

Jaques Bertin



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27 July 1918 - 3 May 2010

French cartographer and theorist

1954

founder and director of the Cartographic Laboratory
of the École pratique des hautes études (EPHE)

1974

director of studies and director
of the Geographical Laboratory
of the École des hautes études en sciences social

1970s

head of research
at the Centre national de la recherche scientifique (CNRS)

Three stages of work

Semiology of Graphics (1967),
The Graphics and Graphic Information Processing (1977),
Atlas of World History (1997).

- > the semiotic approach
- > the map as a process
- > cartographic discourse

»The Painters Eye«

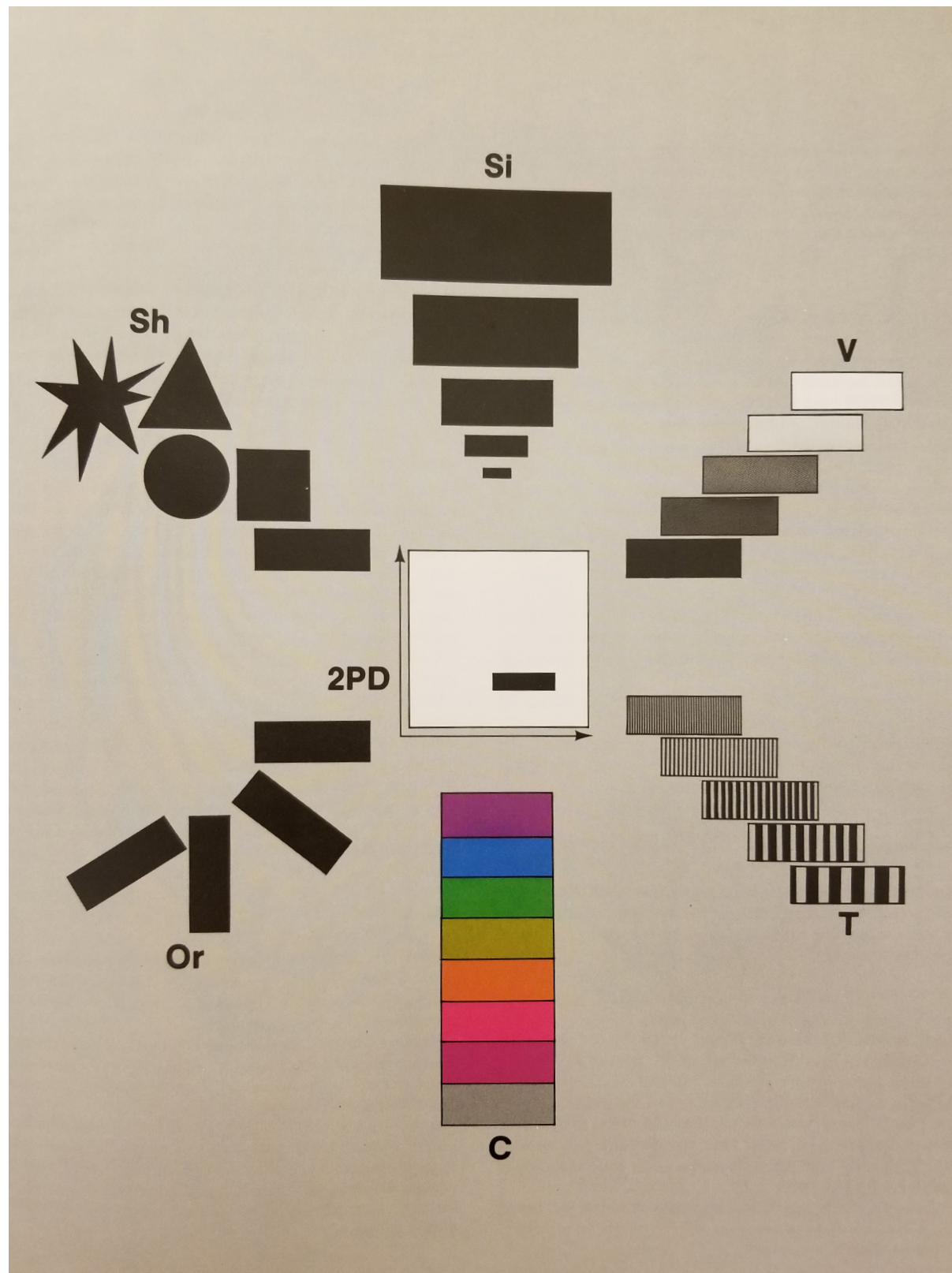
Semiology of Graphics

<https://www.youtube.com/watch?v=WLKsXdDog94>

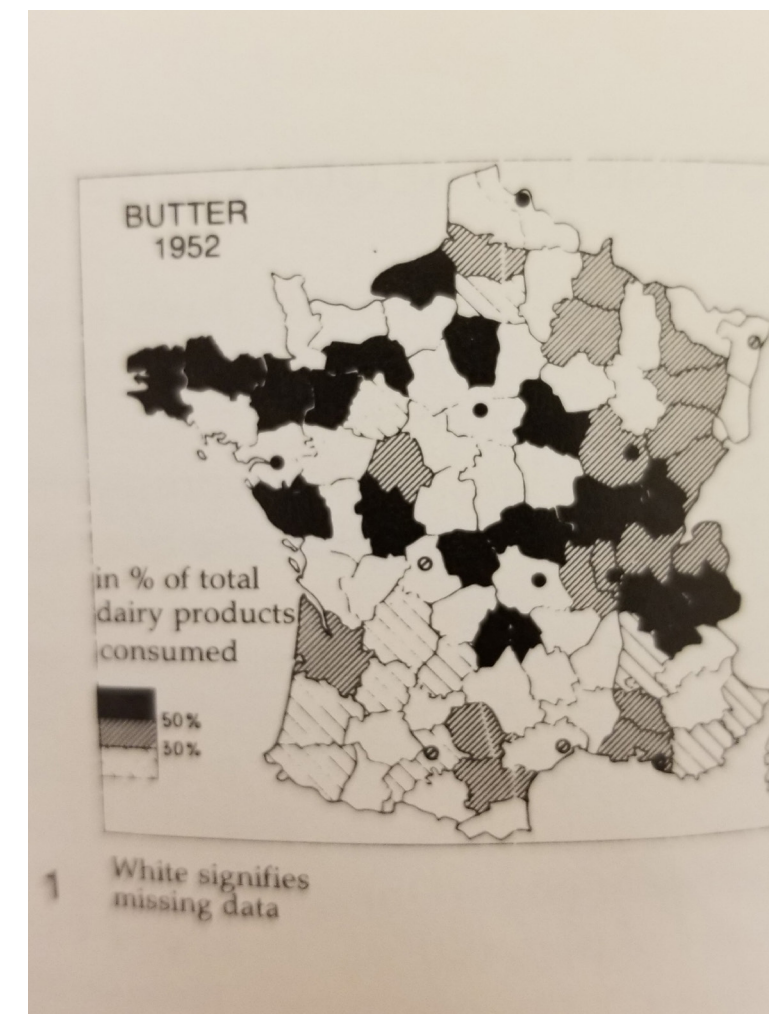
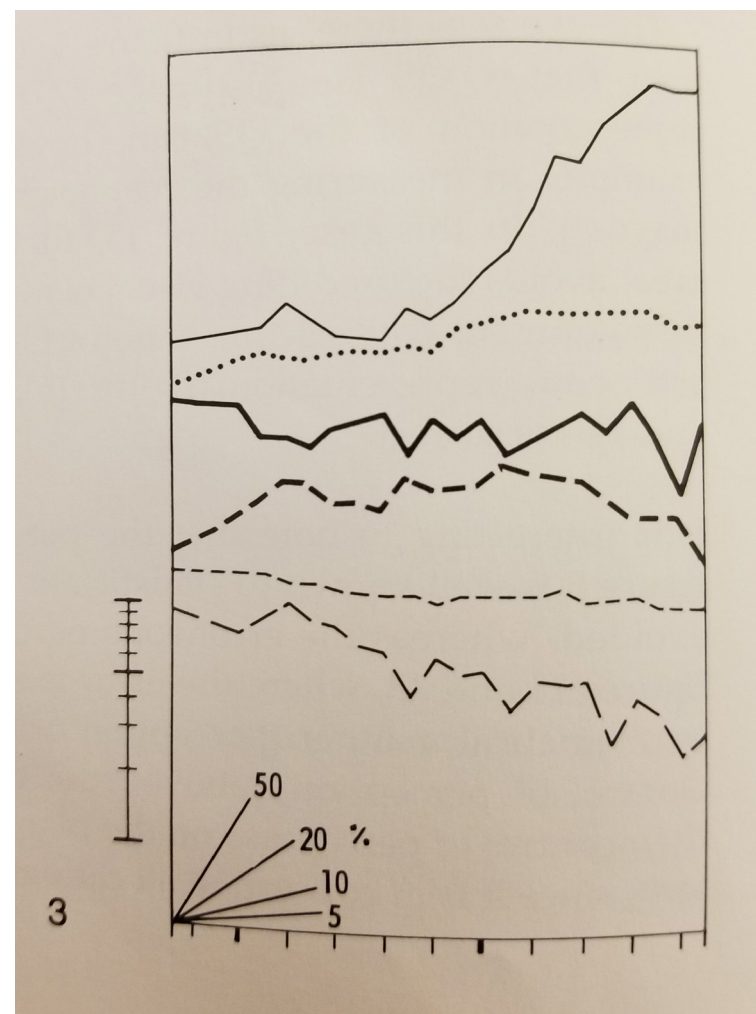
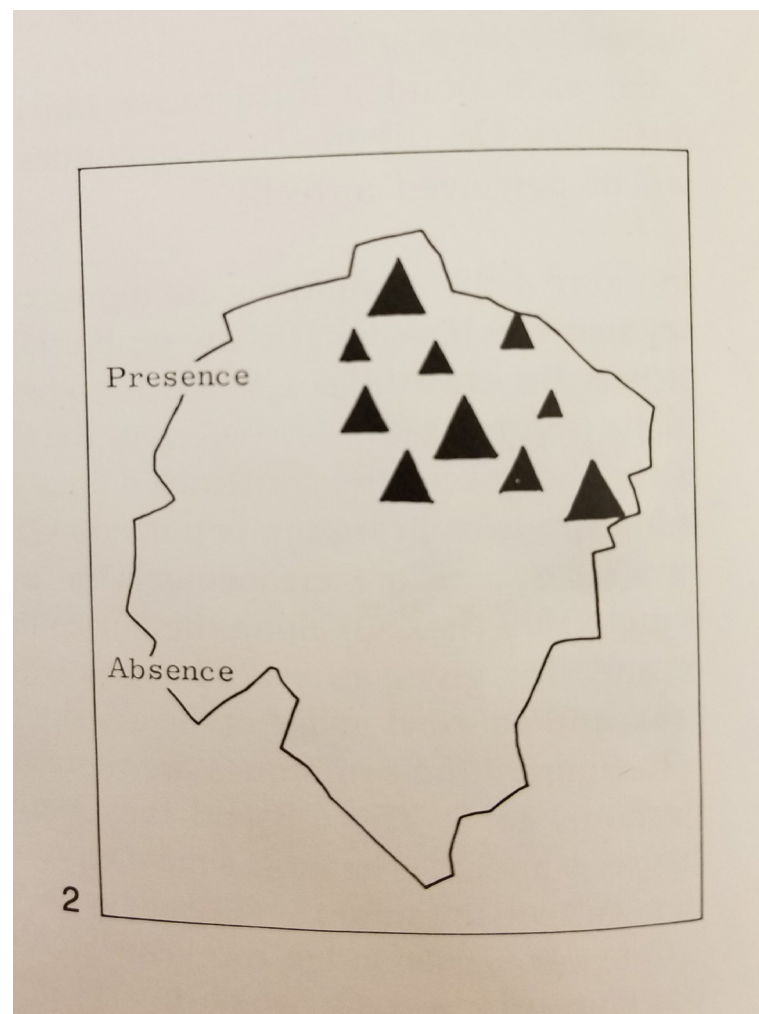
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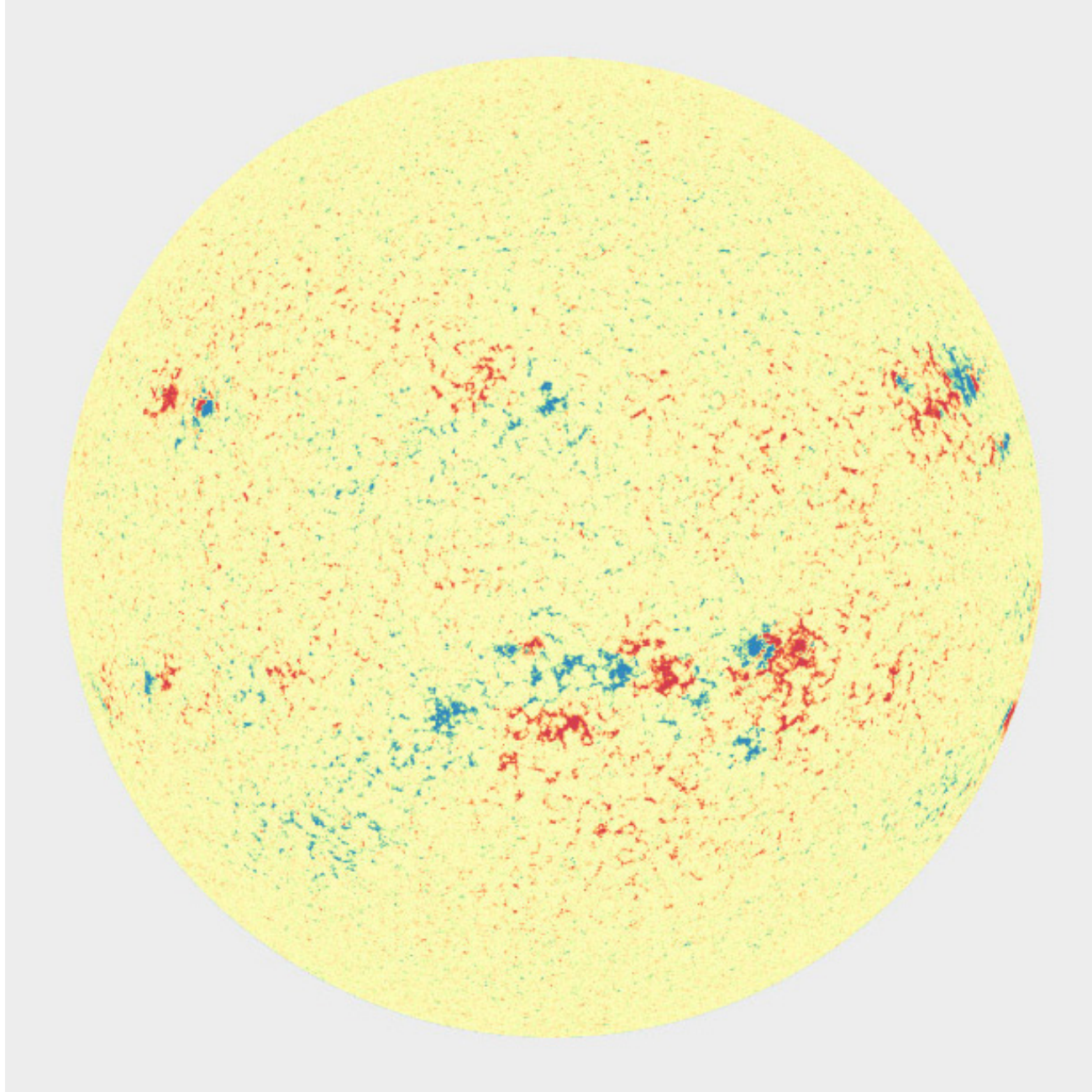
Retinal Variables



The plane

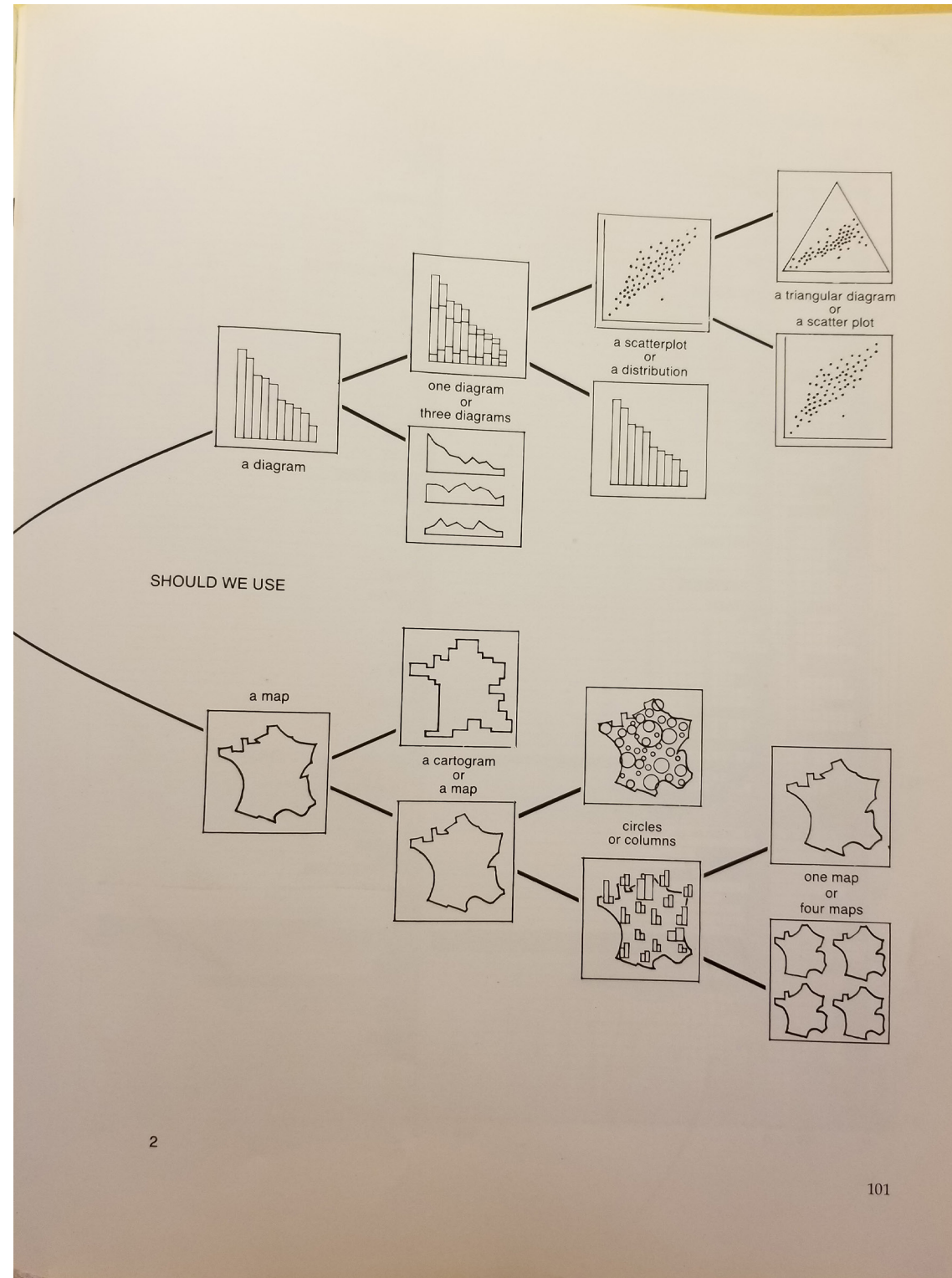


The plane, external example from previous reading



The basic graphic problem

DEPARTMENTS	QUANTITIES (000)				PROPORTION		
	I	II	III	Total	I	II	III
1 AIN	67	43	40	150	45	28	27
2 AISNE	56	71	66	193	29	37	34
3 ALLIER	65	45	57	167	39	27	34
4 Hautes ALPES	15	8	12	35	43	24	33
5 Hautes ALPES	16	8	13	37	44	21	35
6 ALPES Maritimes	31	61	122	214	14	29	57
7 ARDECHE	48	32	25	105	45	31	24
8 ARDENNES	25	53	35	113	22	47	31
9 ARIEGE	33	17	14	64	52	26	32
10 AUBE	28	48	36	112	25	43	32
11 AUDE	50	20	32	102	49	19	32
12 AVEYRON	70	32	29	131	54	24	22
13 BOUCHES DU RH.	42	143	226	412	10	35	55
14 CALVADOS	70	55	69	194	36	28	36
15 CANTAL	45	13	20	78	58	16	26
16 CHARENTE	65	36	38	140	47	26	27
17 CHARENTE Mre	79	39	65	183	43	21	36
18 CHER	43	41	36	120	36	34	30
19 CORREZE	64	23	29	116	55	20	25
20 COTE D'OR	43	41	59	143	30	29	41
21 COTES DU NORD	131	35	62	228	58	15	27
22 CREUSE	56	13	17	86	66	19	19
23 DORDOGNE	104	34	41	179	58	19	23
24 DOUBS	35	67	39	142	25	47	28
25 DROME	46	38	35	119	39	31	30
26 EURE	48	52	45	145	33	36	31
27 EURE & LOIR	44	27	38	110	41	25	34
28 FINISTERE	154	76	89	329	50	23	27
29 GARD	40	51	52	144	28	36	36
30 HAUTE GARONNE	64	67	84	216	30	31	39
31 GERS	63	10	16	89	71	11	18
32 GIRONDE	115	107	170	392	30	27	43
33 HERAULT	62	40	71	173	36	23	41
34 ILLE & V.	137	60	82	279	49	21	30
35 INDRE	54	30	32	116	46	26	28
36 INDRE & L.	61	41	55	157	39	26	35
37 ISERE	68	136	78	282	24	48	28
38 JURA	39	34	27	100	39	34	27
39 LANDES	70	25	28	123	57	20	23
40 LOIR & CHER	51	27	30	108	47	25	28
41 LOIRE	56	160	82	298	19	54	27
42 Hte LOIRE	52	23	22	97	54	24	22
43 LOIRE INF.	101	108	105	314	32	34	34
44 LOIRET	51	51	54	156	32	33	35
45 LOT	41	10	16	67	61	15	24
46 LOT & GAR.	70	24	30	124	57	19	24
47 LOZERE	22	5	7	34	64	15	21
48 MAINE & L.	104	65	65	234	44	28	28
49 MANCHE	116	42	56	214	54	20	26
50 MARNE	44	57	67	168	26	34	40
51 Hte MARNE	25	28	28	81	31	35	34
52 MAYENNE	74	23	28	125	59	19	22
53 MEURTHE & M.	23	127	91	241	9	53	38
54 MEUSE	24	31	27	82	30	38	32
55 MORBIHAN	132	47	59	238	55	20	25
56 MOSELLE	36	173	94	303	12	57	31
57 NEUVRE	34	27	33	94	36	29	35
58 NORD	81	483	296	860	9	56	35
59 OISE	40	69	55	164	24	42	34
60 ORNE	65	30	35	130	50	23	27
61 P.D.C.	94	242	137	473	20	51	29
62 PUY DE DOME	80	79	63	222	36	36	28
63 Hautes PYRENEES	80	49	62	191	42	25	33
64 Hautes PYRENEES	37	27	28	92	40	29	31
65 PYRENEES ORIENT.	35	20	33	88	40	23	37
66 BAS-RHIN	76	122	114	312	24	39	37
67 RH-RHIN	40	121	74	235	17	51	32
68 RHONE	44	215	194	453	10	47	43
69 Hte SAONE	34	32	23	89	38	36	26
70 SAONE & L.	94	77	62	233	41	33	26
71 SARTHE	87	45	58	190	46	24	30
72 SAVOIE	44	38	35	117	38	32	30
73 Hte SAVOIE	52	42	45	139	37	30	33
74 PARIS	2	575	940	1517	0	38	62
75 SEINE	8	574	550	1132	1	51	48
76 SEINE INF.	75	152	174	401	19	38	43
77 SEINE & M.	37	72	76	185	20	39	41
78 SEINE & O.	46	328	356	730	6	45	49
79 DEUX-SEVRES	71	29	33	133	53	22	25
80 SOMME	57	68	61	186	31	36	33
81 TARN	55	47	33	135	41	35	24
82 TARN & G.	44	13	18	75	59	17	24
83 VAR	33	50	81	164	20	31	37
84 VAUCLUSE	40	30	41	111	36	27	37
85 VENDEE	110	38	40	188	59	20	21
86 VIENNE	60	29	39	128	47	23	30
87 Hte VIENNE	64	47	45	156	41	30	29
88 VOSGES	36	95	43	174	21	54	25
89 YONNE	41	28	37	106	39	26	35
90 BELFORT	3	25	13	41	8	60	32
	5212	6705	6905	18825	28	35	37



Representation of the entire globe

Map Projections

Map Projections

»Jacques Bertin's work was drawing, artistic and very talented. (...)

Jacques Bertin had a transparent glass globe on which he had drawn a meridian / parallel grid reference. And he was projecting it, literally. With different angles of view, he projected this grid onto a paper. There was nothing mathematical about it.«

Anne Le Fur, cartographer
(former student of Bertin)

Map Projections

»Projection with regional compromise in which the compromise is no longer homogeneous but is modified for a larger deformation of the oceans, to give a lesser deformation of the continents.«

Jaques Bertin

Bertin projection



VISIONSCARTO
2018

Bertin projection

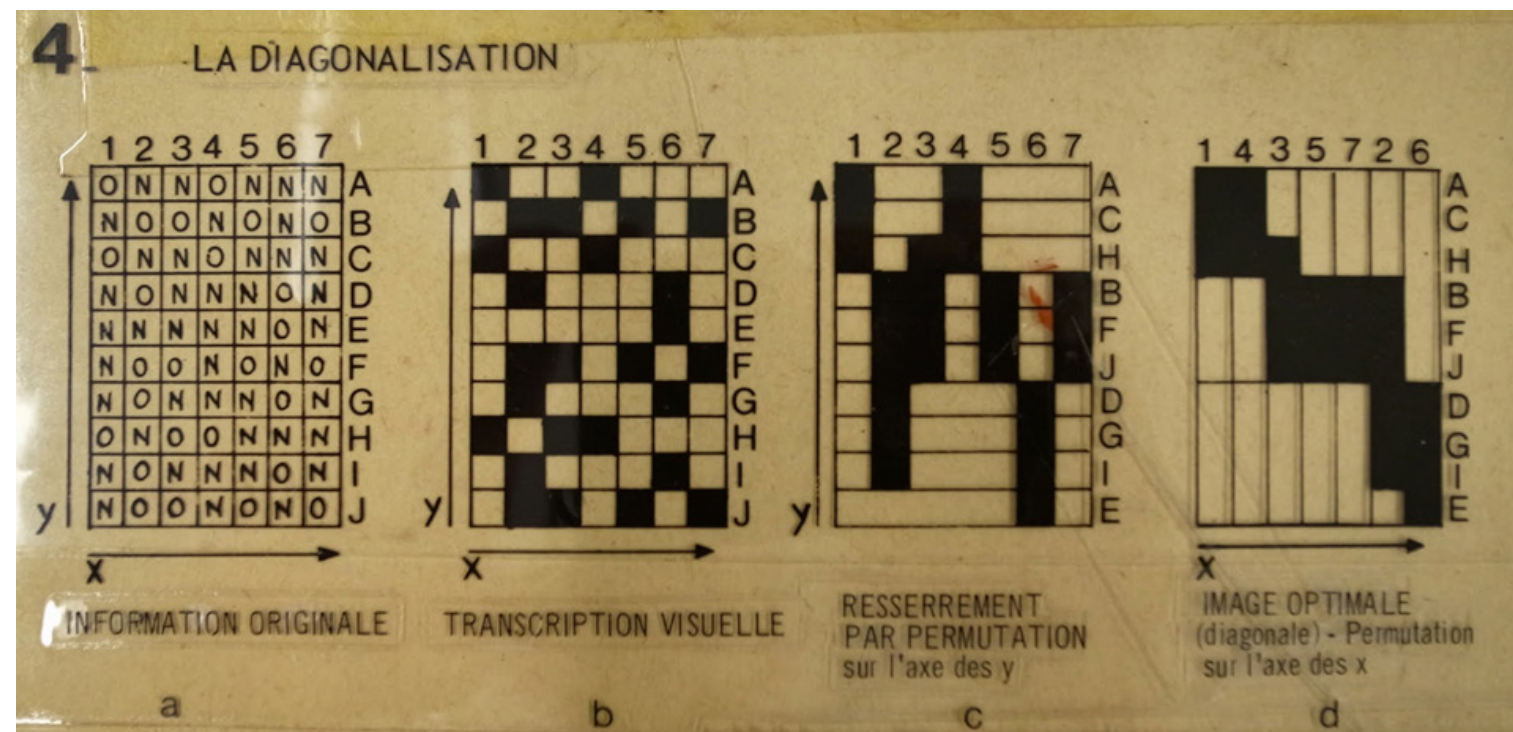
»(...) the end of the Cold War world situation requires a projection that presents the lowest possible distortion at the North Pole, a high point of conflict during this period. The projection of Jacques Bertin 1953 with regional compensation owns this property.«

taught at Science Po,
French University

Reorderable physical matrix

A wise view in the here and now

Data Manipulation



It is the internal mobility of the image that characterizes the modern Graphique. We do not "draw" an image once for all. We "build" it and rebuild it (we manipulate it) until all hidden relationships have been perceived.

Jaques Bertin

Data Manipulation



https://www.youtube.com/watch?v=VWfe0jJ_th4&feature=emb_title

https://aviz.fr/bertifier_app/

<https://aviz.fr/diyMatrix/>