Week 7:
Libraries, Stacks, & Collections

Week 1: Recap

The best software or hardware ever designed cannot calculate a tiny fraction of relationships that exist in a simple pond.

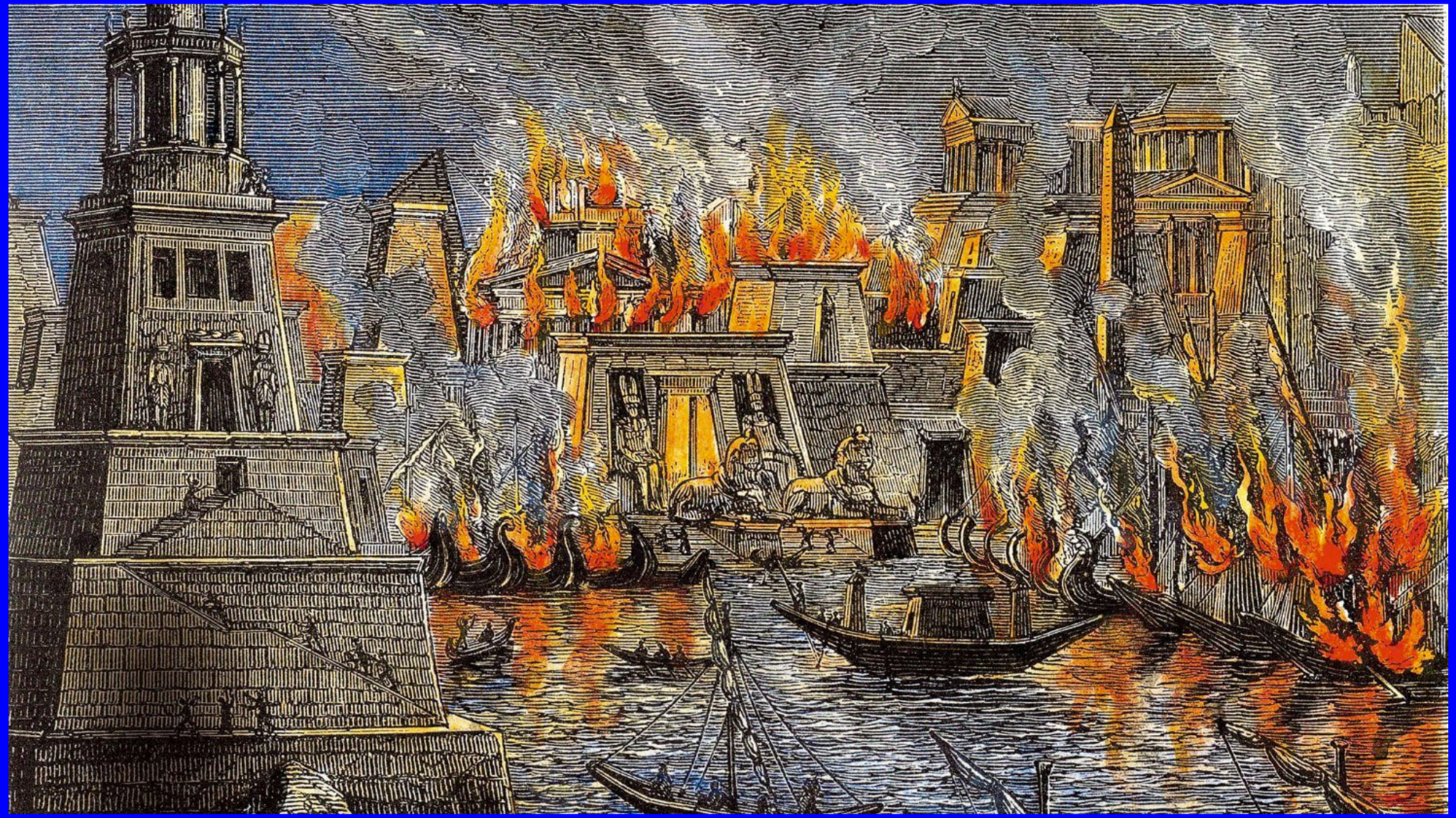
Red Burns

Week 1: Recap

Sharing by default

Open Source by default

Libraries



Libraries

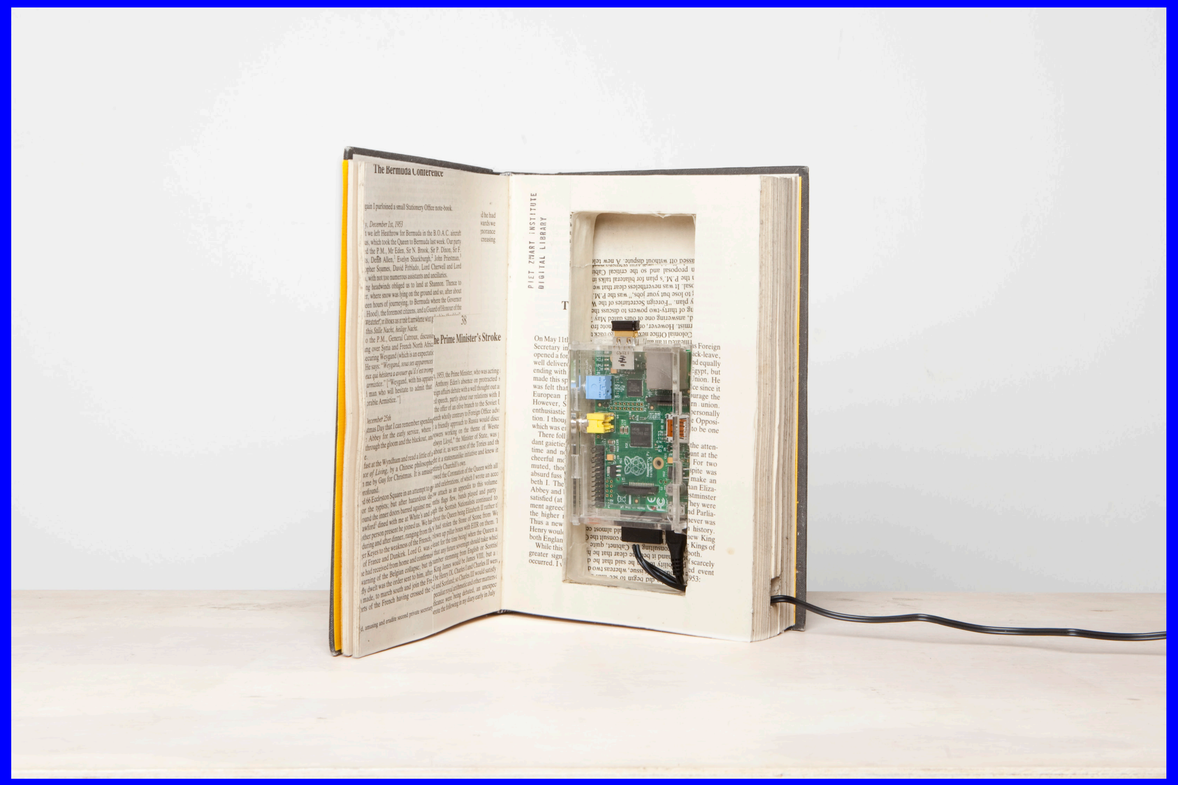
A library is a collection of sources of information and similar resources, made accessible to a defined community for reference or borrowing.

Libraries

It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both.

Libraries

Prelinger Library



Bibliotecha

Libraries

Reanimation Library

The Zine Library

Databases

A database is an organized collection of data, generally stored and accessed electronically from a computer system.

Databases

→ Structured
→ Relational
→ Represent the world using tables
→ Since the 1970s
→ Amazon, Google, Yahoo!, Netflix, Spotify—all have huge, powerful databases

Databases

→ Imagine a bookstore database
→ Customer table that lists customers
→ It has a books table that lists books
→ And it has a clever in-between table of purchases with a row for every time a customer bought a book

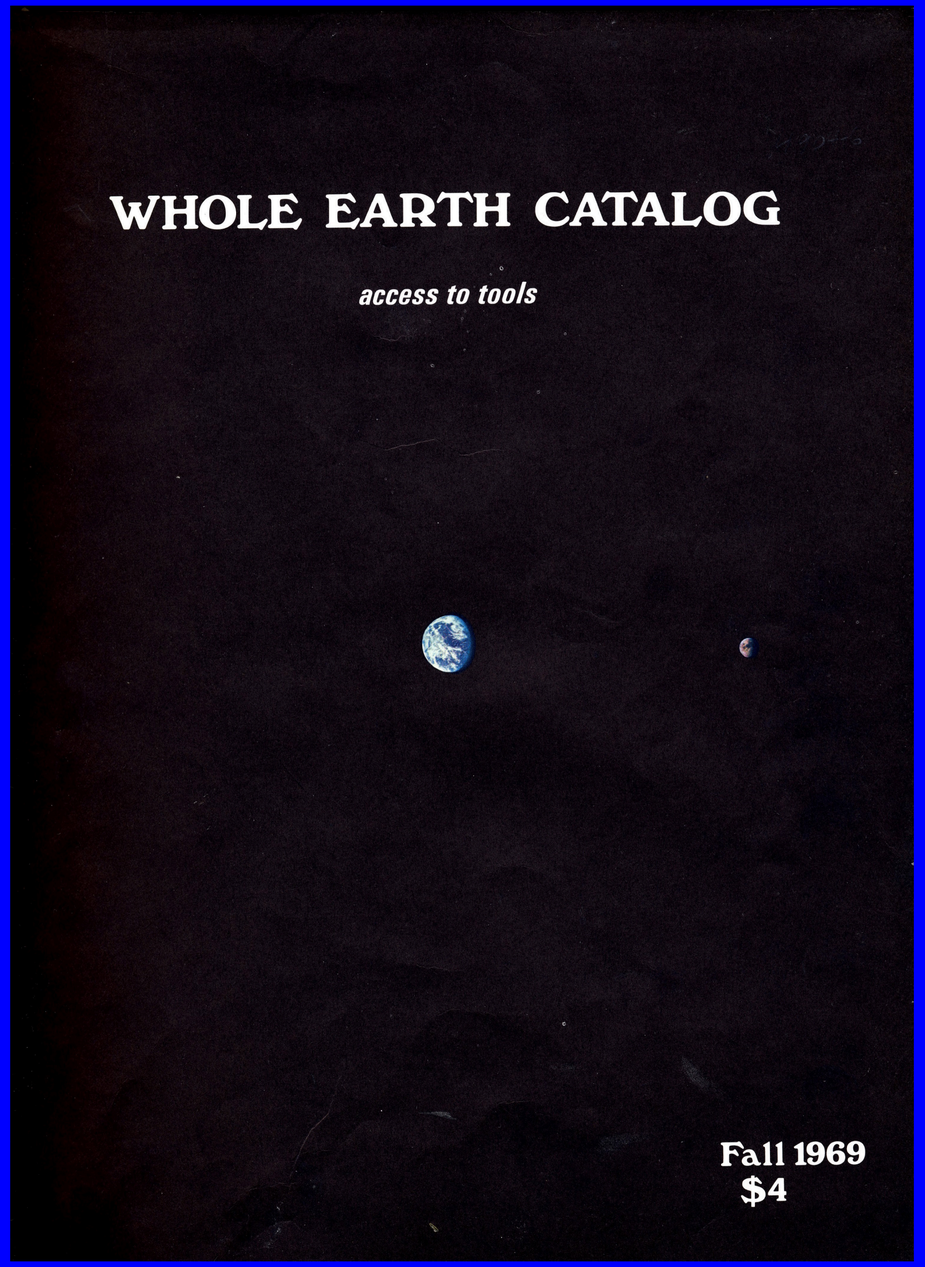
Databases

→ Data comes from everywhere
→ Sometimes data is user-created
→ When you create websites, you need to get data out of a database and put them into a Web page
→ Root of many problems

Databases & Streams

→ https://planet.parts
→ https://metmuseum.github.io/
→ https://collection.cooperhewitt.org/
→ https://portal0.cf.opendata.inter.sandbox-toronto.ca/
→ https://opendata.tpl.ca/
→ http://stapi.co/

Collections



ABC's of Short Wave Listening

I started listening to short wave when I was twelve on an old (1937) Crosley shortwave console radio I bought from Honest Ben's for $5. I replaced a few tubes and then learned to count seconds listening to WWV.

You can receive much more than the WWV time signal. Voice of America. Radio Swan. Etc. (See p. 127, Popular Science) It is fun and can be very informative.

This book is a very basic introduction to short wave. You can spend a lot of money on a good receiver. Or make do with an old console. Depends on what you want.

[Reviewed by Fred Richardson]

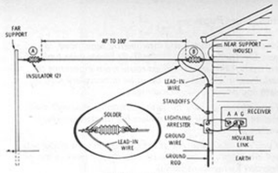
ABC's of Short-Wave Listening
Len Buckwalter
1962, 96 pp.

$2.95 postpaid

from:
Howard W. Sams & Co., Inc.
4300 W. 62nd St.
Box 558
Indianapolis, Indiana 46206

or WHOLE EARTH CATALOG

As the major piece of equipment in the hobby of shortwave listening, the receiver must convert the minute energy of a radio wave into an audible signal. How well a receiver can do this is mostly a measure of its sensitivity and selectivity. The first quality, *sensitivity*, is the ability to separate a signal from the ever present noise level created by disturbances in the atmosphere and outer space.



(A) Inverted-L antenna.

Table 2-1. The Radio Spectrum

Major Divisions	Frequency Ranges
VLF ≡ Very Low Frequency	10 kHz to 30 kHz
LF ≡ Low Frequency	30 kHz to 300 kHz
MF ≡ Medium Frequency	300 kHz to 3000 kHz
HF* ≡ High Frequency	3 MHz to 30 MHz
VHF ≡ Very High Frequency	30 MHz to 300 MHz
UHF ≡ Ultrahigh Frequency	300 MHz to 3000 MHz
SHF ≡ Superhigh Frequency	3 GHz to 30 GHz
EHF ≡ Extremely High Frequency	30 GHz to 300 GHz

* Most SW listening is done in this part of the spectrum.

Selectivity describes how well the receiver can pick out a signal in a crowded frequency band. It is mainly by these two qualities that a short-wave receiver may be judged. A multitude of features may appear in a given set, but these are usually concerned with operating convenience rather than operating quality.

Lee McKusick
Chimayo, N.M.

The Radio Amateur's Handbook

10 The Radio Amateur's Handbook

10a This has been the practical guide for radio amateurs for 43 years. It begins with the fundamentals of electric circuits and follows a simple development of the radio theory necessary to understand communications. There is brief section on laws governing amateurs and references to other books that are valuable aids in obtaining a license.

10b Throughout the book actual circuits are shown, always with enough information to build them. Later sections cover complete construction details for various transmitters and receivers but don't be misled by their apparant simplicity. It takes a lot of time and know-how to make these things work and unless circuit building is your thing you are better off to buy commercial equipment or kits. (Heathkit is one of the best sources for ham gear.)

The review to the left was prepared and printed on a computer by Bill English– as you can see, the fluidity of computer interaction makes spelling more casual than with direct hard print.

The Radio Amateur's Handbook may be of interest to the communities and enclaves who've been fantasizing an underground radio net. Like a night of the week or month when all the world's long-hairs are on the air, vibing to each other and the stars. —SB

[Reviewed by Bill English. Suggested by Arthur Brand]

The Radio Amateur's Handbook
American Radio Relay League
1925 . . . 1971; 658 pp.

$4.50 postpaid

$5.00 Canada, $6.00 elsewhere

from:
The American Radio Relay League
Newington, Conn. 06111

Electronics

For technical freaks. If you are a double e ENGINEER, the articles may be of interest. Otherwise, spend your time with the ads. Learn about all the new hardware and bits and pieces. Reader service card whereby all of the advertisers will send you piles of shit on their products. By far the best part is the Electronics Buyers Guide, a three-inch thick directory that comes once a year and lists all manufacturers (and their sales reps) that have anything to do with electronics.

Don't forget your title and company name. Get a subscription blank from one at the library and have no trouble.

[Reviewed by Fred Richardson]

Electronics

$8.00 a year, biweekly

from:
Electronics
P.O. Box 514
Hightstown, N.J. 08520
Subscription department

Subscriptions limited to persons with active, professional, functional responsibility in electronics technology. Publisher reserves the right to reject non-qualified requests. No subscriptions accepted without complete identification of subscriber name, title or job function, company or organization, including product manufactured or services performed. Subscription rates: qualified subscribers in the United States and possessions and Canada, $8.00 one year, $12.00 two years. $16.00 three years; all other countries $25.00 two years. Limited quota of subscriptions available at higher-than-basic rate for persons outside of field served, as follows: U.S. and possessions and Canada, $25.00 one year; all other countries $50.00. Air frieght service to Japan, $60.00 one year, including prepaid postage. Single copies: United States and possessions in Canada, $1.00; all other countries, $1.75.

Radio

In the March $1 *Catalog* you were wondering about how to fit electronics into your catalog better. It seems to me that electronic equipment is relevant to the very important business of communicating with one another. Radios, transceivers, hydrophones, ultrasonic translators, and tape recorders certainly are significant tools. However one of the most important communication tools (in my opinion) is a shortwave receiver. Listening is the beginning of all communication. With even the humblest short-wave receiver one can tune in many different nations all around the globe. Americans have neglected shortwave radio but the rest of the world (mainly other governments) is broadcasting it's opinions, viewpoints, philosophies, music, literature and drama for anyone to examine. It is free to anyone with a shortwave radio.

The simplest way to start listening is to turn on any shortwave-ready radio you have. Reception is better if you attach a long antenna and a good ground. Reception is also better after dark. You may have a good shortwave receiver in your attic or a $5 to $20 Salvation Army Store radio will serve. Almost anything made in 1932 is liable to work well . . Of course if you have more money a store-bought receiver or kit would be a fine tool. I hope some of your correspondents will be reviewing receivers and listening guides.

Besides ham radio it seems to me that souls interested in underground (and aboveground) radio and tv ought to check the radio & tv trade journals for the names of brokers in used broadcast equipment. With the introduction of color tv, multiplex fm and transistors a lot of good equipment has been obsoleted. Presently much of this stuff is sold to less affluent parties overseas. Also since many police and fire departments have changed from broadcasting on 1700 kc. (which is just on one edge of the broadcast band) to vhf and uhf bands I'd bet that there is some most power gear on the market that would be fine for am broadcasting with merely a new crystal (like $10 and a tune up.

Lee McKusick
Chimayo, N.M.

Get Your Ham Ticket

Okay, why push for all the whole earth types to get their tickets?

A) When this country falls apart, all that portable equipment and practical electronics knowledge and all those establishments are going to be the tools to stay alive and coordinate with your friends.

B) Intelligent roundtable discussion is not only possible but enjoyable, mainly because if someone is an obnoxious bastard you can tell him to politely or go off on some other frequency and start another roundtable.

C) Organized amateur radio gets information spread fast. It doesn't matter what the information is or how far it has to go, witness Alaska hams during the big earthquake a few years ago and the more recent and controversial National Student Information Net.

D) Ever see a ham tv roundtable?

Why don't more freaks and street people become hams? I think that most do not see amateur radio as the subtle tool that it is. The skills and discipline of radio in the telephone age are somewhat like the skills and discipline of the photographer who shoots 4 x 5 black and white in the Instamatic age. The price of versatility is knowledge and time.

The whopper in this whole discussion, though, is the relatively unknown but potentially enormously beneficial use of amateur radio. See the April 1971 issue of 73, which lists six in the Bay area alone. With repeaters, ten watts of rf and a good antenna pointed at the repeater itself will get your signal out over the entire Bay, Los Angeles area, Chicago area, the entire state of New Mexico, most of Maine, N.H., and Vt, or coverage in most of the sizeable cities in the U.S. One at a time, of course. Repeaters are relatively easy to license in most parts of the country, but require a lot of ground work and a good, high antenna site. Also a couple thousand dollars if you are the scrounger supreme.

Last summer I listened to the prime Chicago repeater for a couple days and heard fixed stations over the Wisconsin border and out more than thirty miles to the south chatting with a mobile unit watching the planes take off at O'Hare and a woman walking in the loop with a walkie-talkie. I understand that one can now do it through the northeast and scarcely ever be out of range of at least one machine. Mind you that all this is taking place more or less line-of-sight on frequencies tucked between the fm broadcast band and tv channel 7.

I'll QSO any of you after my part of the war is over.

Wes Ploaff WA8CBN
Eielson AFB, Alaska

Sex and Broadcasting: A Handbook on Starting Community Stations
Lorenzo W. Milam
1971; 40 pp.

$1.00 postpaid

from:
Dildo Press–KTAO
5 University Avenue
Los Gatos, California 95030

or WHOLE EARTH CATALOG

I could spend pages, hours, days, telling you about how to fill out Form 340 (from the FCC). But since you and I are always more in learning processes, let us look on this as such an experience. Fill it out to the best of your ability, show it to your lawyer– assume you have one– or send a rouch draft to me. I will help you as much as I can if I am convinced that you truly want to set up a community oriented free form free forum listerner volunteer station. If not: I can't help you. For I love broadcasting and radio too and to give free time and assistance to someone who will use a broadcast outlet as a stamping ground for some misshapen single-cell personality

Heathkit

Between readymade and total do-it-yourself is Heathkit. Assembling yourself saves 25-40%, plus education, minus time. It's good electronic equipment of wide variety: color TV (14", $380), guitar amplifier (120 watt, $193), excellent AR-15 stereo tuner ($207), 5" Oscilloscope ($200), sundry lab equipment, CB 5 watt transceiver ($100), portable short-wave receiver ($142), Theater organ ($1200), microwave oven ($440). —SB

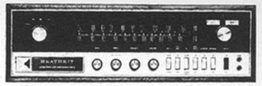
Heathkit Catalog
1971; 115 pp.

free

from:
Schlumberger Products Corporation
P.O. Box 167
St. Joseph, Michigan 49085

Shortwave

Stout heart of the finest stereo systems:
Heathkit AR-15 Stereo Receiver 369.95
575.00 wired



Famous Low-Cost "Benton Harbor Lunch Boxes" Compact 6 & 2 Meter Transceivers

HW-29A **$49.95**

HW-30 **$49.95**

• Perfect for the ham-on-the-go • Ideal for CAP, MARS, local net, or emergency operations • 5-watt input crystal-controlled A.M. transmitter • HW-30 2-meter model capable of operation on new USCG Auxiliary frequency 143.28 MHz

GO VHF FOR LESS . . . complete tranceivers, lunch-box size. Feature crystal controlled transmitter with straight-through final amplifier. Crystals (not supplied) are in the 8 MHz range. Receiver is super-regenerative with RF stage . . . features 1 uv sensitivity! The built-in 120 VAC power supply, speaker, press-to-talk switch on front panel, and ceramic mike included make these units ready to go on the air with your antenna. Power cables for mobile and A.C. operation are included.

Kit HW-29A (6 meter), 9 lbs., no money dn., ... **$49.95**
Kit HW-30 (2 meter), 9 lbs., no money dn., ... **$49.95**

Allied Radio Shack

After considerable mail and discussion by CATALOG users, it seems clear that Allied (now merged with Radio Shcak) is the best mail order source for electronic gear. They also print an industrial electronic catalog that is particularly rich in components, (especially noteworthy: integrated circuit components). Plug in, link up, dis-corporate. —SB

Allied Radio Shack Catalog

$1.00

Allied Industrial Electronics Catalog

$2.00 (No charge with order Refunded first purchase.)

from:
Allied Radio Shack
100 N. Western Avenue
Chicago, Ill. 60680

ELECTRO-VOICE

B 21-112 ONE-WATT ONE-CHANNEL WALKIE-TALKIE
Long-range power at a rock-bottom low price. The "Rover" has all solid-state circuit with extra-sensitive RF amplifier stage to really pull in signals. Volume control and push-to-talk switch. Thin design with rugged die-cast front. Perfect for sportsmen, yachtsmen, farmers or anyone who needs long range capability. Has 39" chrome telescoping antenna. Complete with 8 "AA" penlight cells, plug-in Channel 11 crystals and instructions, and $4.95 value carrying case. Size, 3½x3¾x1½". 910-00a7. Shpg. wt. 3½ lbs. 29.95

B 16-WATT PORTABLE MEGAPHONE
ELECTRO-VOICE PM16EAC. Battery-powered portable megaphone provides 16-watt peak power (10-watt continuous) output to cover a range of 600 yards. Has external noise-cancelling mike with on-off switch, volume control, coiled cord. Built-in siren alarm tone. Bell diameter, 11½". With shoulder strap. Operates on 8 ordinary flashlight "C" batteries.
721 X0U2C. Shpg. wt., 6 lbs. 79.95

58.75 Model 635A

Performer's dynamic Mike

Model 635A. Widely-accepted professional omnidirectional mike for hand or stand use. Four-stage pop and blast filter eliminates need for external windscreen. Smooth shaped frequency response: 80-13,000 Hz Low impedance. Output: −55 dB. Magnetically shielded diaphragm, turned-steel case. Cannon XLR-3-11 connectors. Non-reflecting nickel finish. 6x1⅜" diameter. With 18" three-conductor cable and convenient stand adaptor. Shpg. wt. 1 lb.
33 B 6124 . . . . . 58.75

Ten octaves of sound!

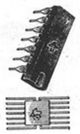
150.00

Electrostatic Headphones give widest response

Model ESP-9. World's only self-energized electrostatic headphones. Give depth and breadth of sound for stereo at its best. You get the perfection of the original studio recording with no room acoustics problems. Electrostatic driver elements provide unbelievable response far beyond the limits of ordinary voice coils and cone-type driver elements. From 15-15,000 Hz, response is an amazing flat ±2 dB (full 10 octaves). Total response is a remarkable 10-47,000 Hz.

Special push-pull acoustical circuitry virtually ends distortion to give the clean sparkling sound of a live performance. Harmonic distortion is less than 0.2% at 110 dB SPL. No special amplifier or power supply needed. Separate energizer offers option of self-energizing for bias supply, or energizing through AC line. When energized through AC line precise level measurements can be made, in tape mastering machines and recording consoles for example. Energizer has speaker/headphone switch, on-off switch and AC pilot light.

Fluid-filled earcushions and lightweight design (only 19 ounces) let you listen in comfort for hours. Full 12-watt power capacity. Impedance, 4-16 ohms. With 6'4" conductor input cable that connects to amplifier output terminals. Energizer size, 4⅝x3¼x6½".
33 B 6515. Shpg. wt. 8 lbs. 150.00



Newark Electronics

If you are at all a serious buyer of electronic parts and equipment, industrial catalogs should be much more appealing to you than the standard consumer catalogs. Industrial catalogs dwell mostly on the facts rather than promotions. Each item gets its share of space, and no more. And of course the variety is extremely broader. When building your own projects, it makes a lot more sense to use a large, factual catalog full of components rather than the typical consumer catalog. Newark's catalog fills the bill well. Don't let the word "industrial" scare you. They're prepared to handle the same kind of mail orders as the firms whose catalogs fill their first 200 pages with color photos of hi-fi equipment (one item per page) and use most of the descriptive text for promotional purposes. Newark lets the facts sell you.

[Suggested and reviewed by David Marston]

Newark Electronics Corp.
500 North Pulaski Road
Chicago, Illinois 60624

Edlie's Flyer

Beginners in electronics who don't want to be stuck with very beautiful but very unusable gadgets (and also experts who know what's-used-for-what) can get a lot of value from industrial (civilian) surplus electronics, these days.

For the "consumer" uses of electronics—music, p.a., TV, repair parts and instruments, experimenting—Edlie Electronics has the best selection and the lowest prices of any mail-order dealer I have found.

They handle everything from hi-fi components (e.g., an FM tuner from a discontinued console) to single resistors. Some of it is new, and some of it is solid "as is" (e.g. small radios and tape recorders returned to the store under a warranty.)

If you don't feel safe about repair work or experiments, though, better concentrate on getting electronic stuff with a dependable guarantee, maybe by buying from a repair shop.

[Suggested and Reviewed by John Huntley]

Edlie's Flyer Catalog

free

from:
Edlie Electronics, Inc.
2700 Hempstead Turnpike
Levittown, Long Island,
New York 11756

11 Tektronix

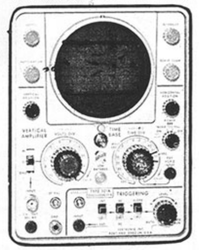
11a Textronix has become the electronics industry standard for oscilloscopes. They are consistantly ahead of the competition and their attention to "user" features in functions and control design make the instruments a joy to use. This catalog includes the complete line of scopes and of their other test equipment, particularly pulse generators and amplifiers, all solidly designed.

Tektronix Catalog
1971; 432 pp.

from:
Tektronix, Inc.
P. O. Box 500
Beaverton, Ore. 97005

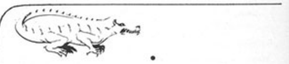
(see p. 346)

TYPE 321A OSCILLOSCOPE, without batteries $1045



11b The equipment is expensive - $735 for the cheapest scope - but well worth its price.

[Reviewed by Bill English. Suggested by Mike Brand]



•

Right there in front of D.R.'s eyes

•

Emmit was actually dying.

•

D.R. started to ask Emmit what he should do but Emmit waved his hand and shook his head. He knew what D.R. was about to say and he didn't want to

•

hear it

•

hear what? What old voice, old time

•

For sure, Emmit didn't want the boy to say anything he would have to answer, for he was barely breathing now, working hard for every little bit of air he got.

Geodesics

This is the first book wholly devoted to geodesics. Good text, clear drawings, introductory text on the basic principles of Fuller's geodesic domes.

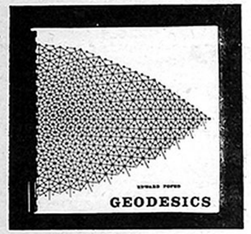
Shown are domes of wood, metal and plastic, most of them produced industrially; along with the various domes are detailed sections of hubs, construction methods, and assembly sequences.

The brief text discusses
- *–polyhedra*
- *–orientation*
- *–breakdown*
- *–frequency*
- *–base truncation*
- *–chord factors (the constants necessary for calculation of different diameter domes).*

Zome designer Steve Baer adds:

The illustrations are beautiful. They are good for a designer's brain––they will show a final form and then also the form's childhood by pinpointing pts. of symmetry from which patterns grow.

[Suggested by ONYX]

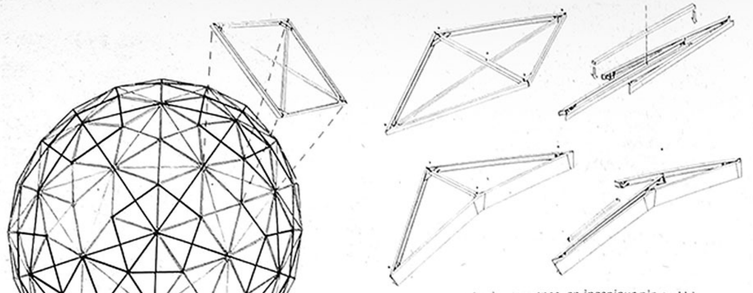


Geodesics
Edward Popko
1968; 124 pp.

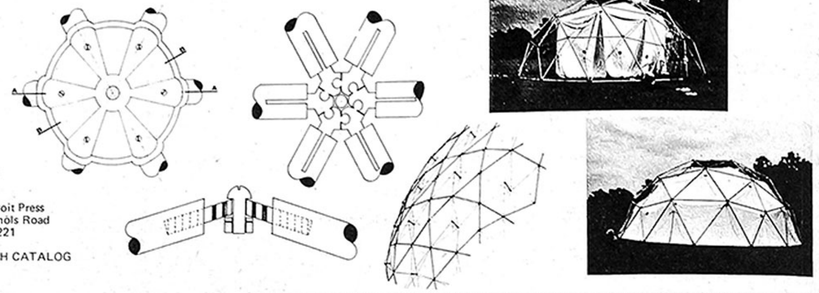
$4.00 postpaid

from:
University of Detroit Press
4001 West McNichols Road
Detroit, Mich. 48221

or WHOLE EARTH CATALOG



Diamond packaging sequence, an ingenious pin and hinge system allows diamond components to partially disassemble reducing packagin volume, typical diamond and base support shown. A Fuller Research Foundation Project.

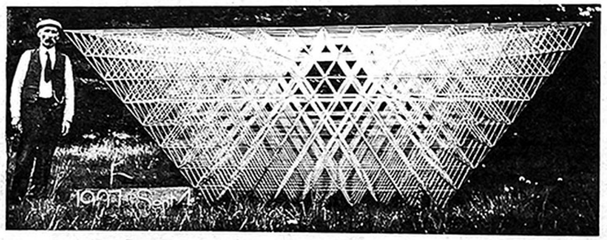


Space Grid Structures

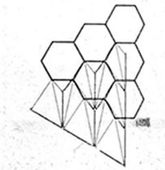
A space grid is a means of spanning great distances with little weight, and a few intermediate supports. Buckminster Fuller's Octetruss at the Museum of Modern Art in 1959 was 35' wide and spanned 60' one way, 40' another from one column of supports. It was fabricated of 2" pipe.

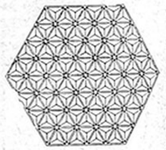
Space grids consist of two parallel planes, forming a floor and ceiling; "web" members in between connect them in such a way that external loads are distributed in all directions.

This book is ". . . an exchange of information about what has been done recently in the development of flat space grid structures." There are photos, drawings, models of structures and joints. The three sections of the book deal with flat double-layer space grid structures, stressed-skin space grids, and fine clear drawings of space grid geometries. Also an extensive bibliography. Very little text; it's not needed as the drawings and photos are excellent.



Project by Alexander Graham Bell. Bell concerned himself with space structures based on the tetrahedron. He developed space frames having combinations of axially loaded members by themselves and in combination with stressed-skin systems. Shown is a three-way space frame constructed of metal rods and connectors.



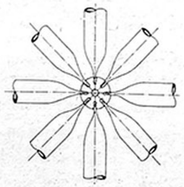


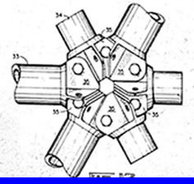
Space Grid Structures
John Borrego
1968; 200 pp.

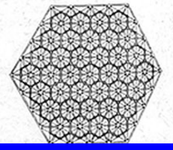
$12.50 postpaid

from:
The M. I. T. Press
Room 765
50 Ames Street
Cambridge, Mass. 02142

or WHOLE EARTH CATALOG







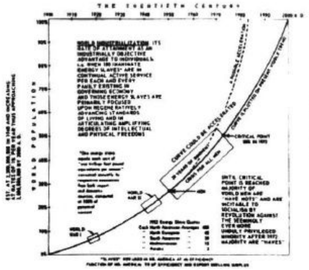
The Dymaxion World of Buckminster Fuller

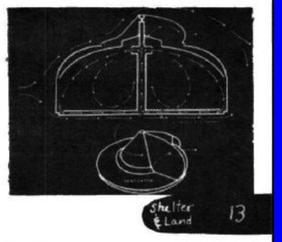
The most graphic of Fuller's books (it's about his work, by Robert Marks). Consequently it is the most directly useful if you are picking up on specific projects of his such as domes, geometry, cars, demographic maps and charts, etc.

The Dymaxion World of Buckminster Fuller
Robert W. Marks
1980; 232 pp.

$10.00 postpaid

from:
Sc[illegible] Illinois University
P[illegible]
6[illegible] Grand





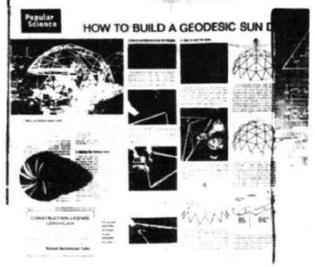
Fuller Sun Dome

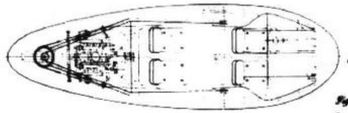
The most readily available plans for a geodesic dome are these. The $5 cost includes construction license. Built of wood strips and cheap polyethlene skin, the dome can be built up to 30 feet diameter.
For more elaborate plans you should correspond with Fuller's office, Box 909, Carbondale, Illinois.
[Suggested by Ken Babbs]

Geodesic Sun Dome
1966

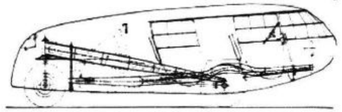
$5.00 postpaid

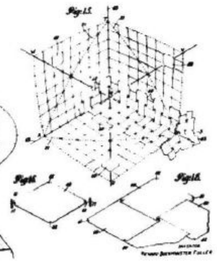
from:
Sun Dome
[illegible] Science Monthly
[illegible]ngton Avenue
[illegible] N.Y. 10017





Dymaxion car 1933





Space Structures

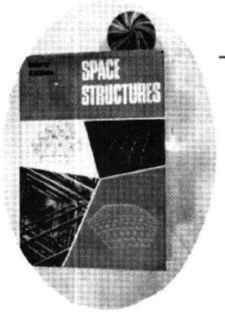
This is a big fat reference book on domes, trusses, cable nets, forms that will keep the rain out in a big way, or elegantly hold water or electric lines up in the air. The book resulted from the International Conference on Space Structures held in London in 1966. It's said to be the first comprehensive book book of its kind. Very heavy-book; it'll either help you or discourage you, depending on how far into construction you are.

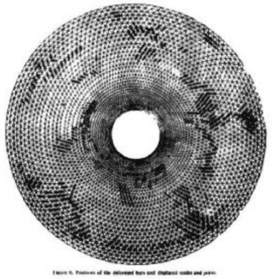
We could use an informed review on this one. If we don't get it we'll drop the book.

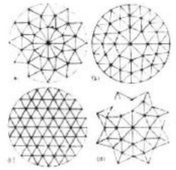
Space Structures
R.M. Davies, ed.
1967; 1233 pp.

$46.50 postpaid

from:
John Wiley & Sons, Inc.
605 Third Ave.
New [illegible]rk, N.Y. 10016
or
Joh[illegible]y & Sons, Inc.
We[illegible]stribution Center
15[illegible] Redwood Road
Salt [illegible] City, Utah 84104







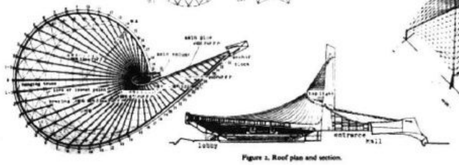
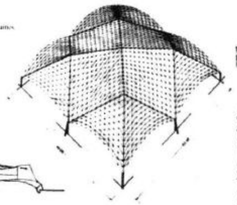
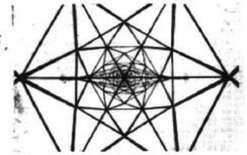


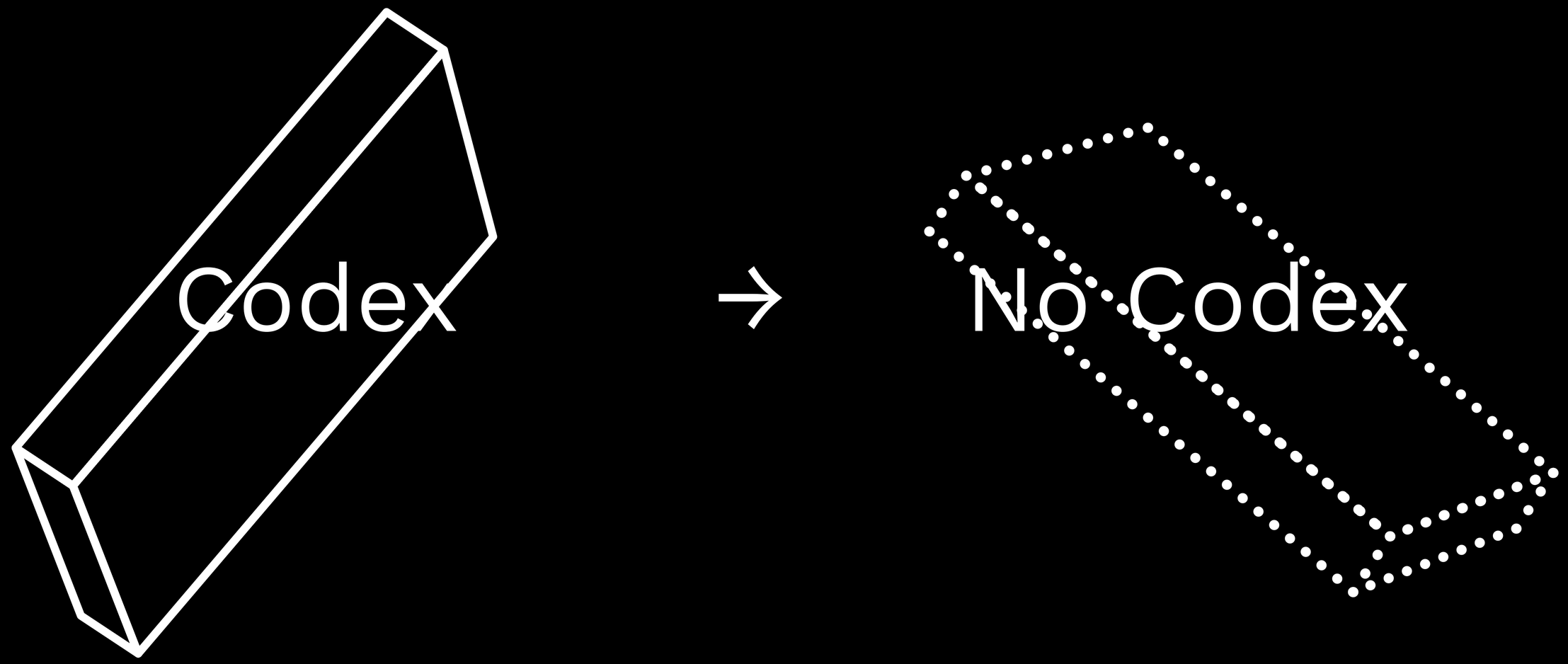
Figure 2. Roof plan and section.



from: "Failure of a Dome of Great Span"



Week 6: Recap



Things to Think About

→ What tools/knowledge/methods could we impart to your peers?

Things to Think About

→ What tools/knowledge/methods could we impart to your peers?
→ What do you collect? and why?

Things to Think About

→ What tools/knowledge/methods could we impart to your peers?
→ What do you collect? and why?
→ What is the web missing?

Things to Think About

→ What tools/knowledge/methods could we impart to your peers?
→ What do you collect? and why?
→ What is the web missing?
→ What story can be told through a database?

Things to Think About

→ What tools/knowledge/methods could we impart to your peers?
→ What do you collect? and why?
→ What is the web missing?
→ What story can be told through a database?
→ How do we “query” or “see” specific parts?

Things to Think About

→ What tools/knowledge/methods could we impart to your peers?
→ What do you collect? and why?
→ What is the web missing?
→ What story can be told through a database?
→ How do we “query” or “see” specific parts?
→ How do we “browse” or “explore” the whole?