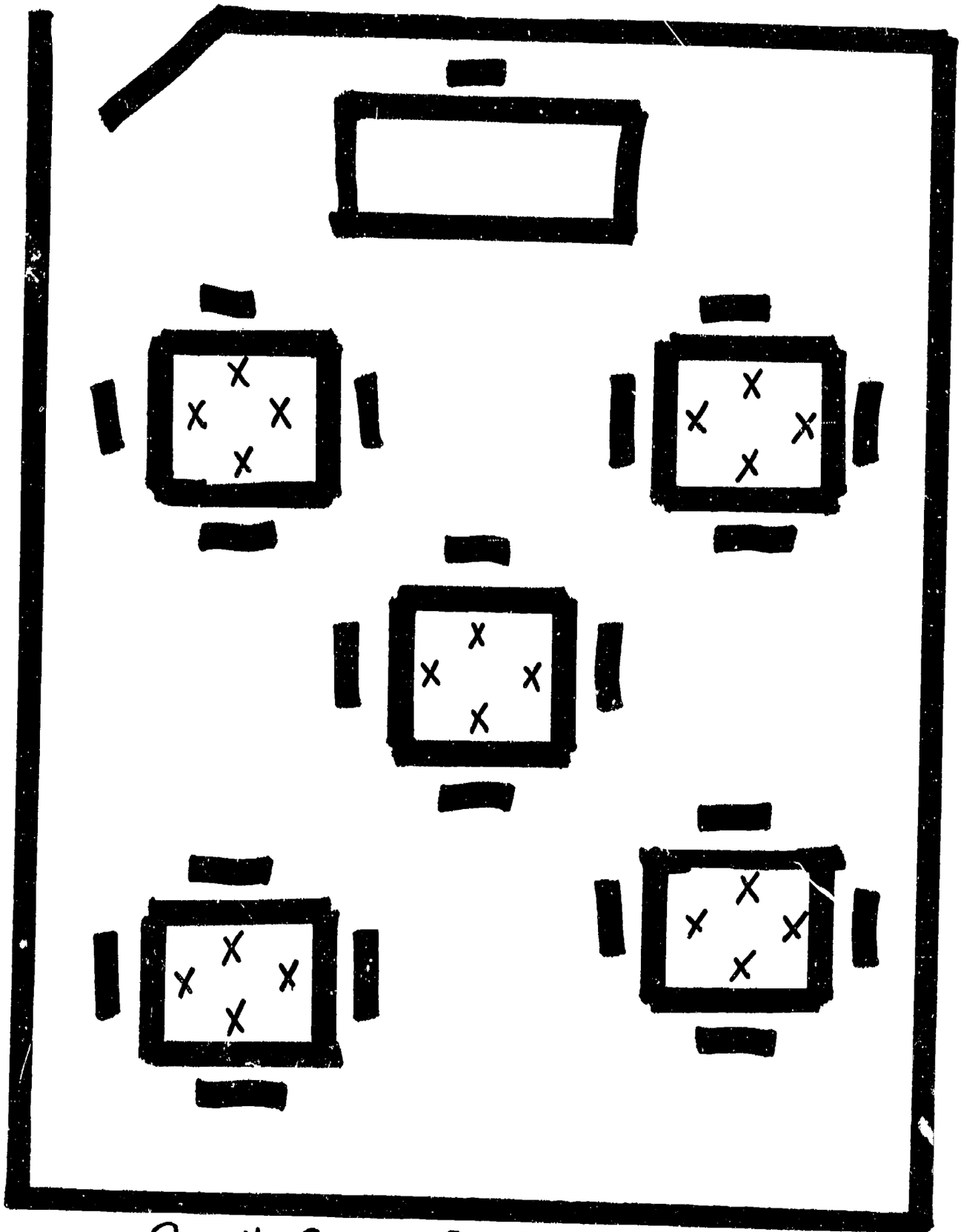
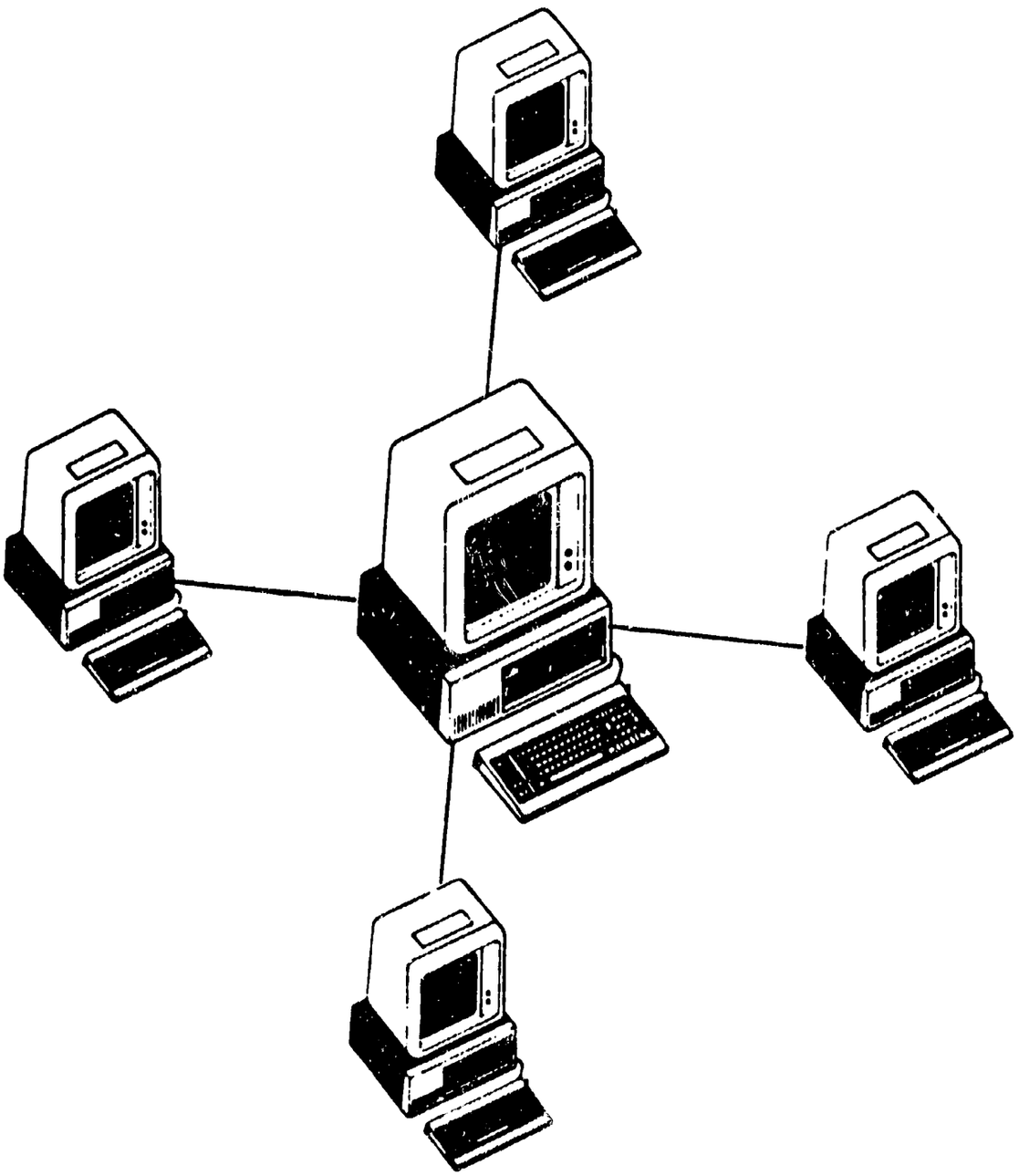


Small Group Computer Configuration

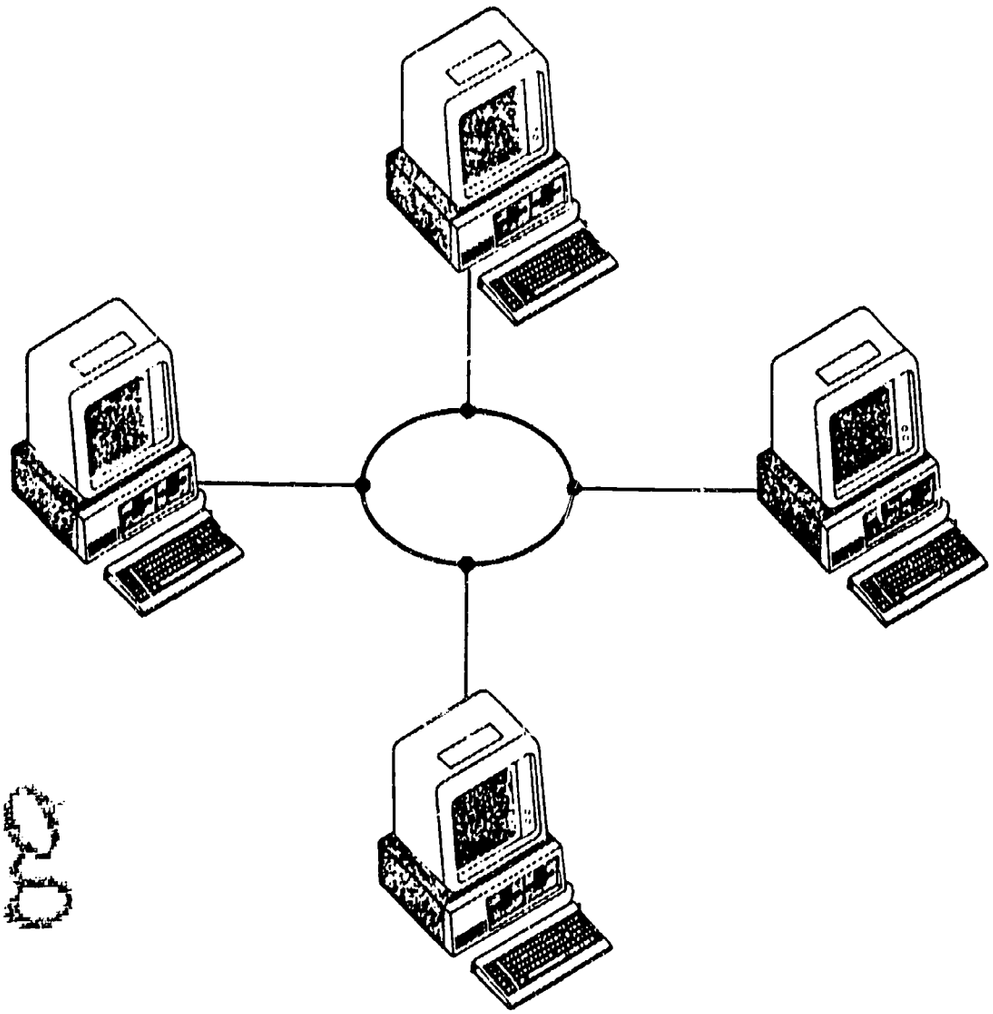
8

NETWORK DESIGNS

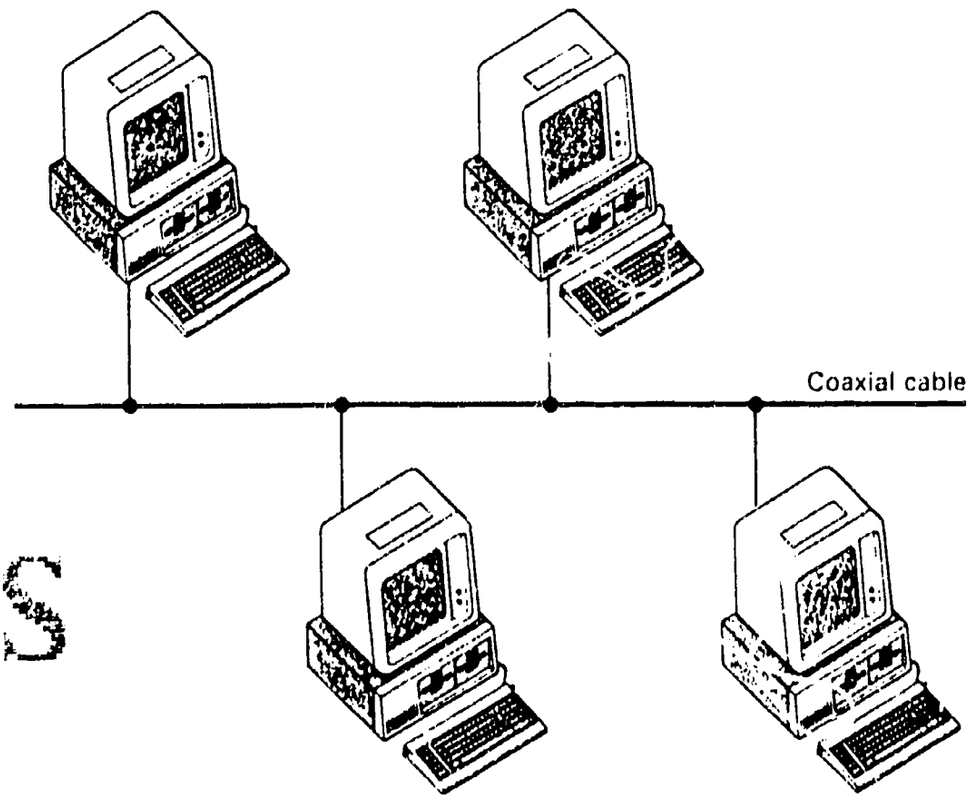
	Advantages	Disadvantages	Degree of Community
-star	resembles traditional classroom	authoritarian	master and slaves
-ring or bus	democratic shared voices peer group	no value discrimination	global village



Star Network



Ring



Bus