

FLORENTIN SMARANDACHE

OUTER-ART

EXPERIMENTATION IN
— PAINTINGS

— DRAWINGS, DRAFTS

— COMPUTER DESIGN,

COLLAGES, PHOTOS

LORENTIN

MARANDACHE

FLORENTIN SMARANDACHE

OUTER - ART

Experimentation in

- paintings
- drawings, drafts
- computer design, collages, photos

100 coloured - 15 black / white pictures

ABADDABA
2000

Ultra - modernism ?

Experimentum crucis.

What follows after post-modernism: ultra-modern art?

I would say **ars gratia ex-artis**, this is to be the state of my “outer art”. **¿ Por qué ? ¿ Por qué no !**

It seems that I am an anti-talent to drawings and paintings in a traditional manner. I even disregard this kind of art, which can easily be replaced by mechanical reproduction.

Therefore, I gathered nearly a quarter of my “anti-art” art-work done in Turkey, USA (here I got in touch with the straight art, in bright basic colors - yellow for the sun, blue for the sky, red for the fire, and black for the night, somehow naive, of Navajo, Zuni, Apache, Hopi and Pima Indian tribes), and Mexico, between 1988 - 2000, in a paradoxist way:

- painting for non-painting's sake
- not drawings, but our every day's scribbles
- painting overlapping another painting
- found art in the wasting basket of the art
- fine ugly art
- para-art and contra-art
- art without art
- scientific art.

All of the above procedures become, after a period of maybe shocking time, ‘normal’ (please read ‘traditional’) art. Which later would be classified, in their turn, as supernuated. And again they come back to life with a “neo” prefix art, because art is cyclic.

Let's catch the paradoxism in art — an avante-garde movement I set up in 1980's, which is focusing on contradictions (art + antiart/nonart), heterogeneity (art + science), innovation (new species of art). Or **savoir faire un chef-d'œuvre**, which paraphrases a French maxim: to know how to make the unmakeable. Or **ars celare non-artem**, which runs counter a Latin adage.

Let's revolt against petrified “classicized” art, and fight for a New Art World Order. And I would like to end with a Navajo language greeting, to see you next time: HÀ GOONÈH !

The (Non)Artist

ABSTRACT LANDSCAPES



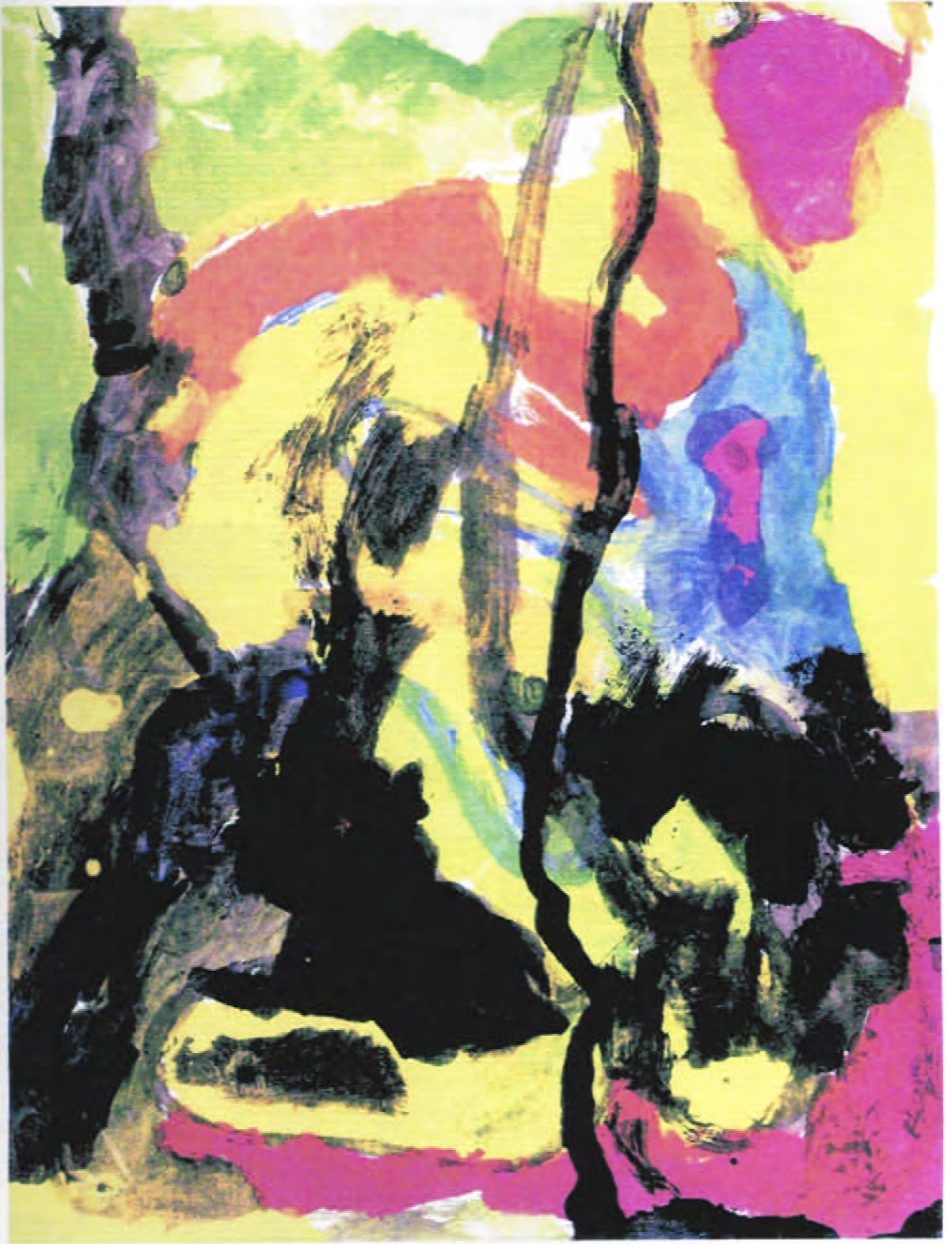








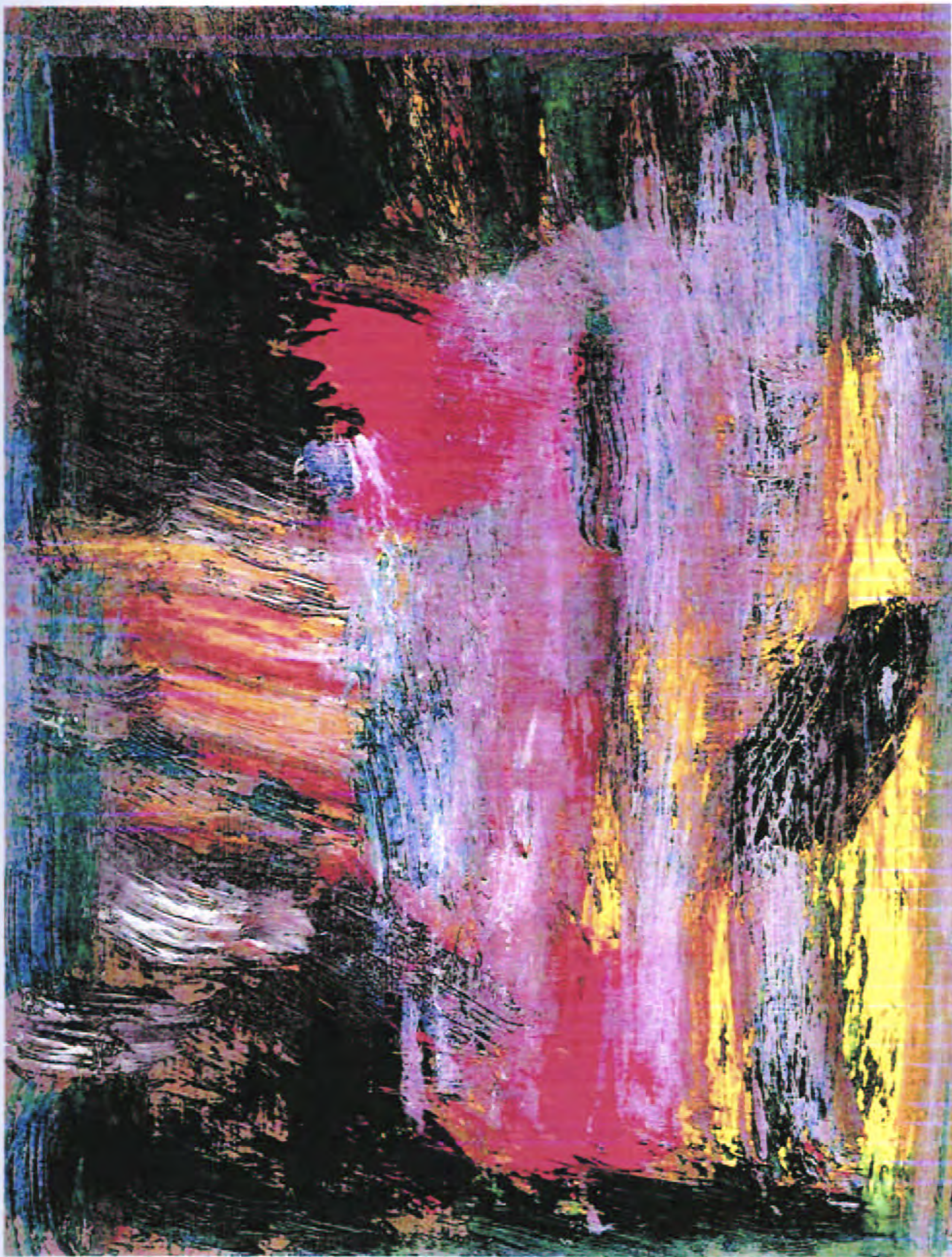












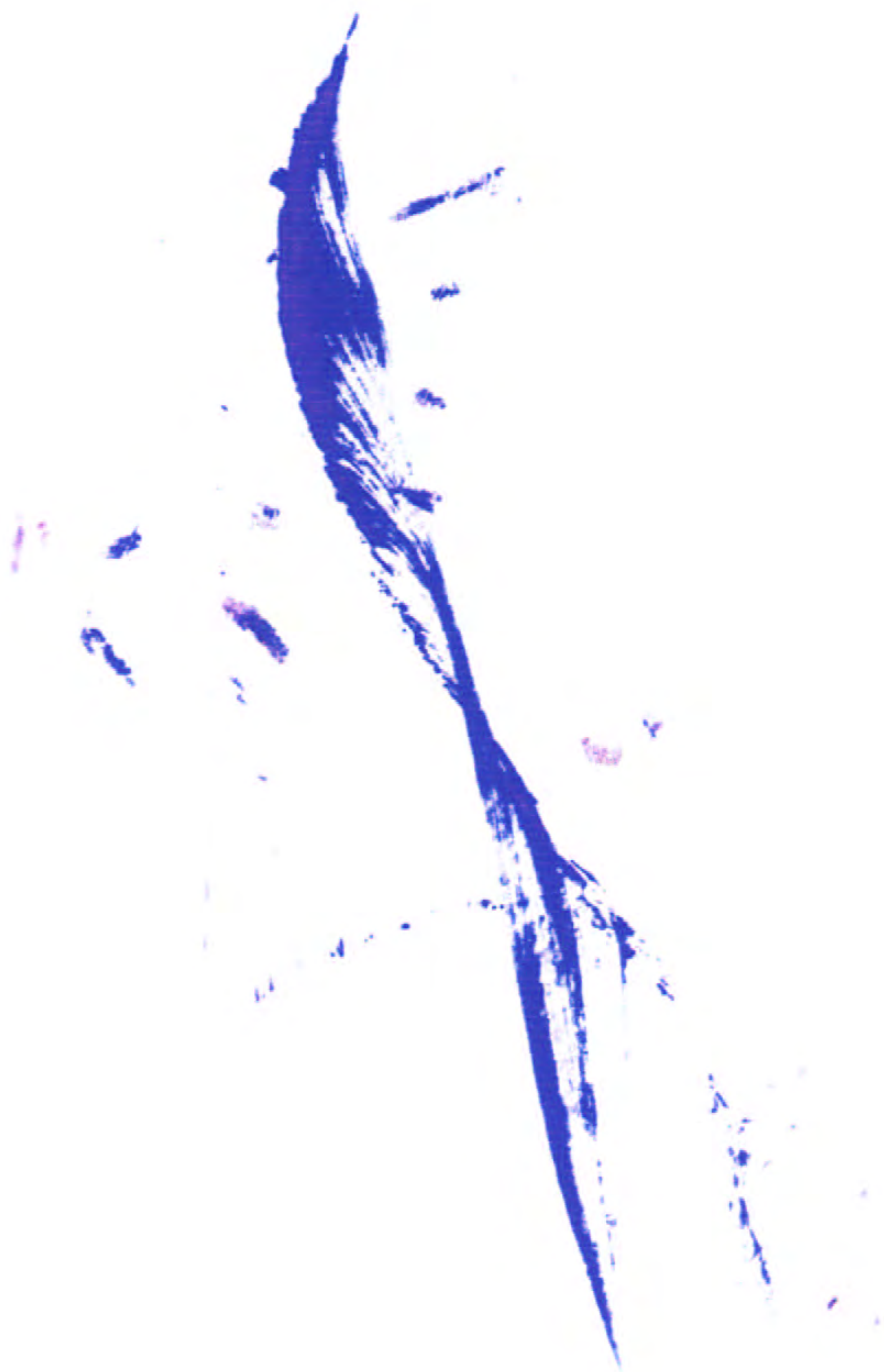




EXTRA - FLOWERS

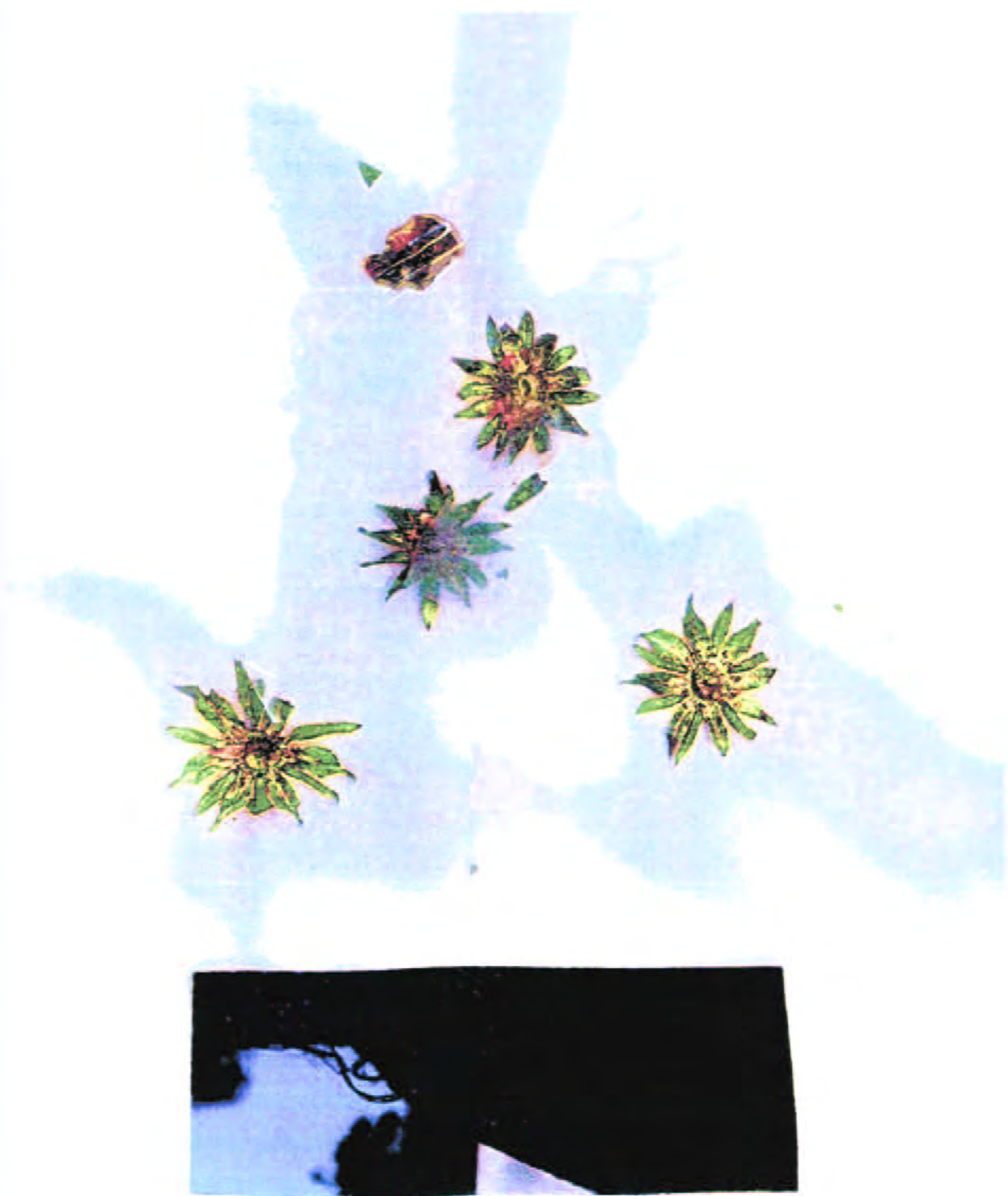




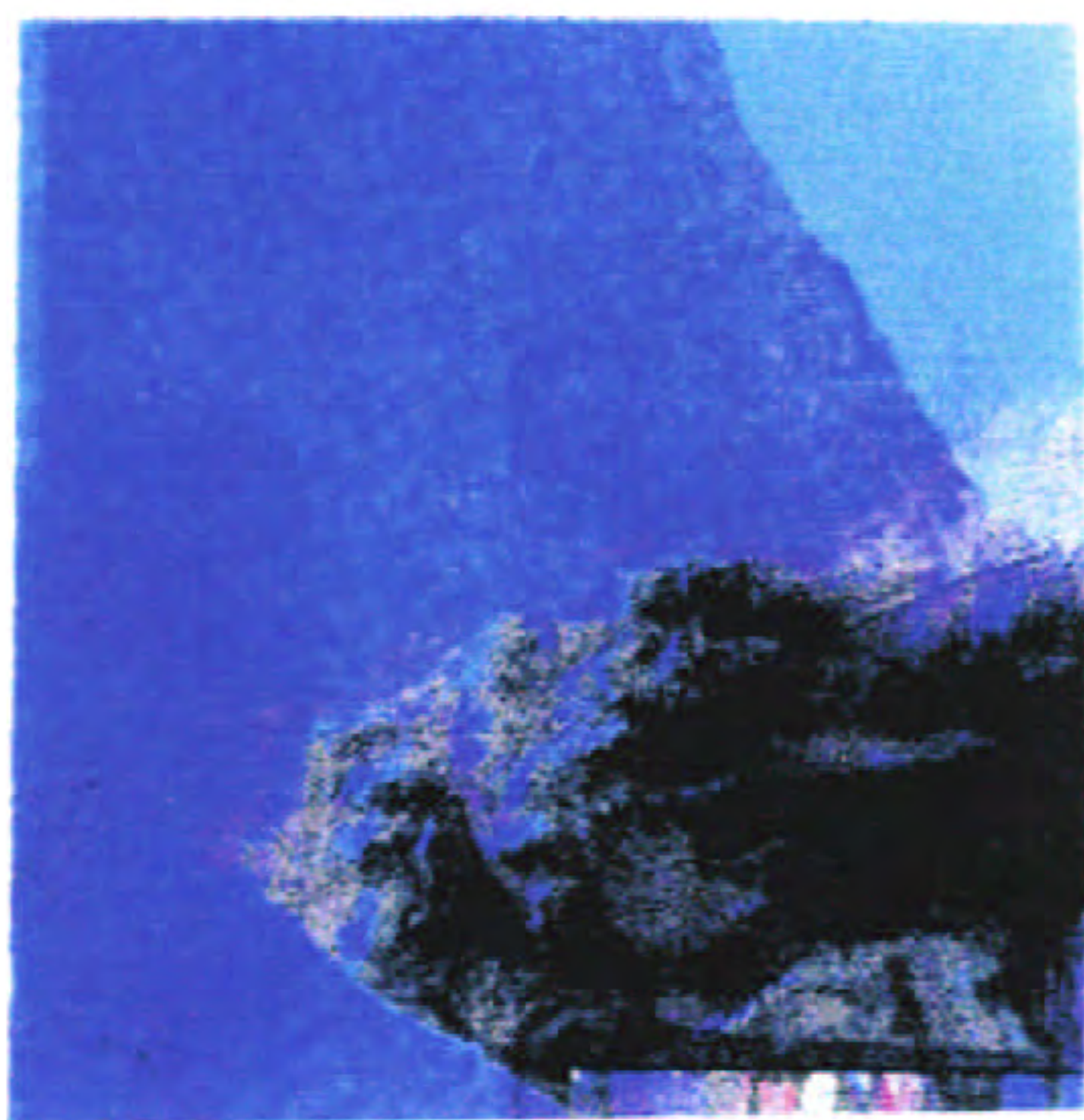


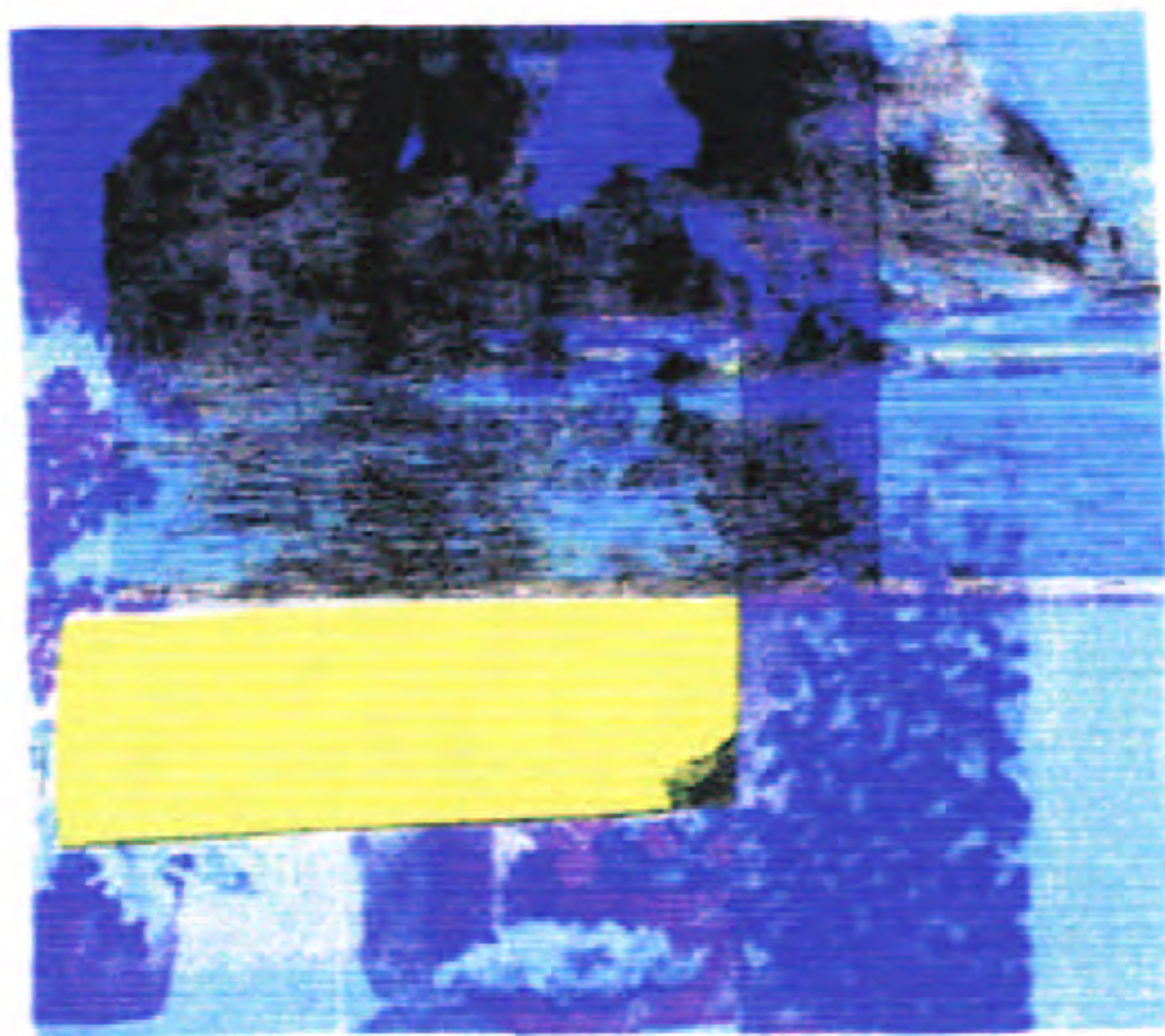






SUBMARINE COUNTER - IMAGES

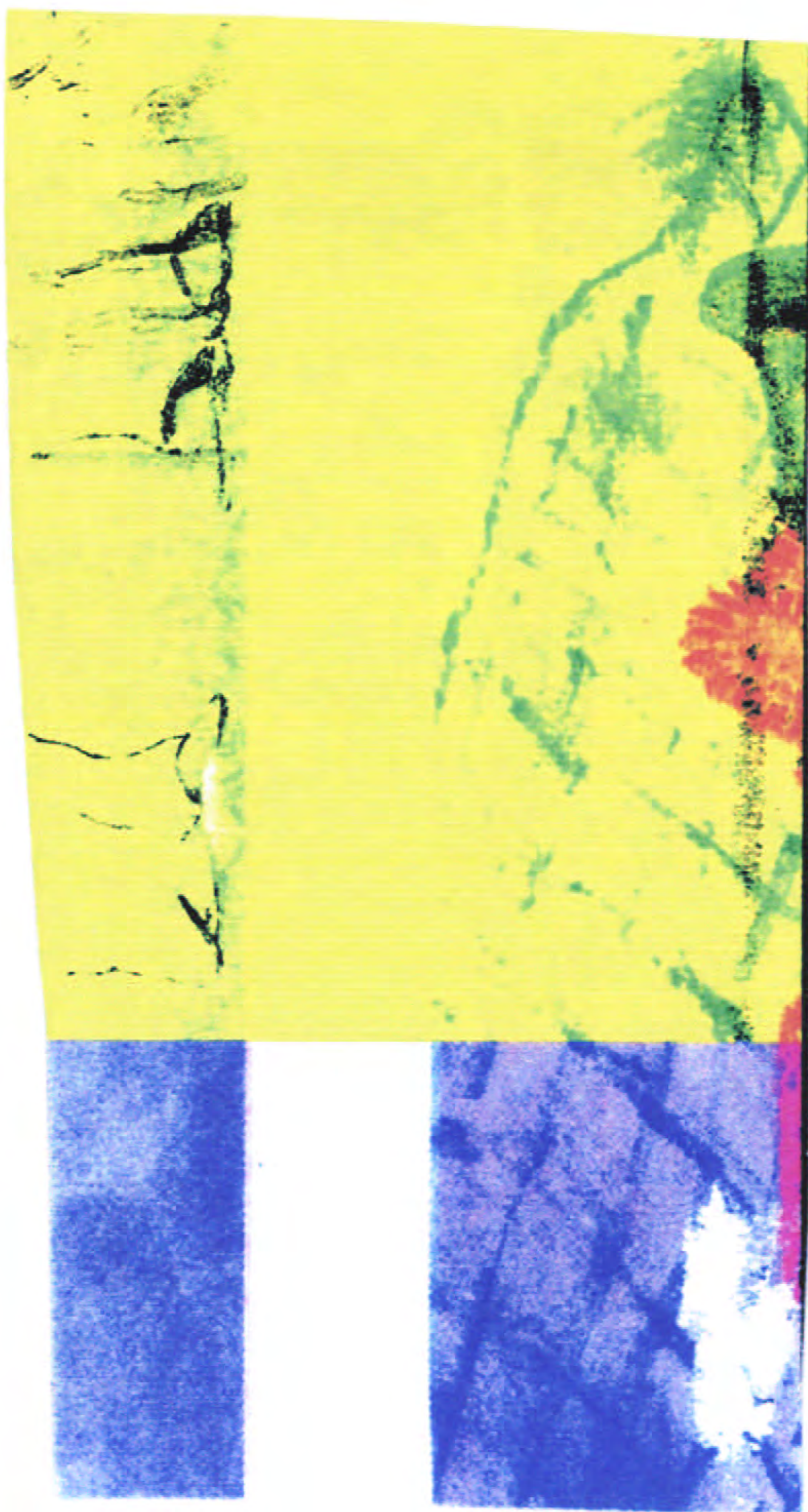




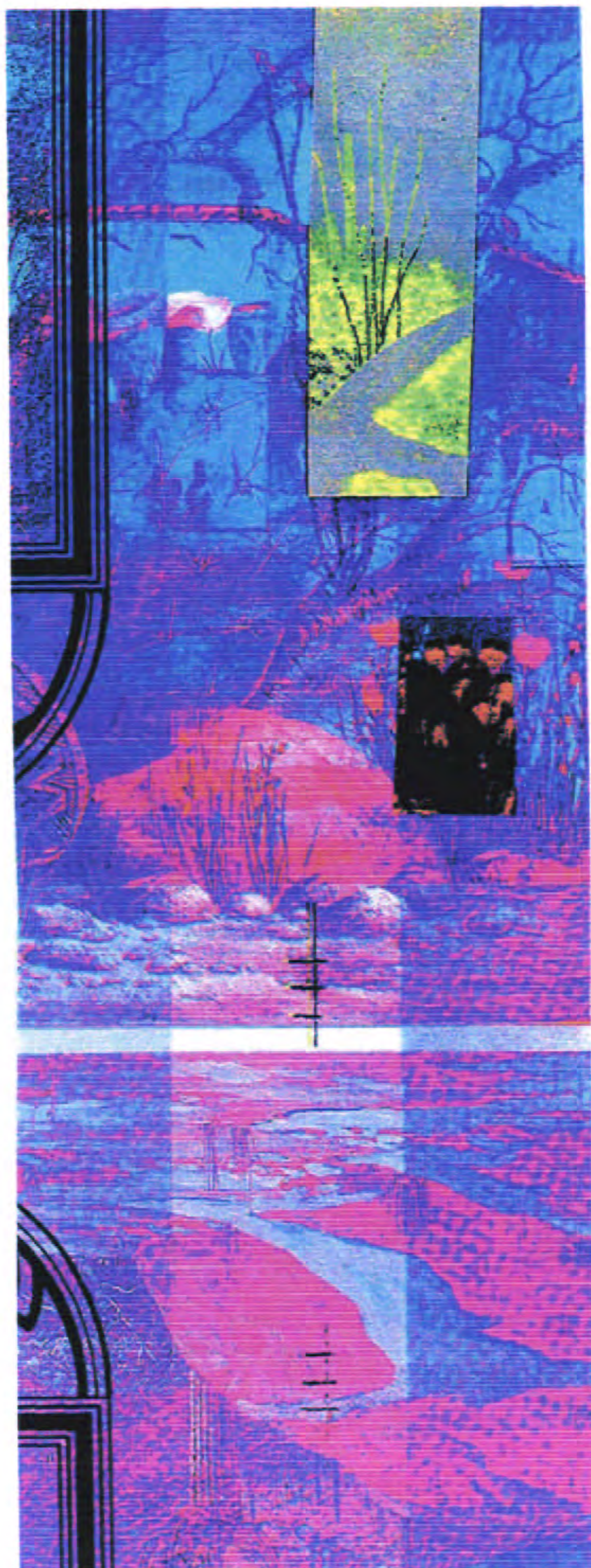
OVERPAINTINGS
(“Kachina, the Great Spirit of Indians”)



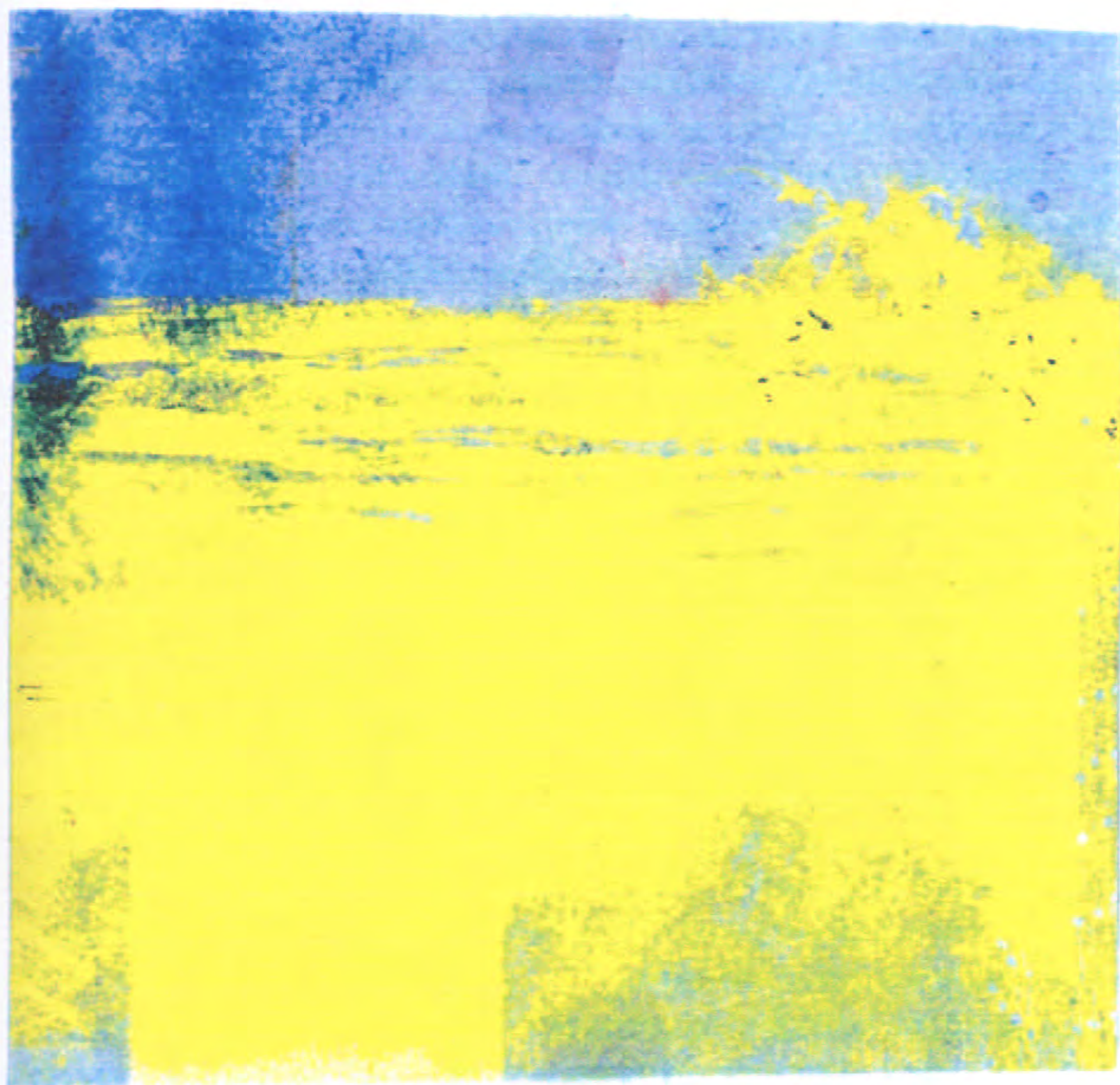




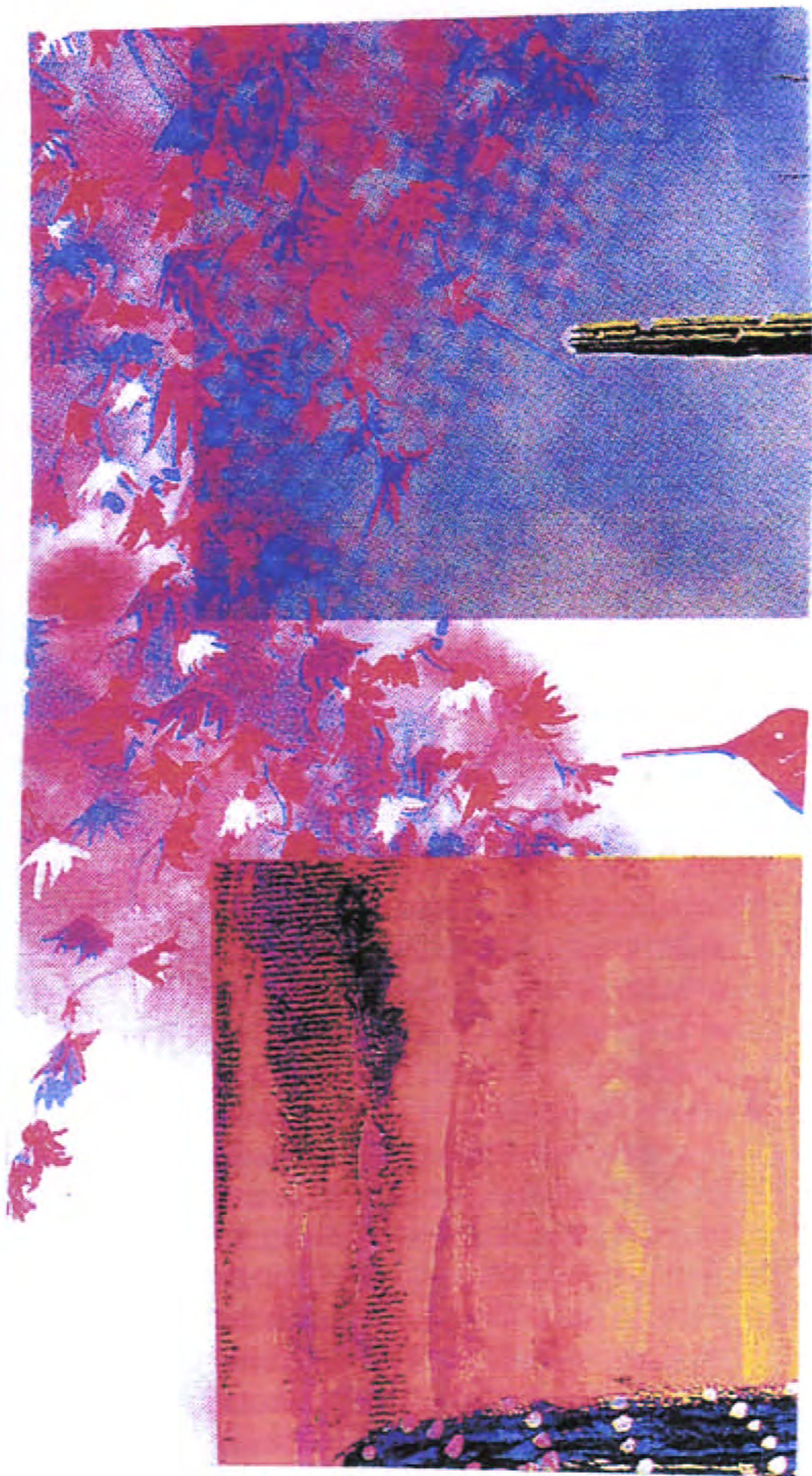






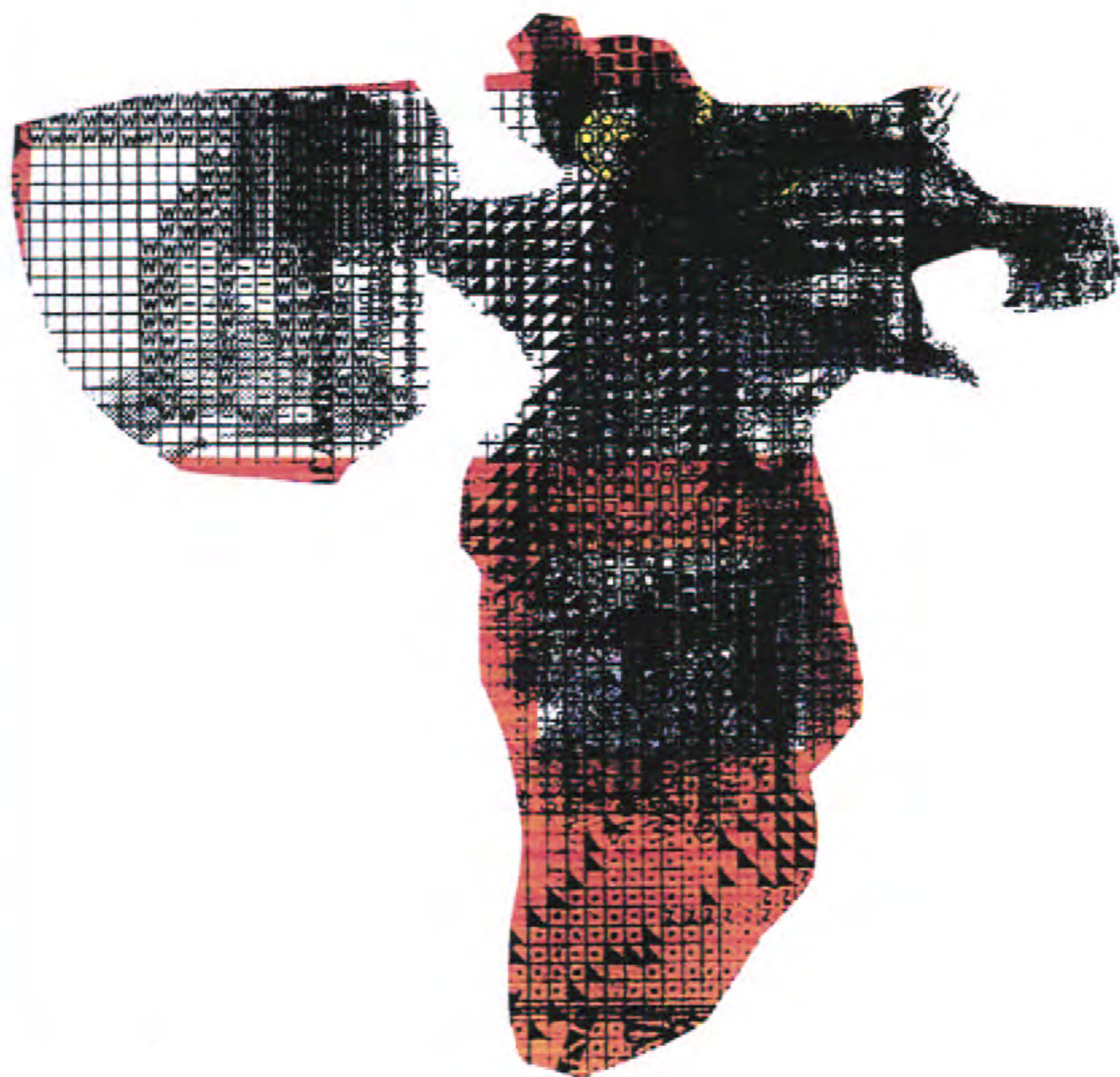




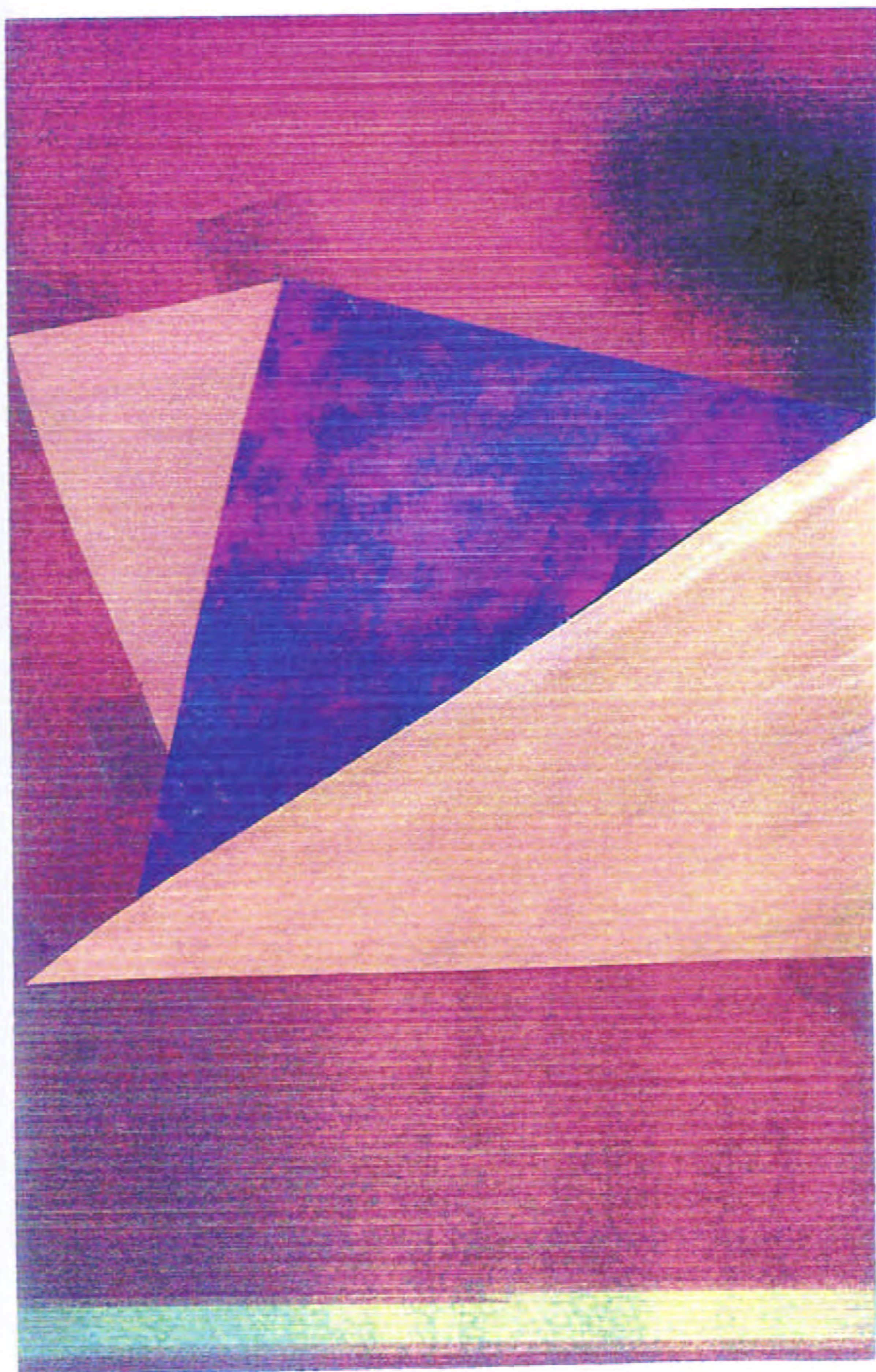


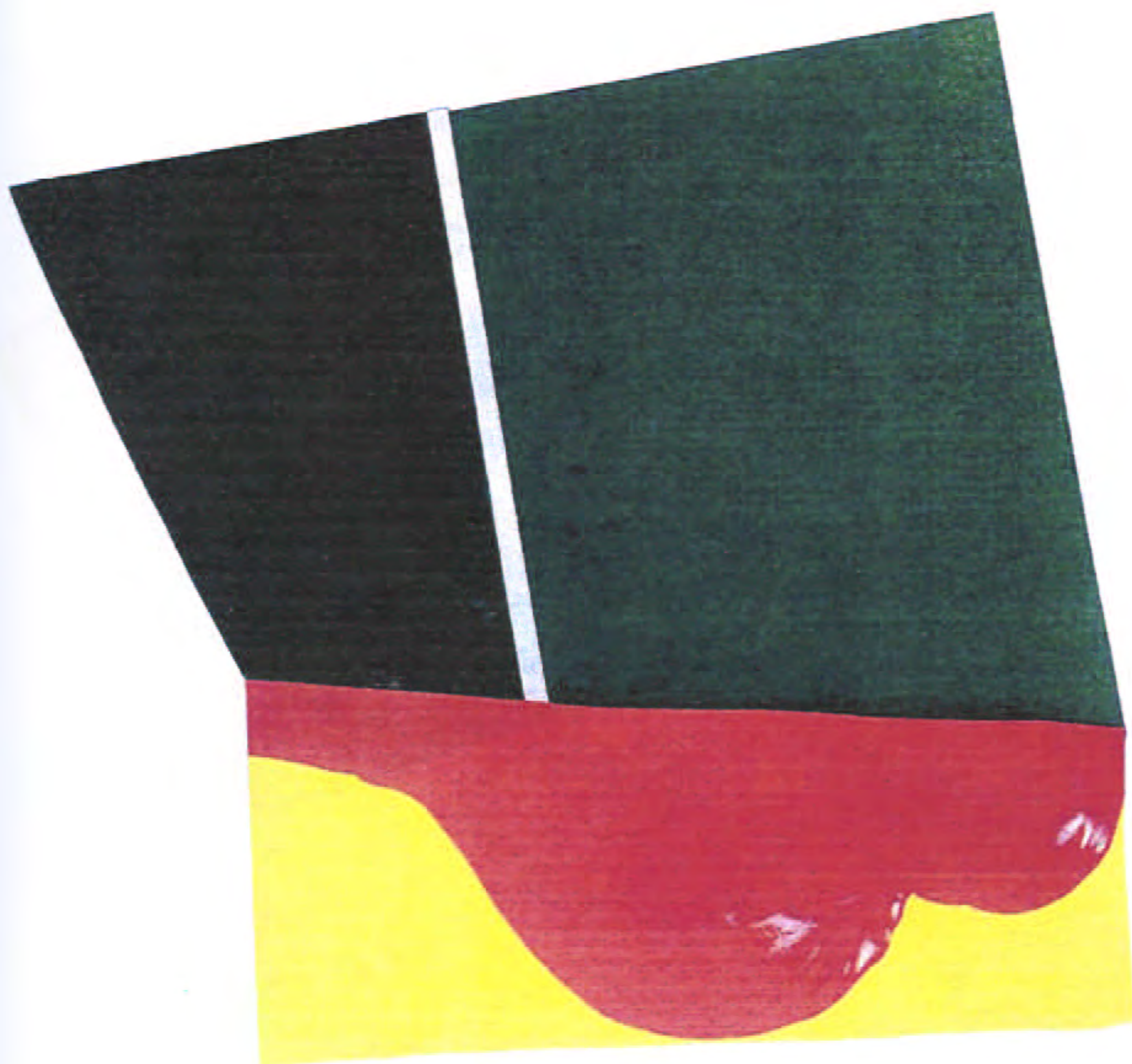




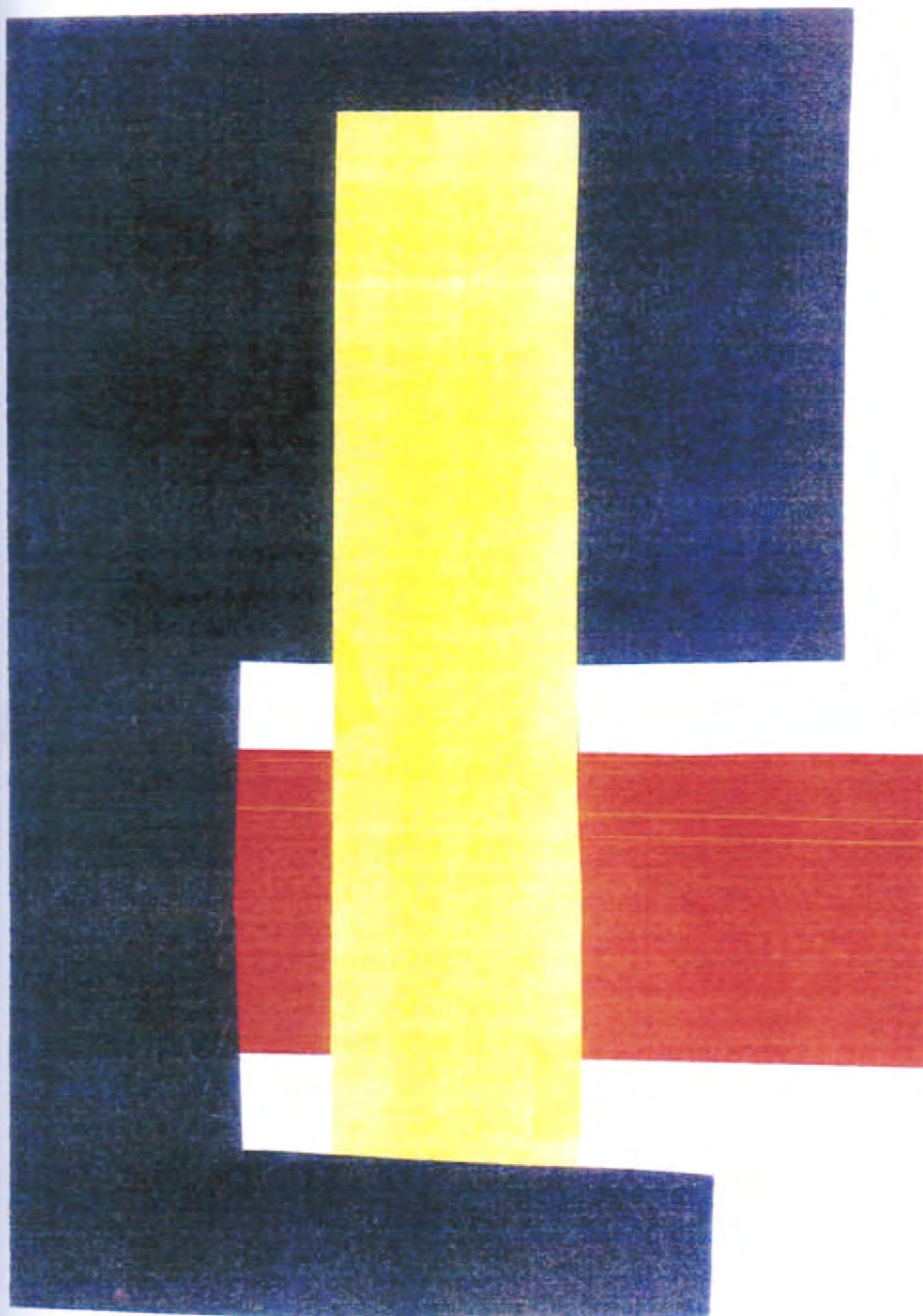


GEOMETRISM

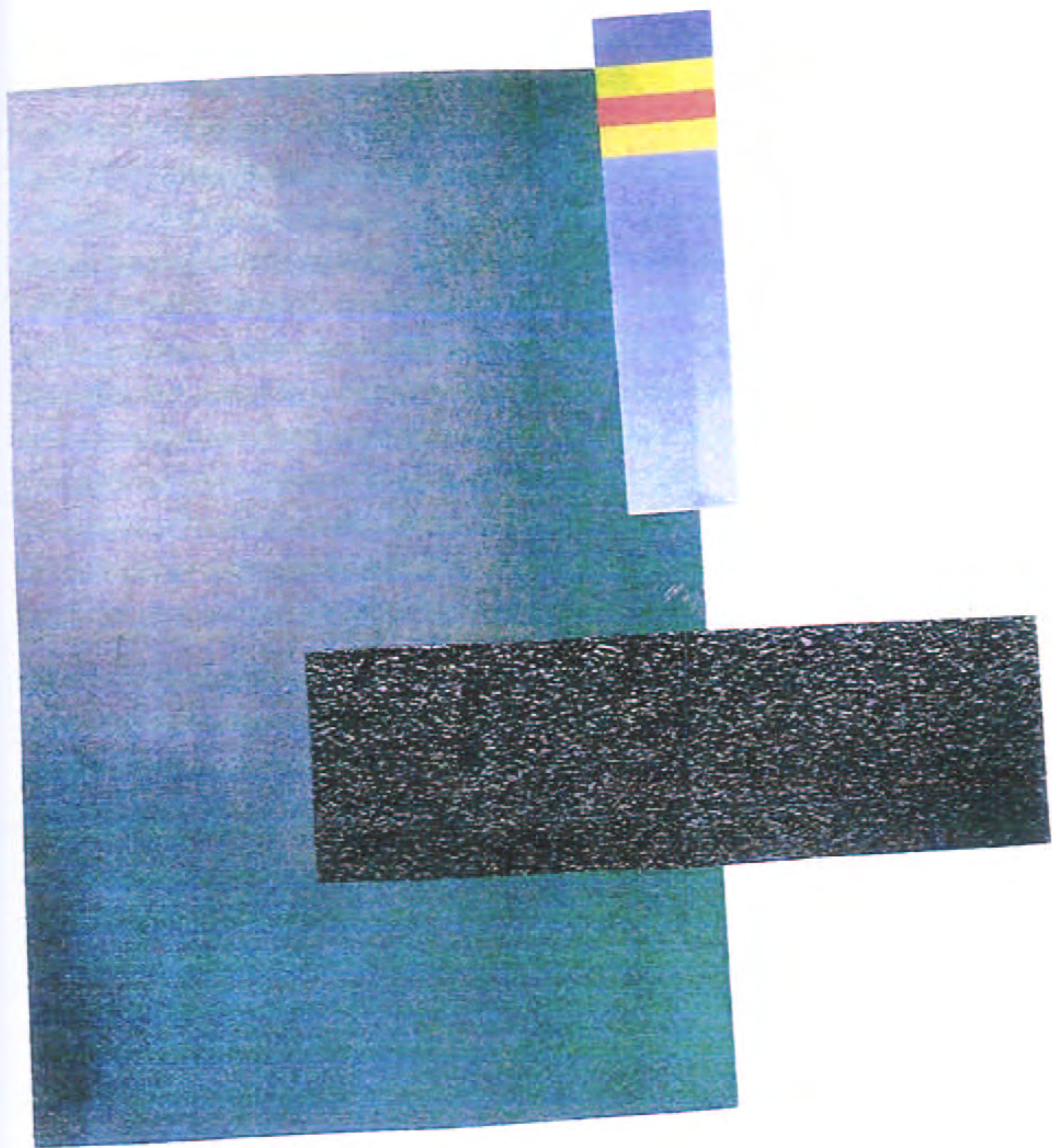


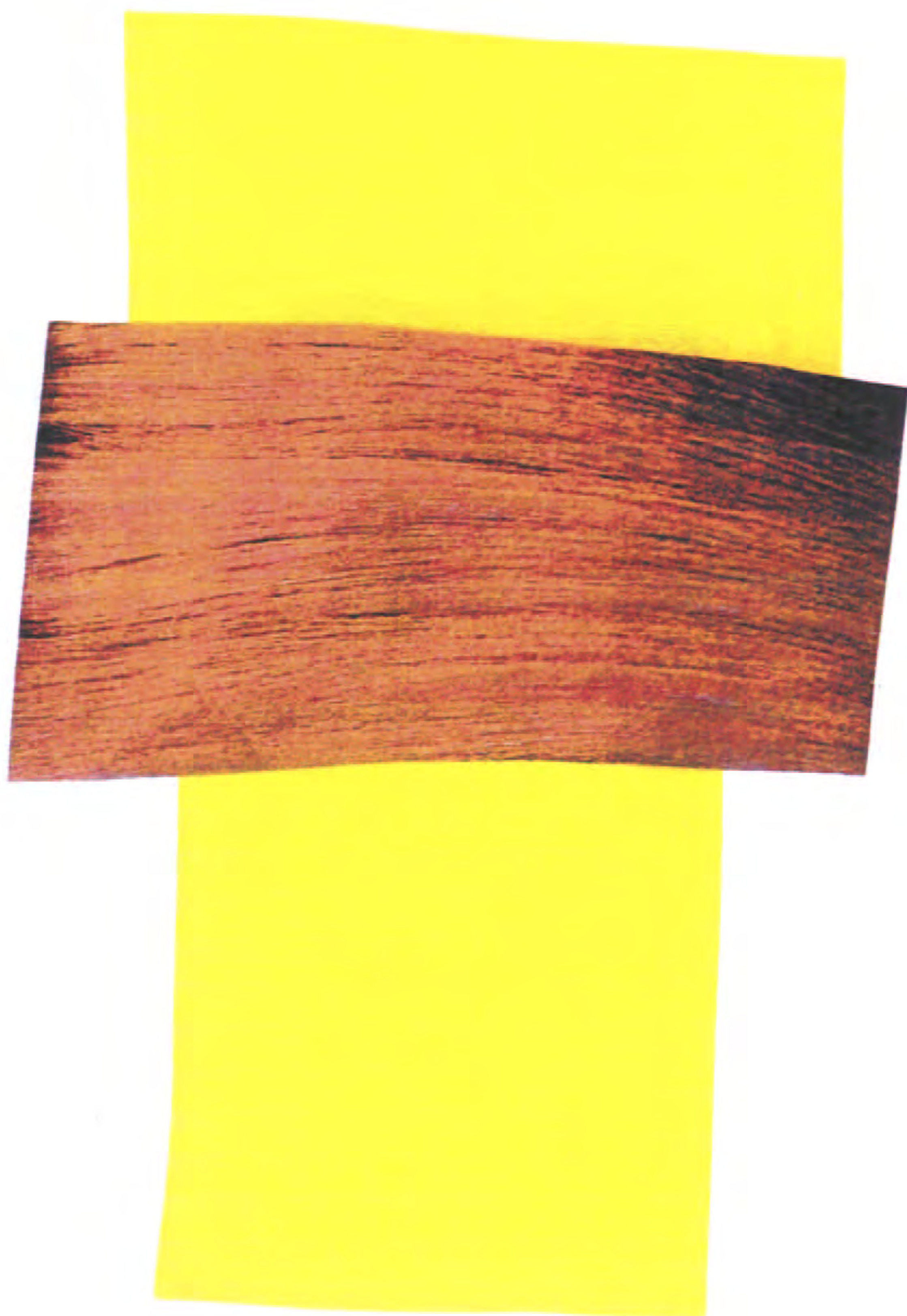


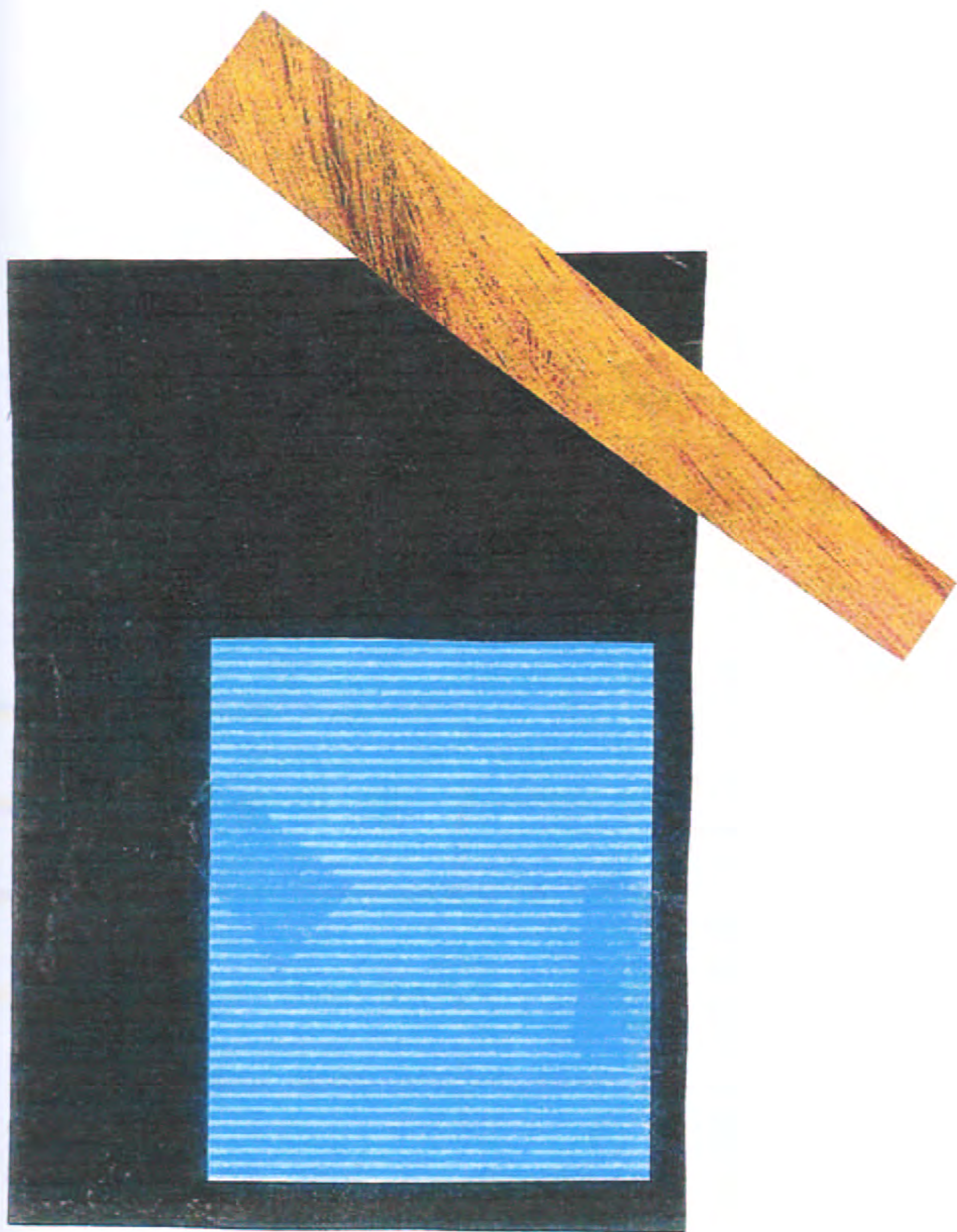






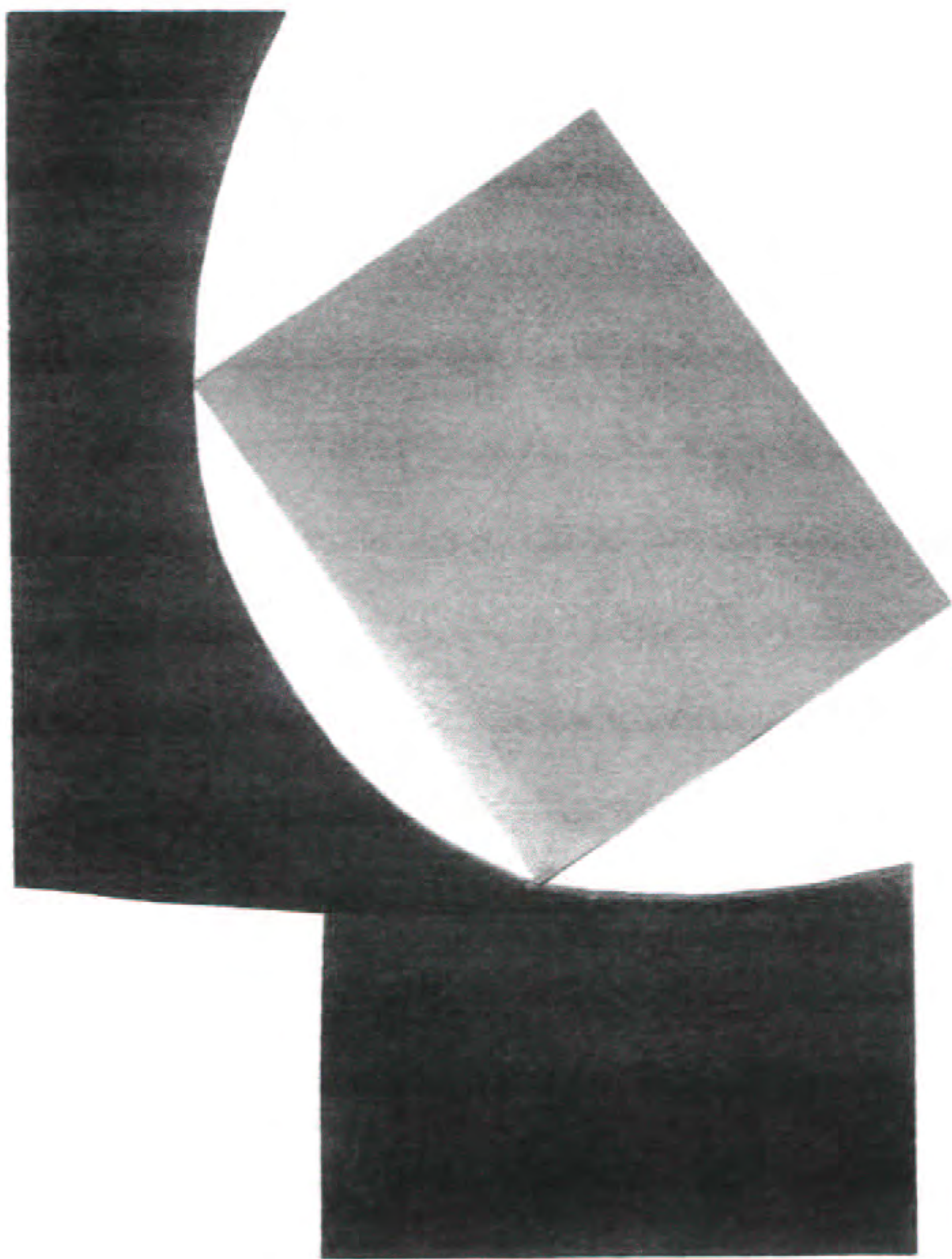


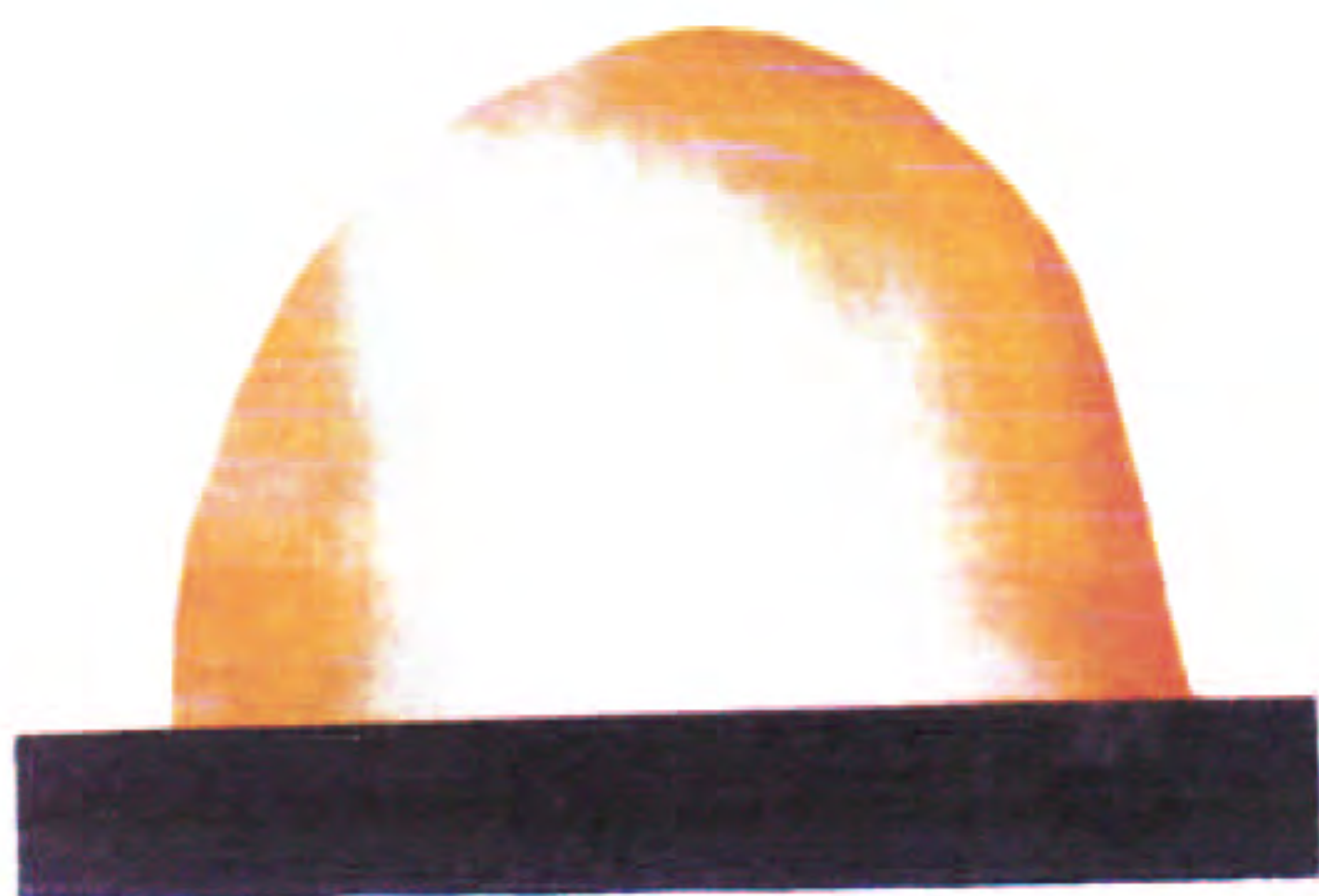


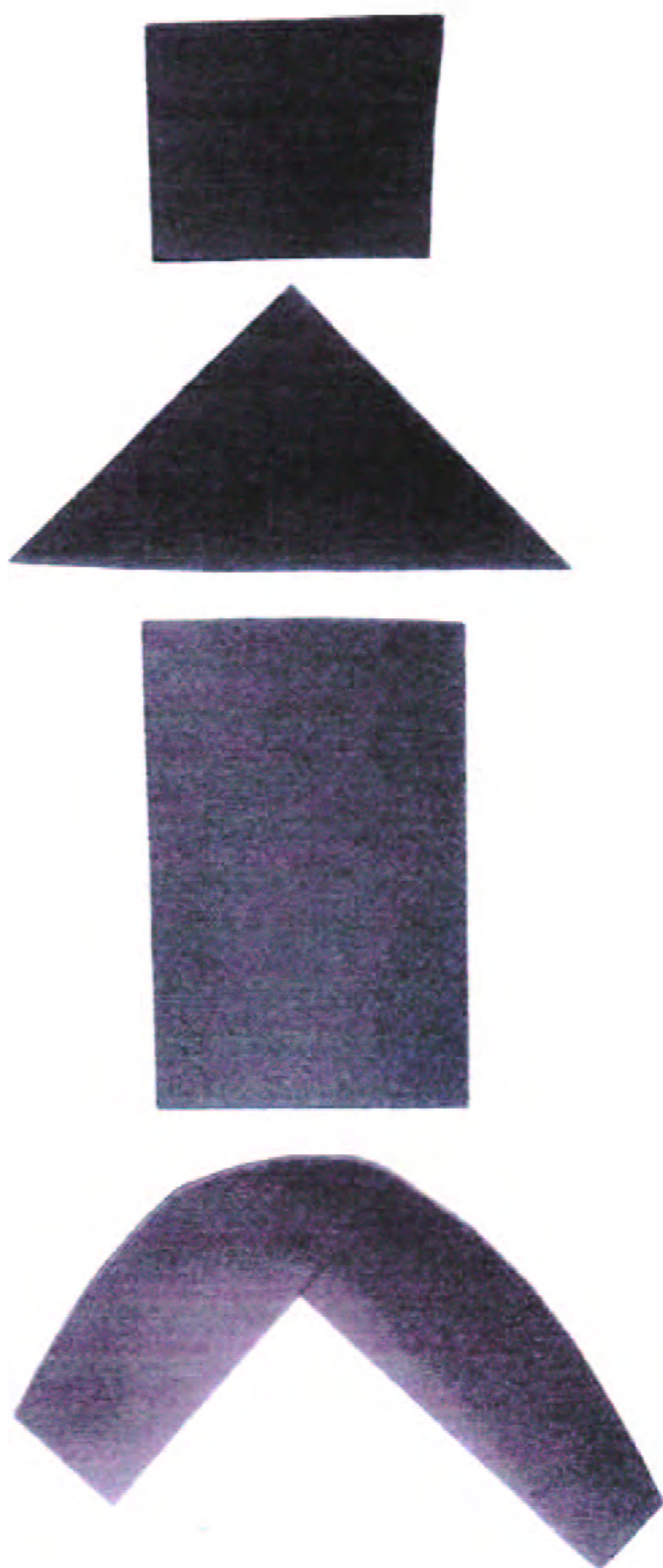


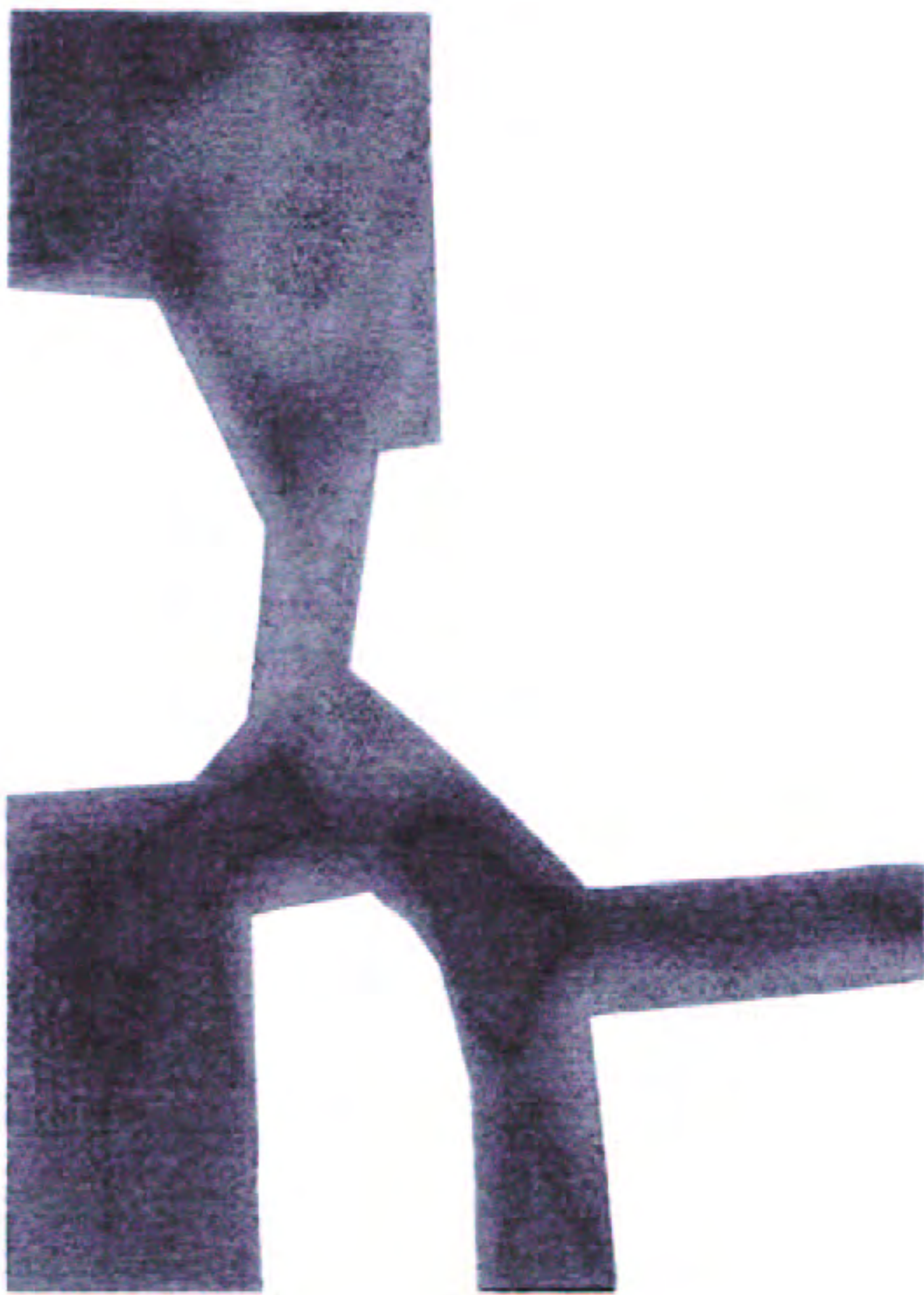
SNAPSHOTS













SCRIBBLINGS
(Ante-Art & Post-Art)







$$\begin{array}{r} 14x + 28y \\ -14x + 42y \\ \hline 70y \end{array}$$

$$\begin{aligned} x &= \frac{1}{2} \left(\frac{14}{20} \right) \\ &= \frac{1}{2} \left(\frac{7}{10} \right) \\ &= \frac{1}{2} \left(\frac{7}{10} \right) \\ &= \frac{7}{20} \end{aligned}$$

$$\begin{array}{r} 2 \sqrt{3x^6 + 2x^5 - 3x^4 + 6x^3 - 4x^2 + 6x} \\ \underline{3x^6 + 6x^5 + 6x^4 + 6x^3 + 6x^2 + 6x} \\ -4x^5 - 4x^4 - 4x^3 - 4x^2 - 4x \end{array}$$

$$13x^4 + 17x^3 - 14x^2 - 14x - 4$$

$$\frac{7}{10} \left(\frac{1}{20} \right) \left(\frac{11}{2} \right)$$

$$x^2 + 7x^2 - 32x$$

16

$$\left(\frac{1}{2} \right)$$







repeated compositions:

$g: \mathbb{N} \rightarrow \mathbb{N}$, such that $g(n) \leq n$ for all n .

A function related to g is defined as below

least integer k such that

$$(g \circ g \circ \dots \circ g)(n) = \text{constant.}$$

k times

Study, for example, the function that associates to every non-negative integer n the number of positive divisors of n . In this case

Ref: succ

same ~~claim~~ number of prime factors of n is not exceeded by $g(n)$.
 $p(n) \leq g(n)$ for all n .
 $p(n)$ is the number of prime factors of n .

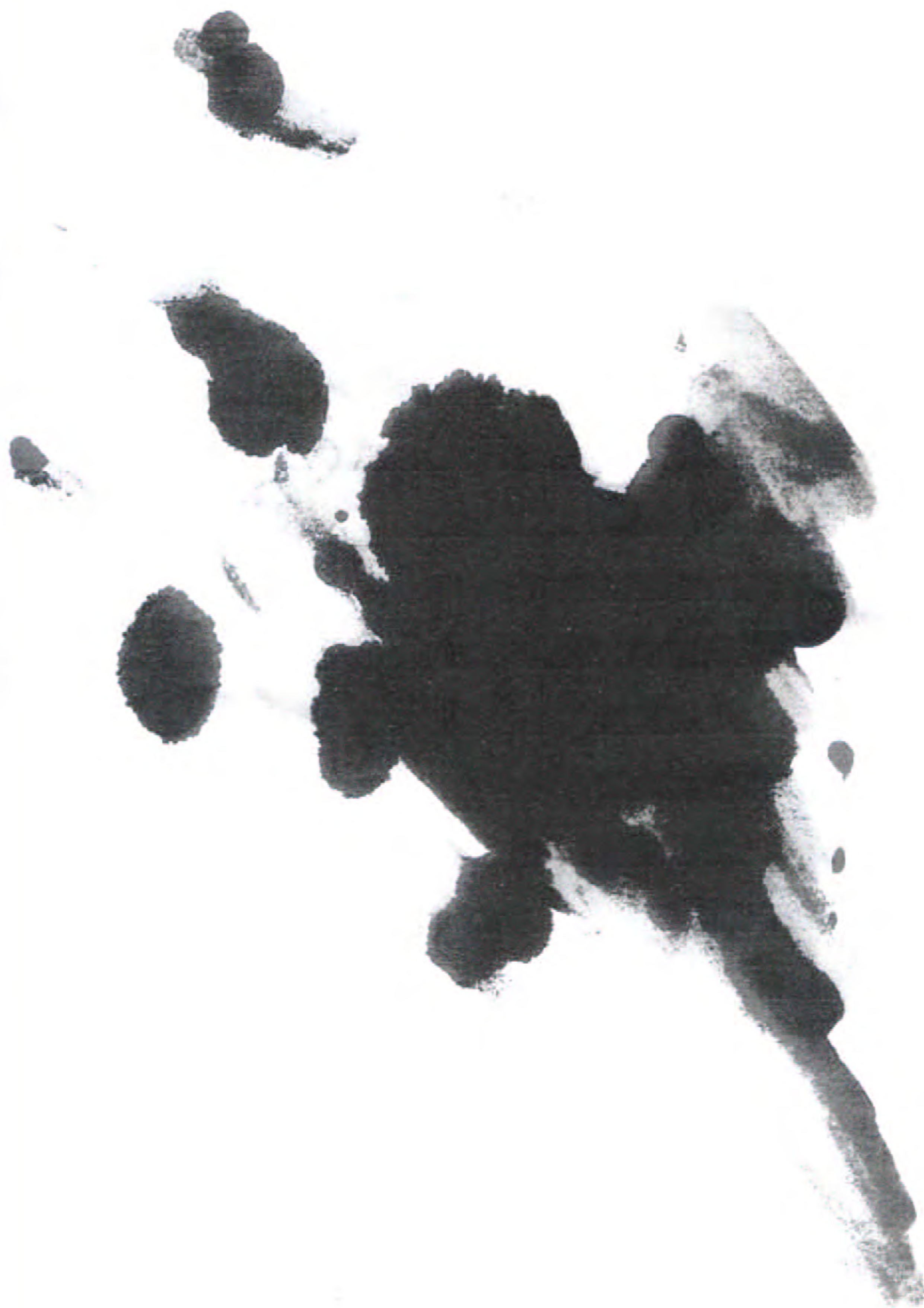
From the rest of natural number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330
331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390
391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510

21, 29, 81, 107, 117, 149, 153, 167, 173, 179, 187, 193, 203, 213, 223, 233, 243, 253, 263, 273, 283, 293, 303, 313, 323, 333, 343, 353, 363, 373, 383, 393, 403, 413, 423, 433, 443, 453, 463, 473, 483, 493, 503, 513, 523, 533, 543, 553, 563, 573, 583, 593, 603, 613, 623, 633, 643, 653, 663, 673, 683, 693, 703, 713, 723, 733, 743, 753, 763, 773, 783, 793, 803, 813, 823, 833, 843, 853, 863, 873, 883, 893, 903, 913, 923, 933, 943, 953, 963, 973, 983, 993, 1003, 1013, 1023, 1033, 1043, 1053, 1063, 1073, 1083, 1093, 1103, 1113, 1123, 1133, 1143, 1153, 1163, 1173, 1183, 1193, 1203, 1213, 1223, 1233, 1243, 1253, 1263, 1273, 1283, 1293, 1303, 1313, 1323, 1333, 1343, 1353, 1363, 1373, 1383, 1393, 1403, 1413, 1423, 1433, 1443, 1453, 1463, 1473, 1483, 1493, 1503, 1513, 1523, 1533, 1543, 1553, 1563, 1573, 1583, 1593, 1603, 1613, 1623, 1633, 1643, 1653, 1663, 1673, 1683, 1693, 1703, 1713, 1723, 1733, 1743, 1753, 1763, 1773, 1783, 1793, 1803, 1813, 1823, 1833, 1843, 1853, 1863, 1873, 1883, 1893, 1903, 1913, 1923, 1933, 1943, 1953, 1963, 1973, 1983, 1993, 2003, 2013, 2023, 2033, 2043, 2053, 2063, 2073, 2083, 2093, 2103, 2113, 2123, 2133, 2143, 2153, 2163, 2173, 2183, 2193, 2203, 2213, 2223, 2233, 2243, 2253, 2263, 2273, 2283, 2293, 2303, 2313, 2323, 2333, 2343, 2353, 2363, 2373, 2383, 2393, 2403, 2413, 2423, 2433, 2443, 2453, 2463, 2473, 2483, 2493, 2503, 2513, 2523, 2533, 2543, 2553, 2563, 2573, 2583, 2593, 2603, 2613, 2623, 2633, 2643, 2653, 2663, 2673, 2683, 2693, 2703, 2713, 2723, 2733, 2743, 2753, 2763, 2773, 2783, 2793, 2803, 2813, 2823, 2833, 2843, 2853, 2863, 2873, 2883, 2893, 2903, 2913, 2923, 2933, 2943, 2953, 2963, 2973, 2983, 2993, 3003, 3013, 3023, 3033, 3043, 3053, 3063, 3073, 3083, 3093, 3103, 3113, 3123, 3133, 3143, 3153, 3163, 3173, 3183, 3193, 3203, 3213, 3223, 3233, 3243, 3253, 3263, 3273, 3283, 3293, 3303, 3313, 3323, 3333, 3343, 3353, 3363, 3373, 3383, 3393, 3403, 3413, 3423, 3433, 3443, 3453, 3463, 3473, 3483, 3493, 3503, 3513, 3523, 3533, 3543, 3553, 3563, 3573, 3583, 3593, 3603, 3613, 3623, 3633, 3643, 3653, 3663, 3673, 3683, 3693, 3703, 3713, 3723, 3733, 3743, 3753, 3763, 3773, 3783, 3793, 3803, 3813, 3823, 3833, 3843, 3853, 3863, 3873, 3883, 3893, 3903, 3913, 3923, 3933, 3943, 3953, 3963, 3973, 3983, 3993, 4003, 4013, 4023, 4033, 4043, 4053, 4063, 4073, 4083, 4093, 4103, 4113, 4123, 4133, 4143, 4153, 4163, 4173, 4183, 4193, 4203, 4213, 4223, 4233, 4243, 4253, 4263, 4273, 4283, 4293, 4303, 4313, 4323, 4333, 4343, 4353, 4363, 4373, 4383, 4393, 4403, 4413, 4423, 4433, 4443, 4453, 4463, 4473, 4483, 4493, 4503, 4513, 4523, 4533, 4543, 4553, 4563, 4573, 4583, 4593, 4603, 4613, 4623, 4633, 4643, 4653, 4663, 4673, 4683, 4693, 4703, 4713, 4723, 4733, 4743, 4753, 4763, 4773, 4783, 4793, 4803, 4813, 4823, 4833, 4843, 4853, 4863, 4873, 4883, 4893, 4903, 4913, 4923, 4933, 4943, 4953, 4963, 4973, 4983, 4993, 5003, 5013, 5023, 5033, 5043, 5053, 5063, 5073, 5083, 5093, 5103, 5113, 5123, 5133, 5143, 5153, 5163, 5173, 5183, 5193, 5203, 5213, 5223, 5233, 5243, 5253, 5263, 5273, 5283, 5293, 5303, 5313, 5323, 5333, 5343, 5353, 5363, 5373, 5383, 5393, 5403, 5413, 5423, 5433, 5443, 5453, 5463, 5473, 5483, 5493, 5503, 5513, 5523, 5533, 5543, 5553, 5563, 5573, 5583, 5593, 5603, 5613, 5623, 5633, 5643, 5653, 5663, 5673, 5683, 5693, 5703, 5713, 5723, 5733, 5743, 5753, 5763, 5773, 5783, 5793, 5803, 5813, 5823, 5833, 5843, 5853, 5863, 5873, 5883, 5893, 5903, 5913, 5923, 5933, 5943, 5953, 5963, 5973, 5983, 5993, 6003, 6013, 6023, 6033, 6043, 6053, 6063, 6073, 6083, 6093, 6103, 6113, 6123, 6133, 6143, 6153, 6163, 6173, 6183, 6193, 6203, 6213, 6223, 6233, 6243, 6253, 6263, 6273, 6283, 6293, 6303, 6313, 6323, 6333, 6343, 6353, 6363, 6373, 6383, 6393, 6403, 6413, 6423, 6433, 6443, 6453, 6463, 6473, 6483, 6493, 6503, 6513, 6523, 6533, 6543, 6553, 6563, 6573, 6583, 6593, 6603, 6613, 6623, 6633, 6643, 6653, 6663, 6673, 6683, 6693, 6703, 6713, 6723, 6733, 6743, 6753, 6763, 6773, 6783, 6793, 6803, 6813, 6823, 6833, 6843, 6853, 6863, 6873, 6883, 6893, 6903, 6913, 6923, 6933, 6943, 6953, 6963, 6973, 6983, 6993, 7003, 7013, 7023, 7033, 7043, 7053, 7063, 7073, 7083, 7093, 7103, 7113, 7123, 7133, 7143, 7153, 7163, 7173, 7183, 7193, 7203, 7213, 7223, 7233, 7243, 7253, 7263, 7273, 7283, 7293, 7303, 7313, 7323, 7333, 7343, 7353, 7363, 7373, 7383, 7393, 7403, 7413, 7423, 7433, 7443, 7453, 7463, 7473, 7483, 7493, 7503, 7513, 7523, 7533, 7543, 7553, 7563, 7573, 7583, 7593, 7603, 7613, 7623, 7633, 7643, 7653, 7663, 7673, 7683, 7693, 7703, 7713, 7723, 7733, 7743, 7753, 7763, 7773, 7783, 7793, 7803, 7813, 7823, 7833, 7843, 7853, 7863, 7873, 7883, 7893, 7903, 7913, 7923, 7933, 7943, 7953, 7963, 7973, 7983, 7993, 8003, 8013, 8023, 8033, 8043, 8053, 8063, 8073, 8083, 8093, 8103, 8113, 8123, 8133, 8143, 8153, 8163, 8173, 8183, 8193, 8203, 8213, 8223, 8233, 8243, 8253, 8263, 8273, 8283, 8293, 8303, 8313, 8323, 8333, 8343, 8353, 8363, 8373, 8383, 8393, 8403, 8413, 8423, 8433, 8443, 8453, 8463, 8473, 8483, 8493, 8503, 8513, 8523, 8533, 8543, 8553, 8563, 8573, 8583, 8593, 8603, 8613, 8623, 8633, 8643, 8653, 8663, 8673, 8683, 8693, 8703, 8713, 8723, 8733, 8743, 8753, 8763, 8773, 8783, 8793, 8803, 8813, 8823, 8833, 8843, 8853, 8863, 8873, 8883, 8893, 8903, 8913, 8923, 8933, 8943, 8953, 8963, 8973, 8983, 8993, 9003, 9013, 9023, 9033, 9043, 9053, 9063, 9073, 9083, 9093, 9103, 9113, 9123, 9133, 9143, 9153, 9163, 9173, 9183, 9193, 9203, 9213, 9223, 9233, 9243, 9253, 9263, 9273, 9283, 9293, 9303, 9313, 9323, 9333, 9343, 9353, 9363, 9373, 9383, 9393, 9403, 9413, 9423, 9433, 9443, 9453, 9463, 9473, 9483, 9493, 9503, 9513, 9523, 9533, 9543, 9553, 9563, 9573, 9583, 9593, 9603, 9613, 9623, 9633, 9643, 9653, 9663, 9673, 9683, 9693, 9703, 9713, 9723, 9733, 9743, 9753, 9763, 9773, 9783, 9793, 9803, 9813, 9823, 9833, 9843, 9853, 9863, 9873, 9883, 9893, 9903, 9913, 9923, 9933, 9943, 9953, 9963, 9973, 9983, 9993, 10003, 10013, 10023, 10033, 10043, 10053, 10063, 10073, 10083, 10093, 10103, 10113, 10123, 10133, 10143, 10153, 10163, 10173, 10183, 10193, 10203, 10213, 10223, 10233, 10243, 10253, 10263, 10273, 10283, 10293, 10303, 10313, 10323, 10333, 10343, 10353, 10363, 10373, 10383, 10393, 10403, 10413, 10423, 10433, 10443, 10453, 10463, 10473, 10483, 10493, 10503, 10513, 10523, 10533, 10543, 10553, 10563, 10573, 10583, 10593, 10603, 10613, 10623, 10633, 10643, 10653, 10663, 10673, 10683, 10693, 10703, 10713, 10723, 10733, 10743, 10753, 10763, 10773, 10783, 10793, 10803, 10813, 10823, 10833, 10843, 10853, 10863, 10873, 10883, 10893, 10903, 10913, 10923, 10933, 10943, 10953, 10963, 10973, 10983, 10993, 11003, 11013, 11023, 11033, 11043, 11053, 11063, 11073, 11083, 11093, 11103, 11113, 11123, 11133, 11143, 11153, 11163, 11173, 11183, 11193, 11203, 11213, 11223, 11233, 11243, 11253, 11263, 11273, 11283, 11293, 11303, 11313, 11323, 11333, 11343, 11353, 11363, 11373, 11383, 11393, 11403, 11413, 11423, 11433, 11443, 11453, 11463, 11473, 11483, 11493, 11503, 11513, 11523, 11533, 11543, 11553, 11563, 11573, 11583, 11593, 11603, 11613, 11623, 11633, 11643, 11653, 11663, 11673, 11683, 11693, 11703, 11713, 11723, 11733, 11743, 11753, 11763, 11773, 11783, 11793, 11803, 11813, 11823, 11833, 11843, 11853, 11863, 11873, 11883, 11893, 11903, 11913, 11923, 11933, 11943, 11953, 11963, 11973, 11983, 11993, 12003, 12013, 12023, 12033, 12043, 12053, 12063, 12073, 12083, 12093, 12103, 12113, 12123, 12133, 12143, 12153, 12163, 12173, 12183, 12193, 12203, 12213, 12223, 12233, 12243, 12253, 12263, 12273, 12283, 12293, 12303, 12313, 12323, 12333, 12343, 12353, 12363, 12373, 12383, 12393, 12403, 12413, 12423, 12433, 12443, 12453, 12463, 12473, 12483, 12493, 12503, 12513, 12523, 12533, 12543, 12553, 12563, 12573, 12583, 12593, 12603, 12613, 12623, 12633, 12643, 12653, 12663, 12673, 12683, 12693, 12703, 12713, 12723, 12733, 12743, 12753, 12763, 12773, 12783, 12793, 12803, 12813, 12823, 12833, 12843, 12853, 12863, 12873, 12883, 12893, 12903, 12913, 12923, 12933, 12943, 12953, 12963, 12973, 12983, 12993, 13003, 13013, 13023, 13033, 13043, 13053, 13063, 13073, 13083, 13093, 13103, 13113, 13123, 13133, 13143, 13153, 13163, 13173, 13183, 13193, 13203, 13213, 13223, 13233, 13243, 13253, 13263, 13273, 13283, 132







degree using the inverse trigonometric functions:

$$\tan \theta = 0.1111$$

- A.
- B.
- C.
- D.

None of the above.

(5) Solve the right triangle $\triangle ABC$ when $a = 55.1$ and $\angle B = 40^\circ$.

- A.
- B.
- C.
- D.
- E.

None of the above.

(5) Solve the right triangle $\triangle ABC$ when $b = 25$ and $\angle A = 90^\circ$.

- A.
- B.
- C.
- D.
- E.

None of the above.

(5) Convert 18.15° to radians.

- A.
- B.
- C.
- D.
- E.

None of the above.

(5) Convert 23.15 radians to degrees.

- A.
- B.
- C.
- D.
- E.

None of the above.

Dr. Flo...ndache, UNM-G, Spring 1998,
Precal...ometry MATH 123, Test #1,
(Ch. ...)

DATE (Print)

(Print)

No books or notes. No collaborative work. Calculators are permitted.

to the nearest thousandth

(5) 1. Use your calculator to evaluate:



E. None of the above.

(5) 3) Evaluate angle θ to the nearest thousandth of a degree using the inverse trigonometric functions:

$$\cos \theta = 0.11111$$

- A.
- B.
- C.
- D.
- E.

None of the above.

(5) 4) Evaluate angle θ to the nearest thousandth of a

62	18
31	9
15	4
7	2
2	1

ii sequence

21123, 4321123, 583212345,

Is symmetric sequence (i)

21123 4321123 5832123

[illegible]

PAPER:
GREEN
GOLD

$$9:4 = ?$$



$$a \times b = \frac{2a \cdot b}{2} = 4a \cdot \frac{b}{4}$$

$$a : b = \frac{a}{2} : \frac{b}{2} = \frac{a}{4} : \frac{b}{4} = \dots$$

9	4
4	2

Experimental	Mathematics
--------------	-------------

- Anti-logics
- Paradoxical Geometries (I-?)
- Anti-geometry
- Multi-space
- ~~Multi-structure~~ Multi-structure
- Anti-structure



- trebuie agiuns la
în ~~stare~~ de
- către excludin stă
lui 1
- totul va fi:
- ~~at~~ me - năpăst
- ? ~~stare~~ din stă
(exceptie către
- înmușit cu cel
- ? din dințu
- (suma lor)

~~Multi-structure~~ Multi-structure

- Anti-structure

3 | 4

6 | 2

3 | 1

1 | 1

3 | 1

7 | 2

3 | 1

15 | 4

7 | 2

3 | 1

next = 0

next = 1

next = 2

next = 3

3 | 4



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90
 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150
 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180
 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210
 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240
 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270
 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300
 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330
 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360
 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390
 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420
 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480
 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500

Arithmetic progressions: Problem 88-5 by Florentin Smarandache (Craiova, Romania)

For any prime $m > 2$ and any positive integer n , show that the set $\{1, 2, 3, \dots, m^n\}$ has a subset A of cardinality $k(m, n) = (m - 1)^n$ with the following property: A contains no m -term arithmetic progression.

Is this value of $k(m, n)$ best possible?

237 238 239 240
 267 268 269 270
 297 298 299 300
 327 328 329 330
 357 358 359 360
 387 388 389 390
 417 418 419 420

21, 25, 29, 33, 35, 37, 43, 49, 51,
 62, 63, 73, 75, 77, 81, 85, 89,
 107, 109, 113, 115, 117, 121, 123, 129, 131, 135, 137,



7 mi

$$\tan 30^\circ = \frac{70}{6}$$

$$\cos x = \sqrt{\cos^2 x}$$

9.17 mi 57

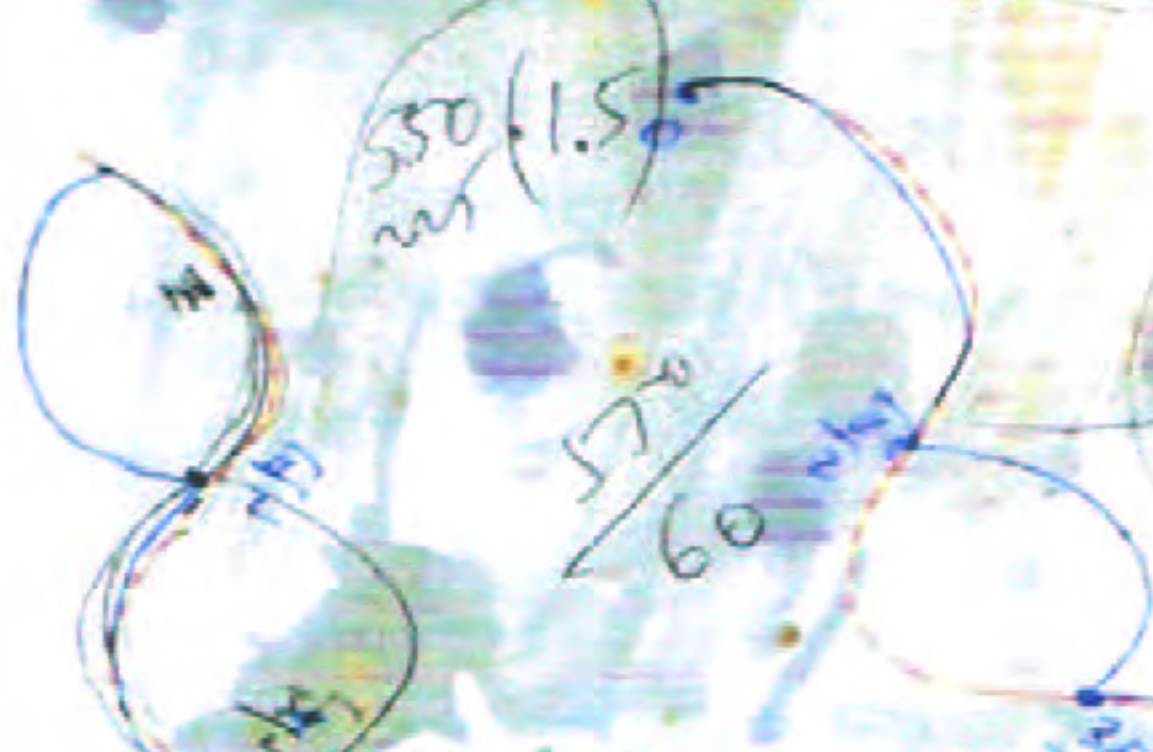
$$\frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{\sqrt{3}}{3}$$

1 mile = 1806 meters
 5,428 feet

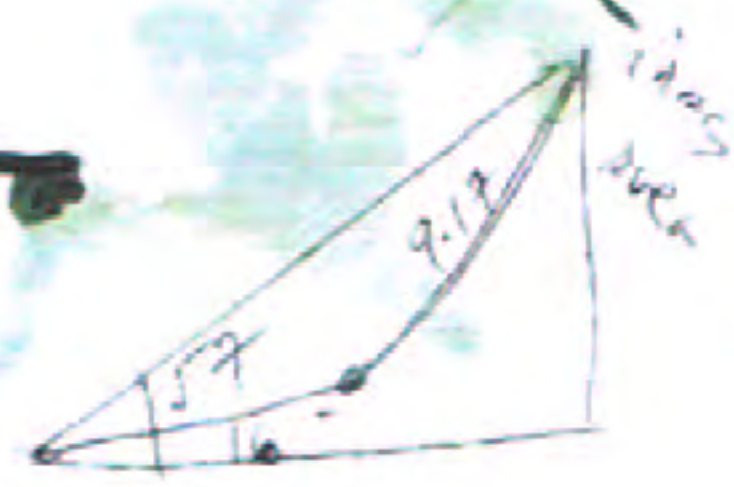


$$\cos x = \sqrt{\cos^2 x}$$

$$1 - \sin^2 x = \cos^2 x$$



1 mile = 1609 m



$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

~~Handwritten scribble~~

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

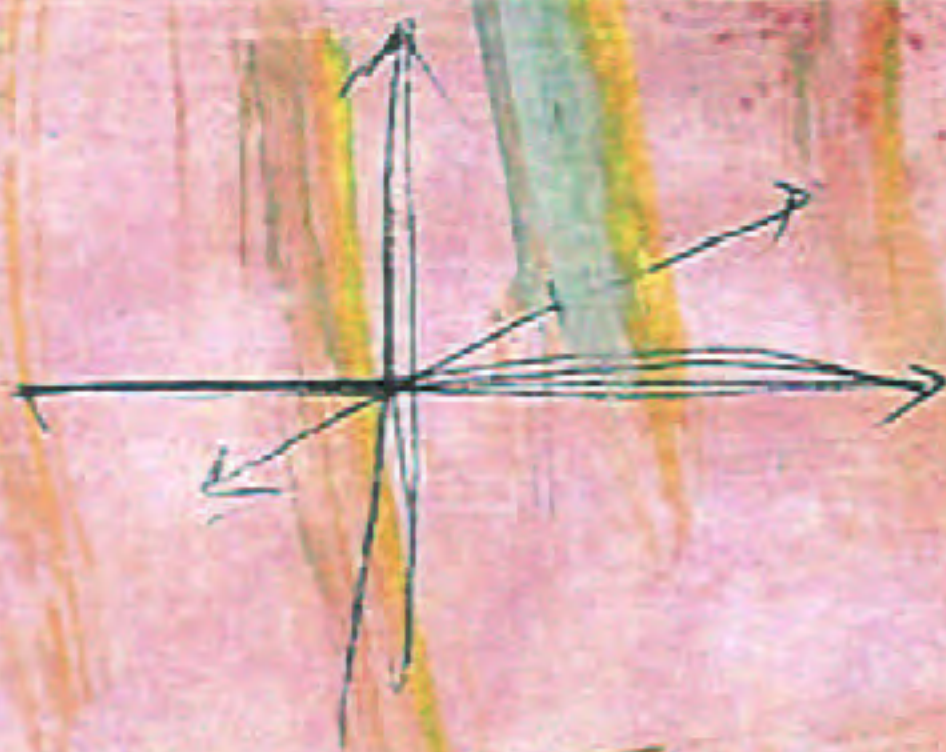
$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$\sum_{n=0}^{\infty} n^n = \left(\sum_{n=0}^{\infty} n \right)$$

$$f_x \vec{i} + f_y \vec{j}$$

$$dx = 1$$

$$= 0$$



$$\left(\frac{\sqrt{35}}{35}, \frac{\sqrt{35}}{35}, \frac{\sqrt{35}}{35} \right)$$

$$\frac{\sqrt{35}}{35} (1, 3, 5)$$

$L(f) = L(f - f(0))$
 $f(x) = x - [x]$
 $L(f) = f(0) - f'(0)$

$L(f) = f(0) - f'(0)$
 $L(f) = f(0) - f'(0)$

$g(t) = f(t) - f(0)$
 $g(0) = 0$

$g(t) = f(t) - f(0)$
 $g'(t) = f'(t)$
 $g'(0) = f'(0)$

$f'(x) = b$
 $f(x) = f(0) + f'(0)x$
 $f(x) = f(0) + f'(0)x$
 $f(0) = b$

$f(x) = f(0) + f'(0)x$
 $f(x) = f(0) + f'(0)x$

$f(x) = f'(x)$
 $f(x) = f'(x)$

☐ SYLLABUS

☐ HANDOUT

☐ OTHER

☐ TEST Deliver to Testing Center? Yes No

☒ MODULE Deliver to Library? Yes No

INSTRUCTOR: Sm...

COURSE/SUBJECT: Math

PHONE: 914

DATE SUBMITTED: 11/15/95

DATE RECEIVED: 11/15/95

TYPING:

Would you like it to be typed for you?

☐ Yes ☒ No (If Yes, please submit by 11/15/95)

(Each 2-sided paper counts as 2 pages)

DUP:

Number of copies needed: 1

Back-to-Back

Uncollated

Collated & Stapled

Collated & Unstapled

BRACKET

☐ 3-HOLE PUNCH

☐ CLOTH COVER

☐ BIND

1. SHOULD BE A CLEAN COPY
2. ALL PAGES SHOULD BE NUMBERED
3. SHOULD NOT BE TAPED

SUGGESTIONS FOR A BETTER COPY

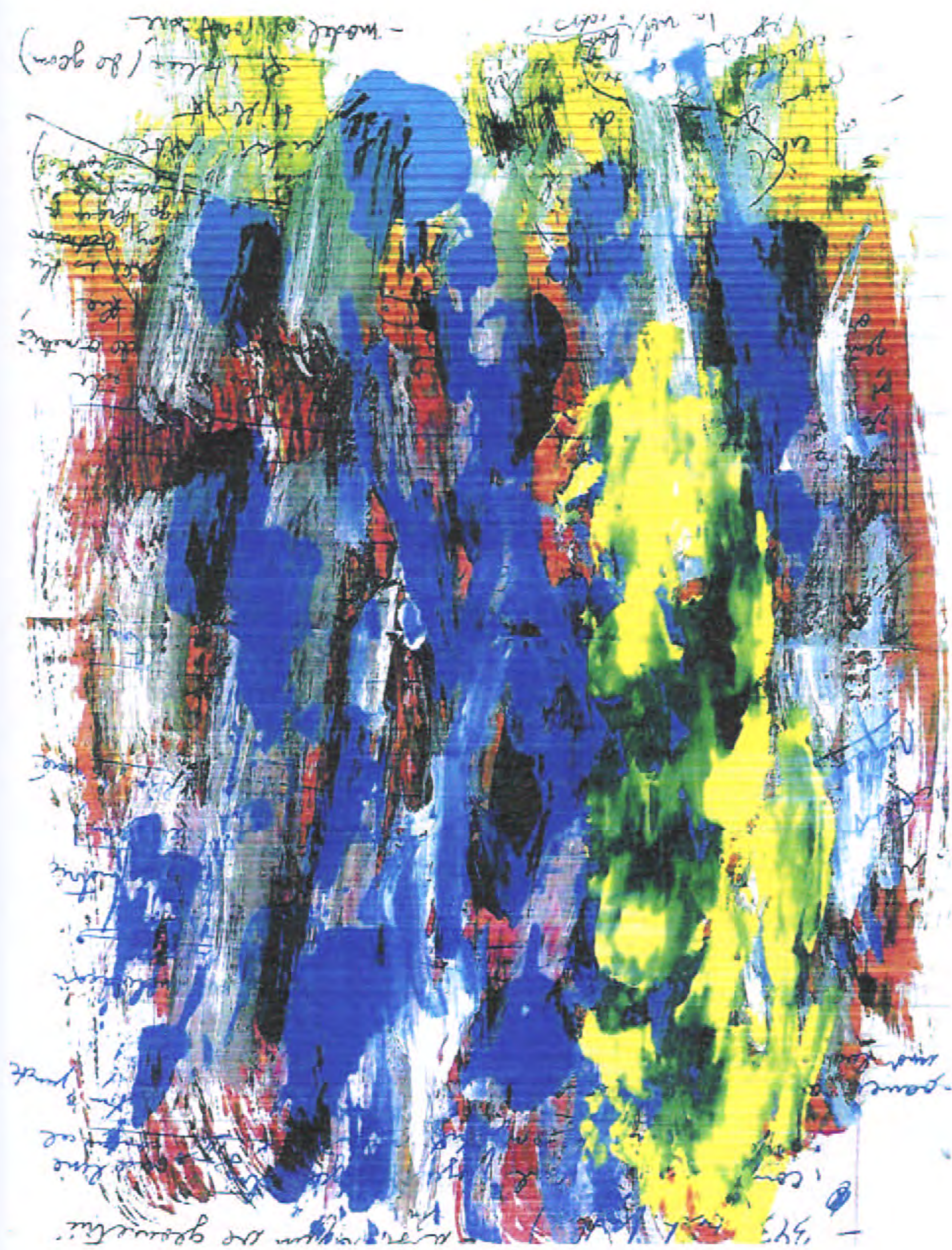
1. ORIGINAL ON COLOR PAPER MAY NOT COPY WELL ON THE COLOR.
2. DARKER MATERIAL WILL DARKEN.
3. RED AND BLUE PEN WILL NOT COPY WELL.

SPECIAL INSTRUCTIONS:

OFFICE USE ONLY:

WORK DONE BY:

DATE:



$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} = \begin{pmatrix} 11 & 14 \\ 23 & 34 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} = \begin{pmatrix} 11 & 14 \\ 23 & 34 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} = \begin{pmatrix} 11 & 14 \\ 23 & 34 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} = \begin{pmatrix} 11 & 14 \\ 23 & 34 \end{pmatrix}$$



- EP : 400\$
- CP : 700\$
- ELM : 300\$
- SB : 500\$
- FGL(2) : 500\$

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} = \begin{pmatrix} 11 & 14 \\ 23 & 34 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} = \begin{pmatrix} 11 & 14 \\ 23 & 34 \end{pmatrix}$$

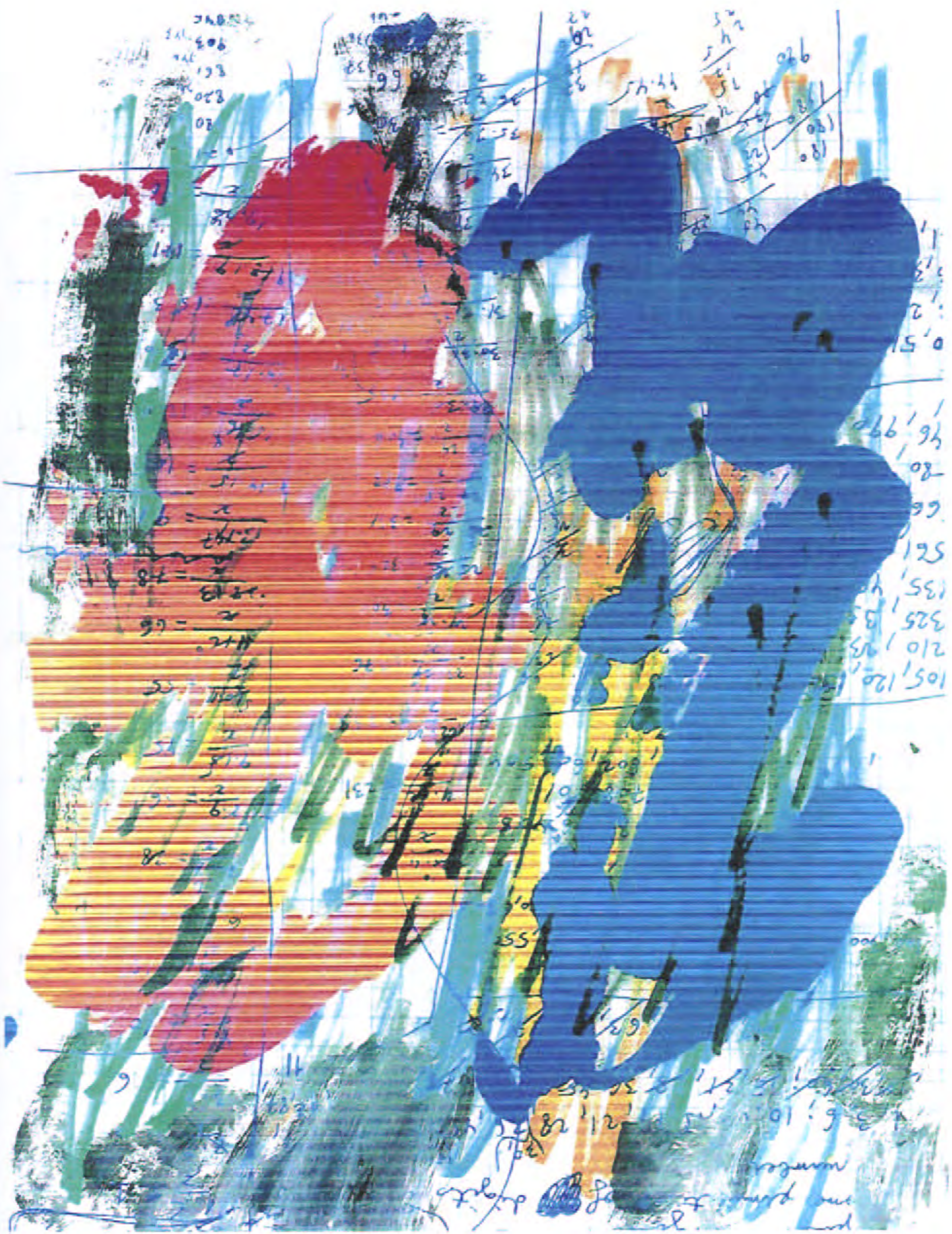
$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} = \begin{pmatrix} 11 & 14 \\ 23 & 34 \end{pmatrix}$$

$$x^2 - 3x - 3x + x^2 - 6x + 9$$

$$(x-3)^2 = x^2 - 6x + 9$$

$$\sqrt{a^2 - b^2} = \sqrt{5^2 - 3^2}$$

some the doc.



divisible by 15 and 20

$$\begin{array}{r} 17 \\ 20 \\ \hline 37 \\ 36 \end{array}$$

18	19
32	52
63	63
64	66

Very
one question

~~(unclear)~~

2, 0, 1, 0,
1, 0, 3,

(of power P)

0, 0, 3, 0, 0, 1

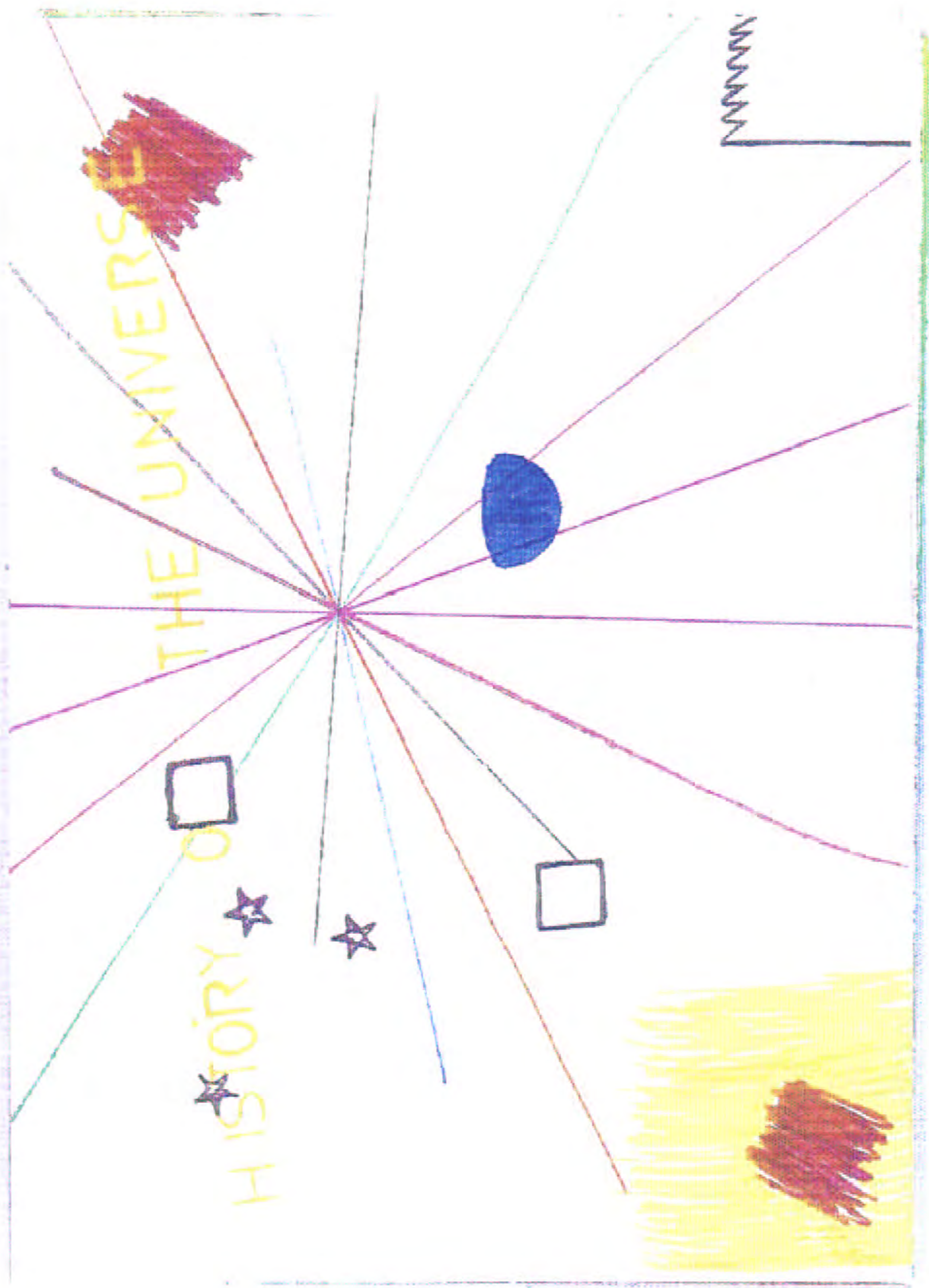
0, 0, 1, 0, 0

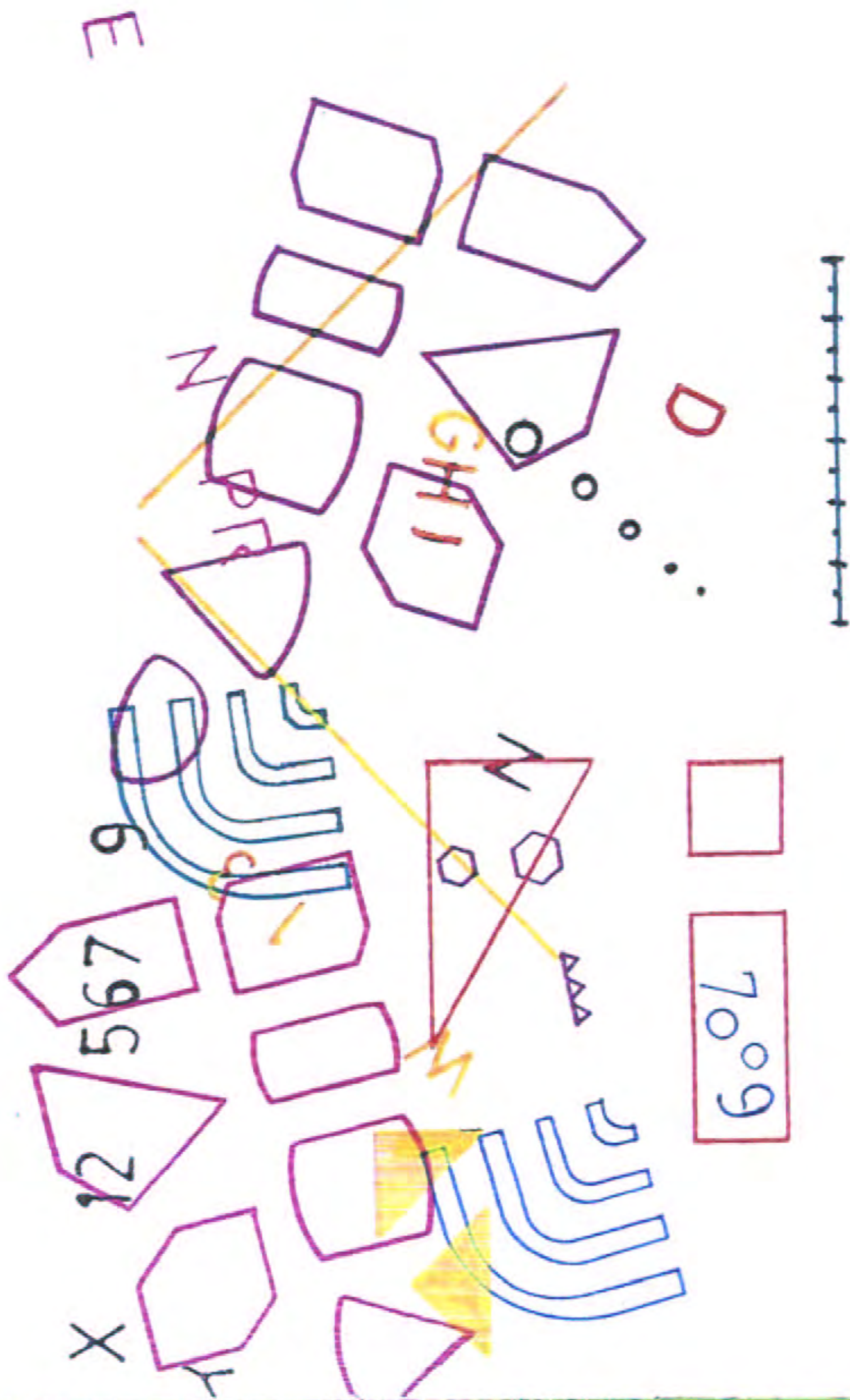
p is an integer ≥ 2)

Rank 198



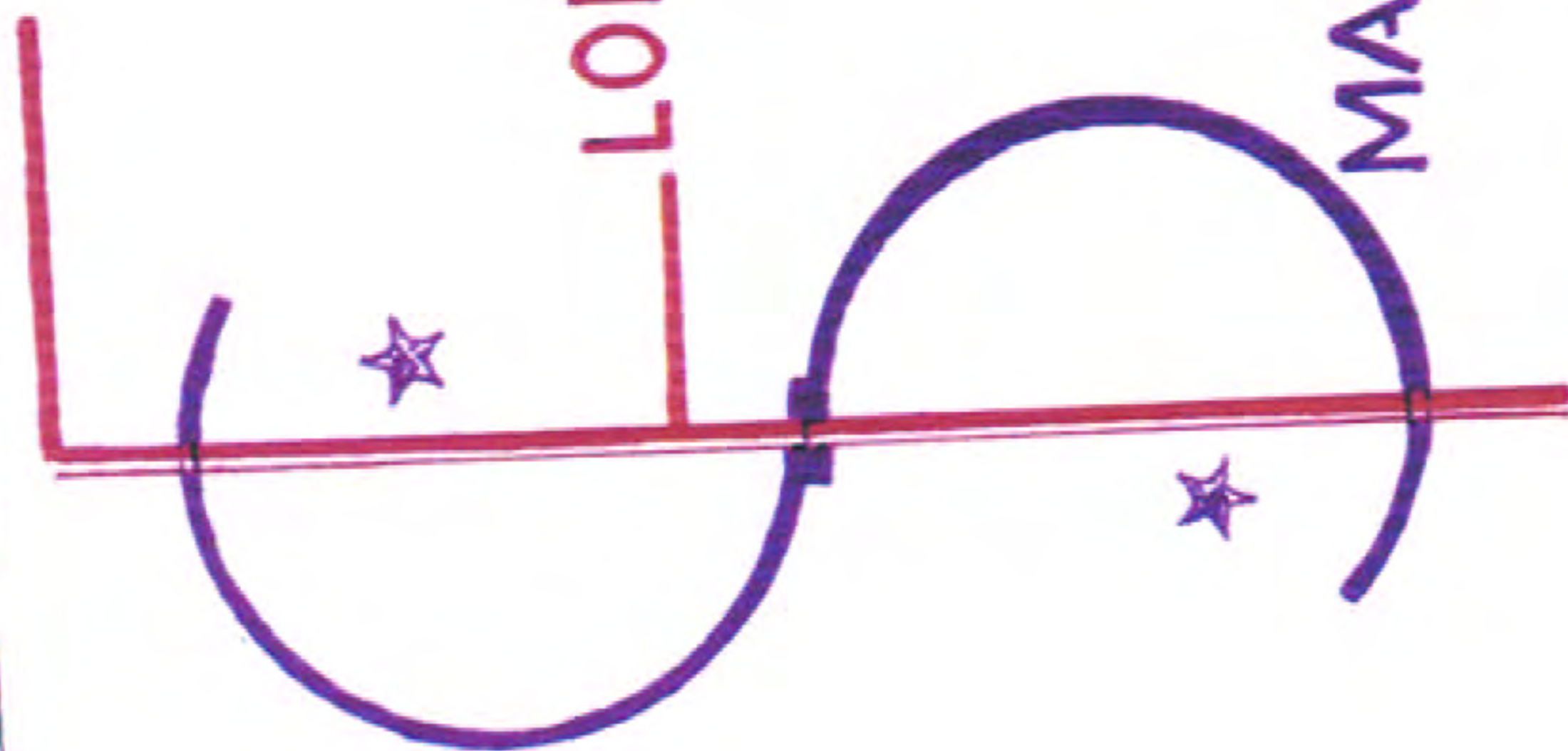
MECHANICAL DRAWINGS





LORENTIN

MARANDACHE



ANTI-DRAFTS

~~Zigzag~~

~~X~~

~~ADN~~



$$103 + (a:8) + 27 - 24 + 41 - 68 + 28 - 36 - 38 + 24 - 6 - 12 + 41 - 1$$

$$131 + 21 - 65 + 13 + c - 50 = 3$$

30
69
75
90
01

$$\frac{a}{8} - b + c = 18$$

$$\begin{aligned} a &= 16 \\ b &= 1 \\ c &= 17 \end{aligned}$$

$$\begin{aligned} a &= 24 \\ b &= 1 \\ c &= 16 \end{aligned}$$

C	H	A	E
8	40	5	3
D	2	C	G
4	2	8	1
E	3	B	H
3	3	9	10
F	2	D	B
6	2	9	9

$$\begin{aligned} &= 26 \\ &= 15 \\ &= 25 \\ &= 21 \end{aligned}$$

21	17	26	23
----	----	----	----

C	H	A	E
8	7	5	6
D	2	C	G
4	2	8	1
E	F	B	H
6	3	9	7
F	A	D	B
3	5	1	3

$$\begin{aligned} &= 26 \\ &= 15 \\ &= 25 \\ &= 21 \end{aligned}$$

$$\begin{aligned} &= 21 \\ &= 17 \\ &= 26 \\ &= 23 \end{aligned}$$

MARANDACHE

$$4- \frac{1}{1} \cdot 103 + (a:8) + 2f - 24 + 41 - 68 + 28 - 36 - 72 + 24 - 6 - 72 + 41 - 6$$

$$= 31 + 24 - 65 + 15 + c - 50 = 3$$

30
69
45
90
01

~~4-104~~



$$\frac{a}{8} - b + c = 18$$

$$\begin{aligned} a &= 76 \\ b &= 1 \\ c &= 17 \end{aligned}$$

$$\begin{aligned} a &= 24 \\ b &= 1 \\ c &= 16 \end{aligned}$$

92
134
96
503
42

C	H	A	E
8	10	5	6
D	2	8	1
6	F	9	H
E	3	D	7

26
15
25
21

8=4, 2
8=2, 4

21	17	26	23
----	----	----	----

three

C	H	A	E
8	10	5	6
D	2	8	1
E	F	9	H
F	A	D	B

26
15
25
21

21 17 26 23

1 3 7 5 6 2 8 9

thousand

1000

s ÷ f

Sing 72

teacher of

[x] [e]

THE UGLY OF

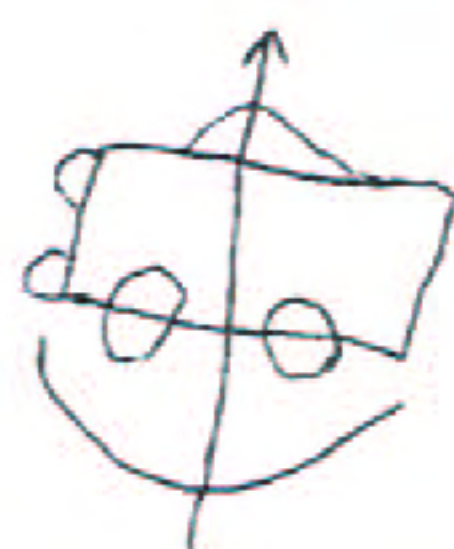
teacher of the people

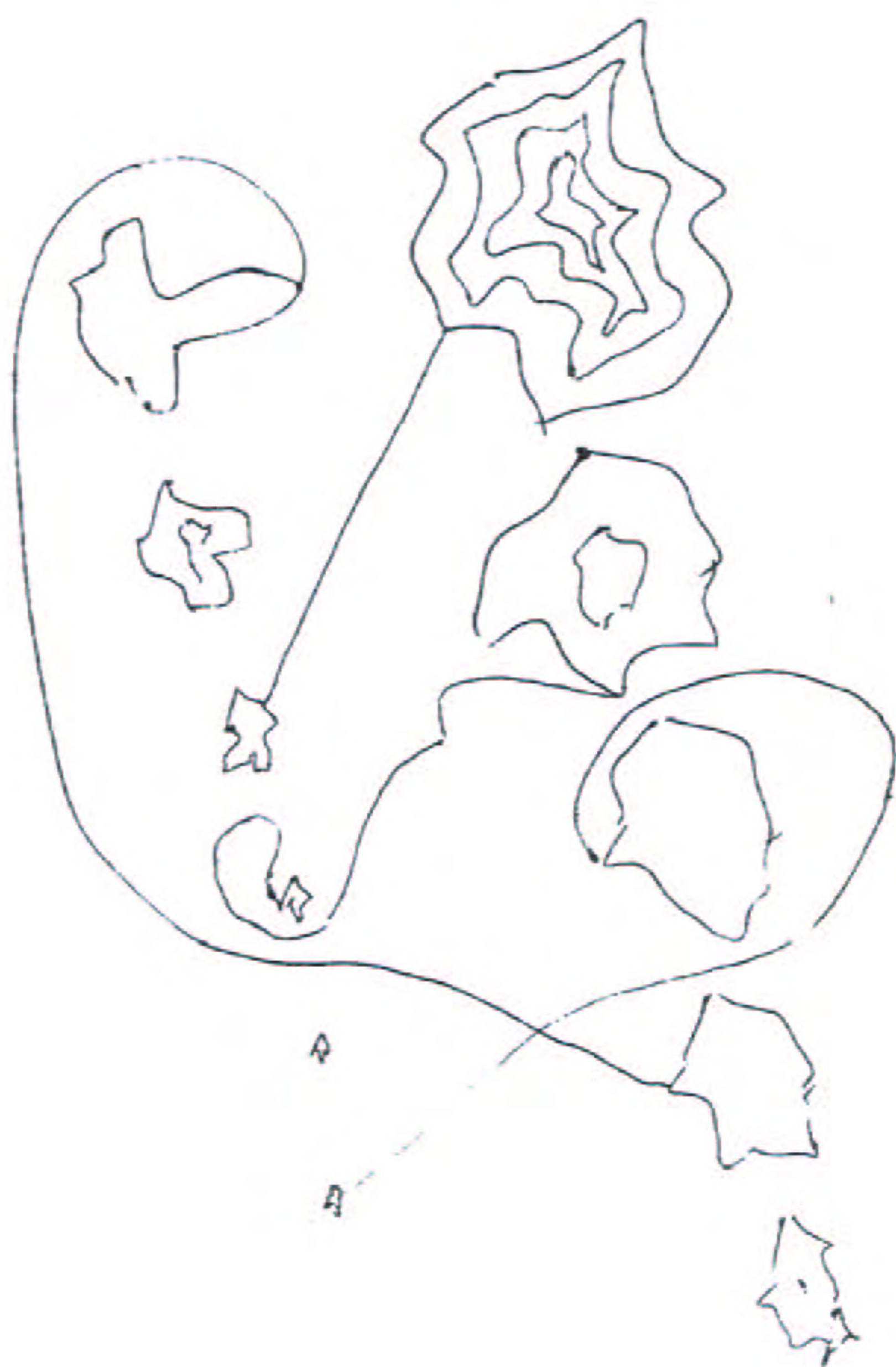
FIN-ARTS

PARADOXIST DRAWINGS
(double sense)

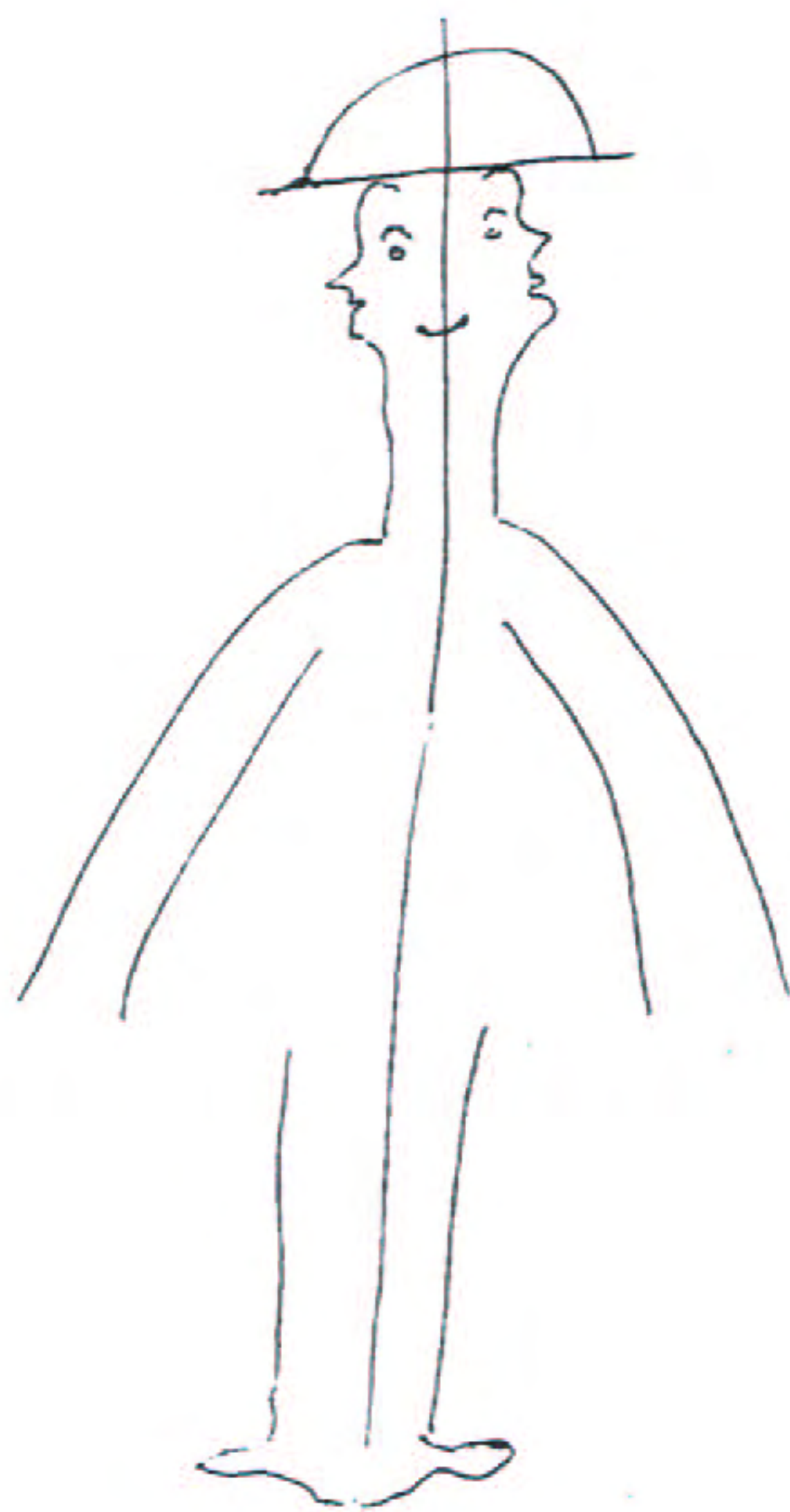


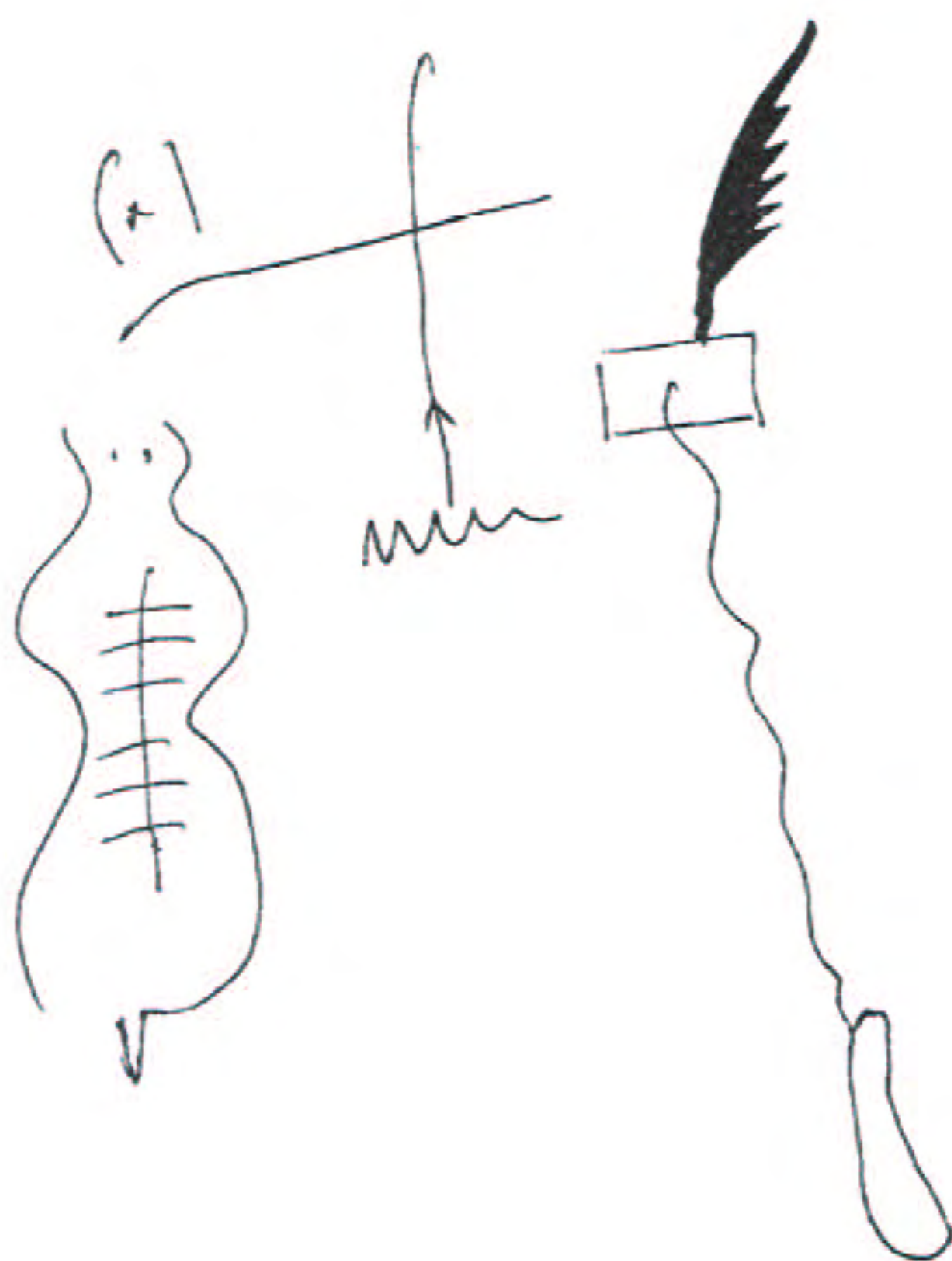
Fuengo





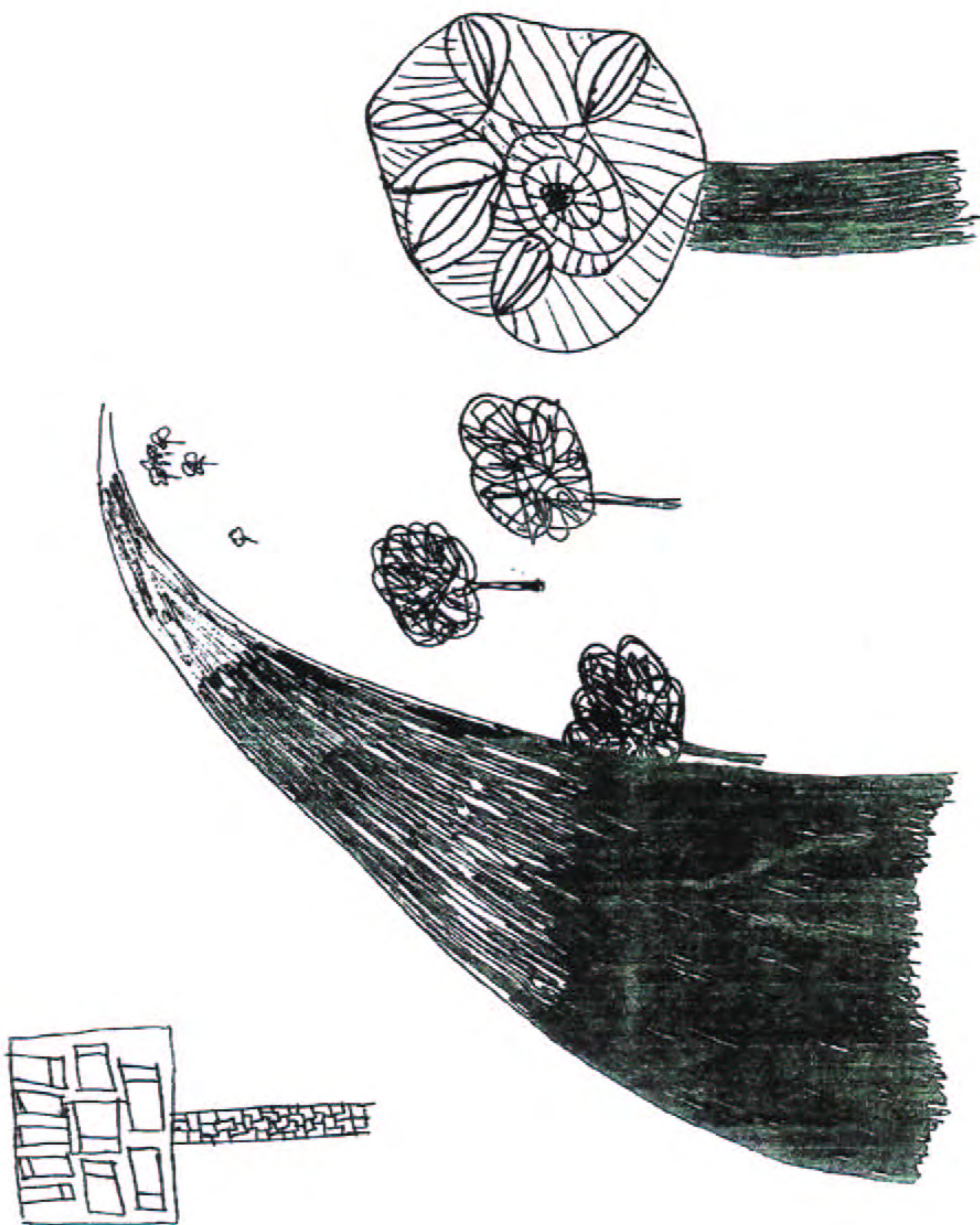
Rolling Stone

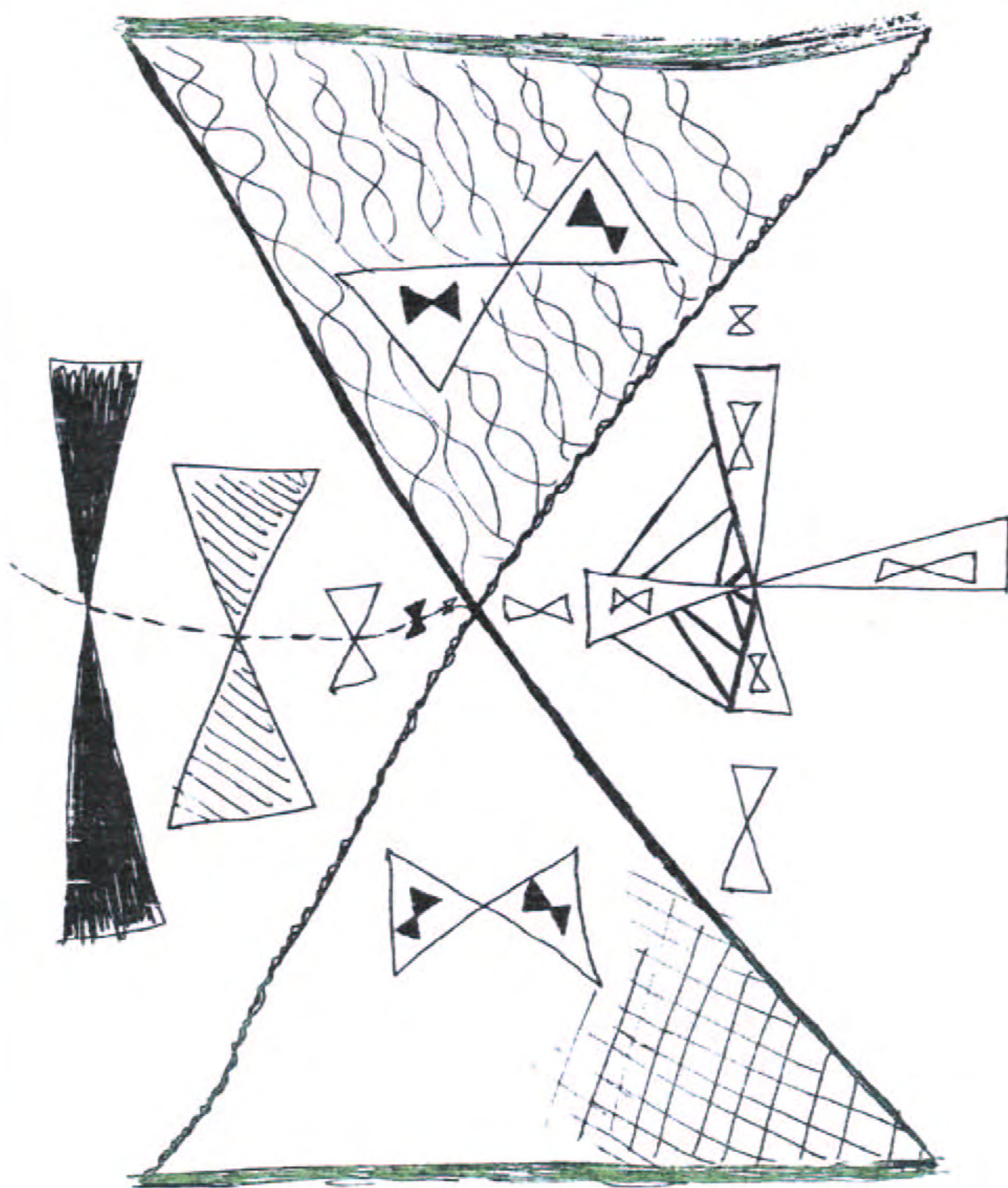


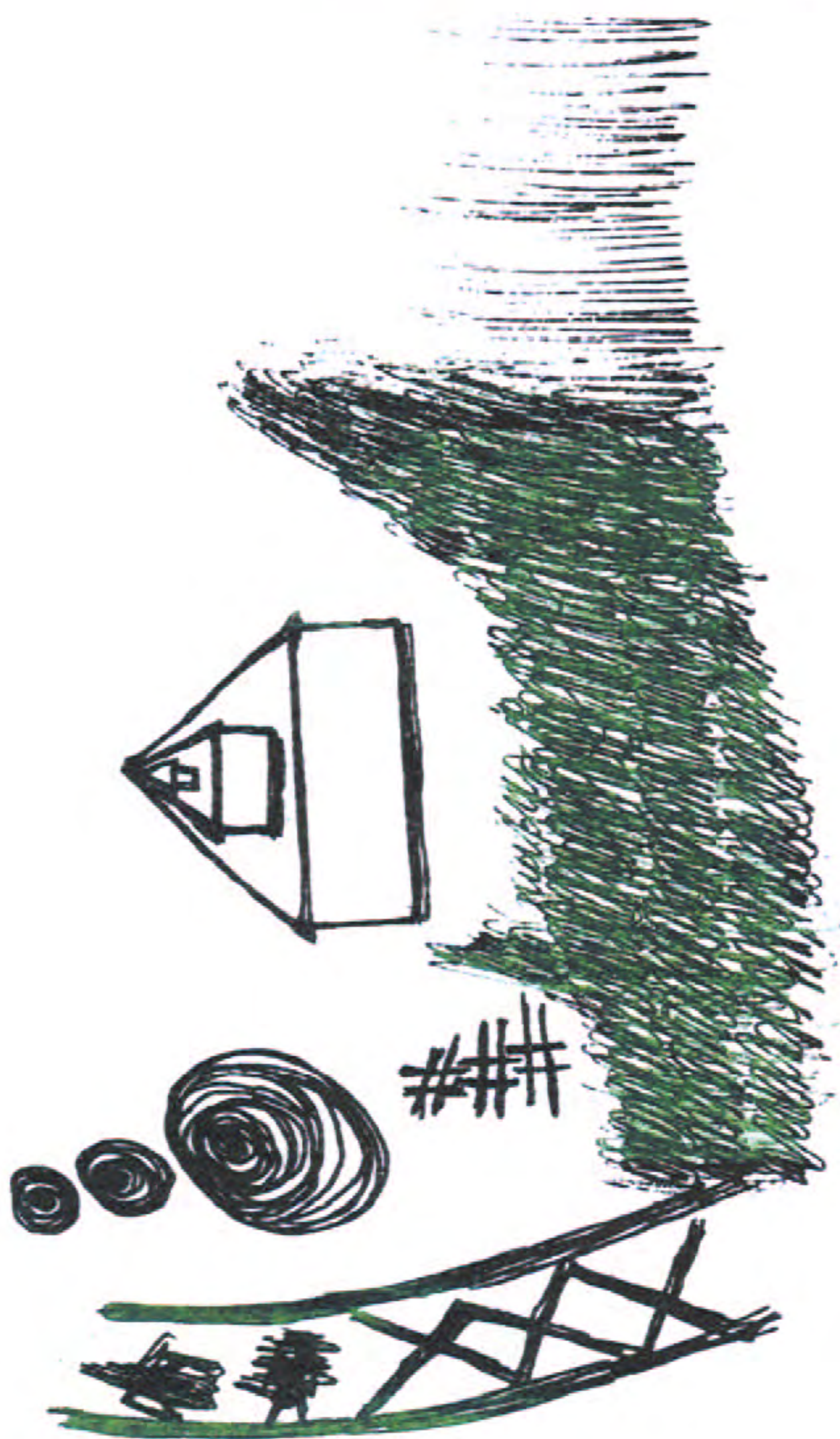


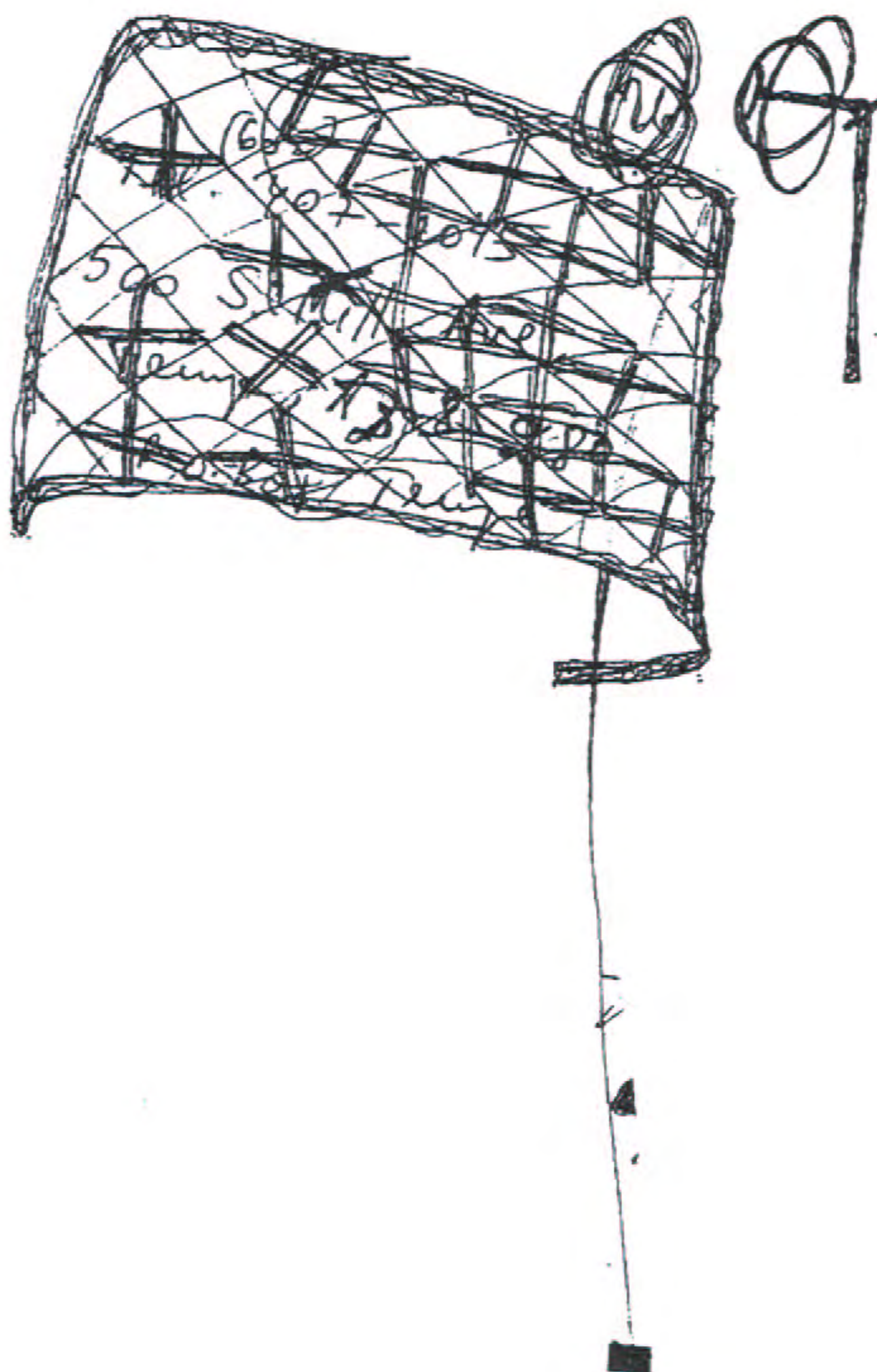
"Afrika Bambaataa"

BAD DRAWINGS









NON-DRAWINGS

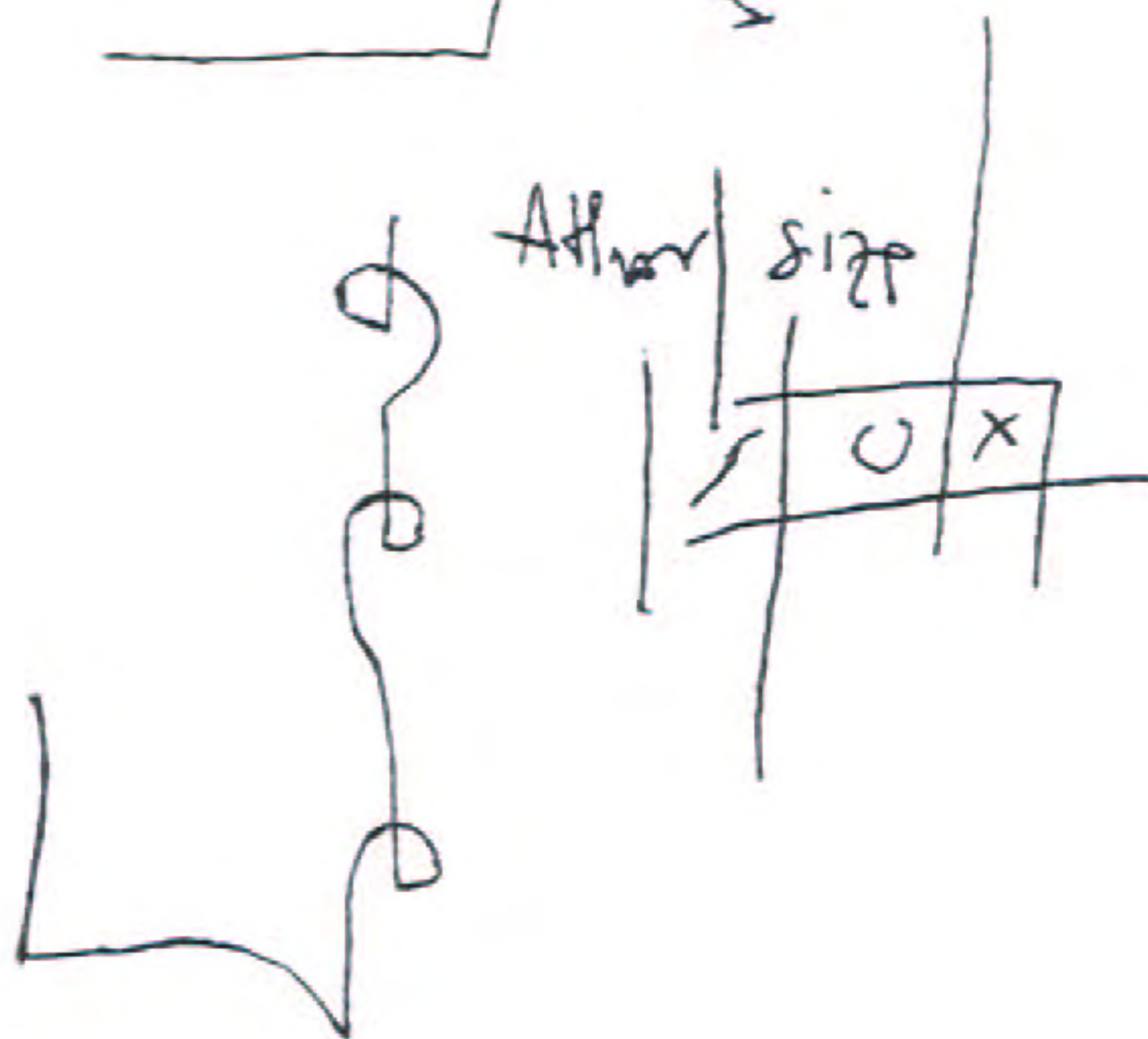


— response journal —

~~scribble~~

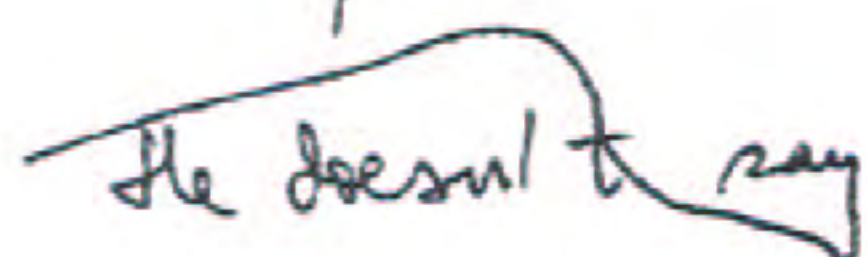
~~scribble~~

all of those stories
his leg



Author size

✓	0	x



Di π_{45}

Wann nicht de Juss

ASTH - $\checkmark$ brought

automaticism

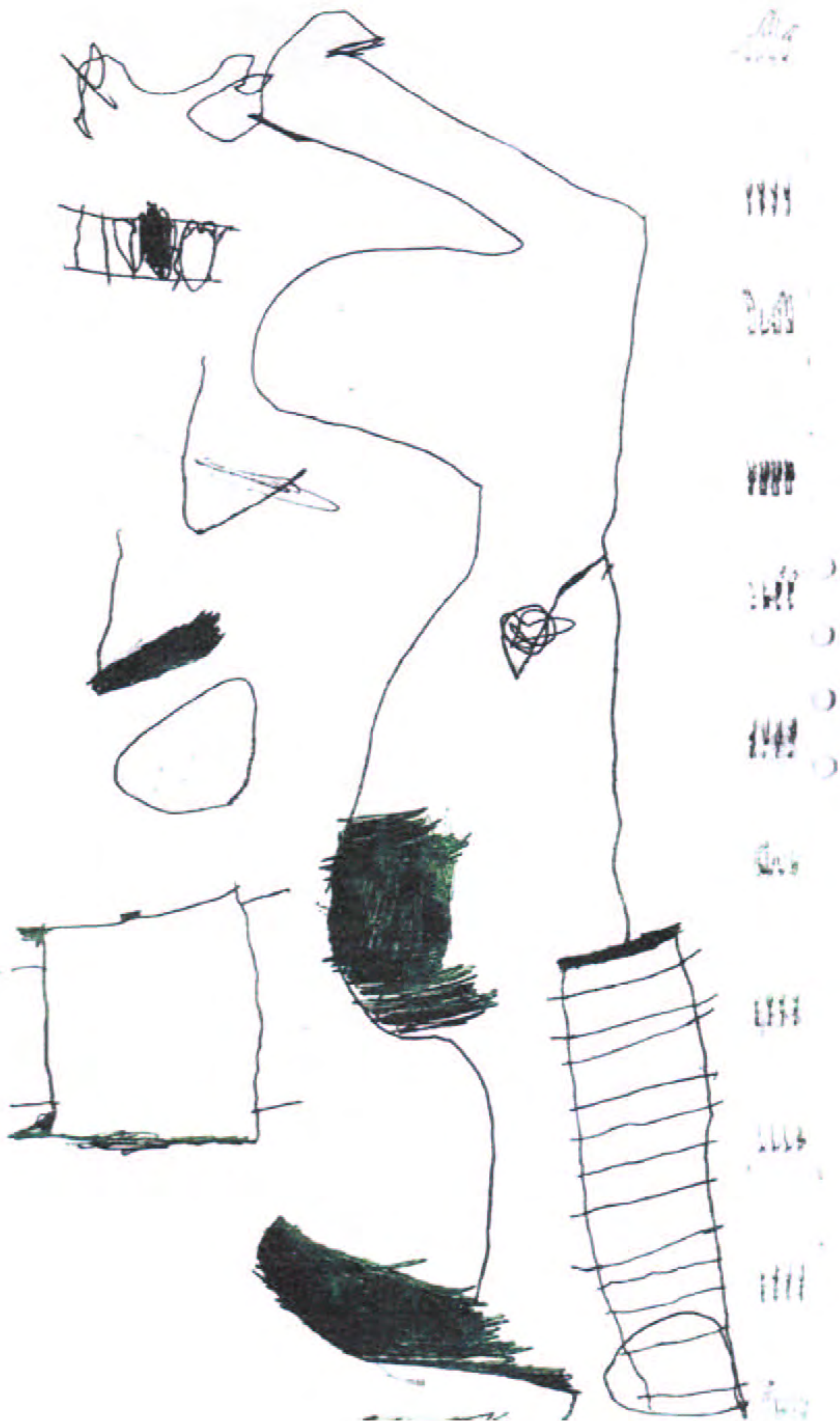


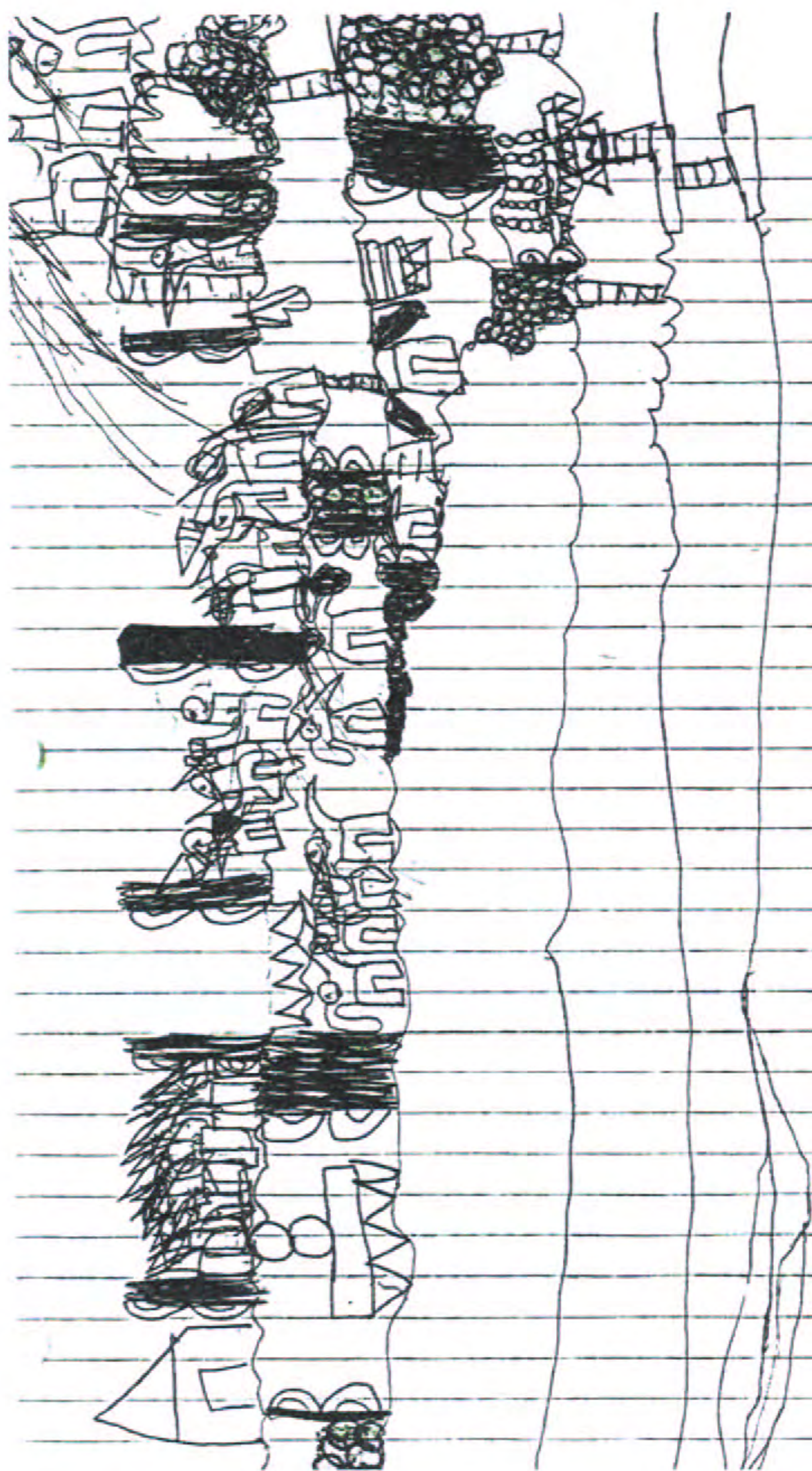
五 十 五 五

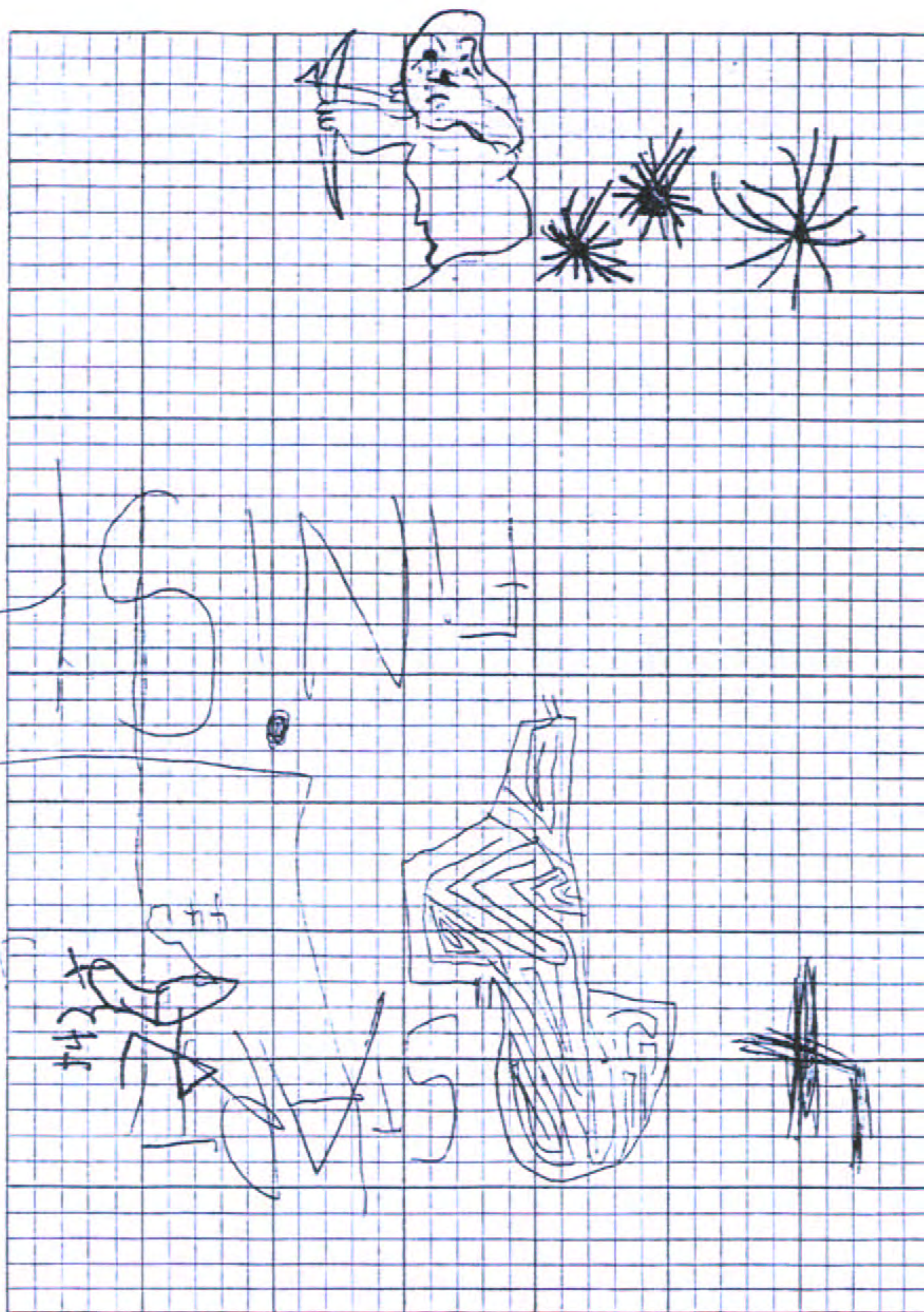
I write in Japanese
because

I don't know ^{because} Japanese.

0 5
x
x
x

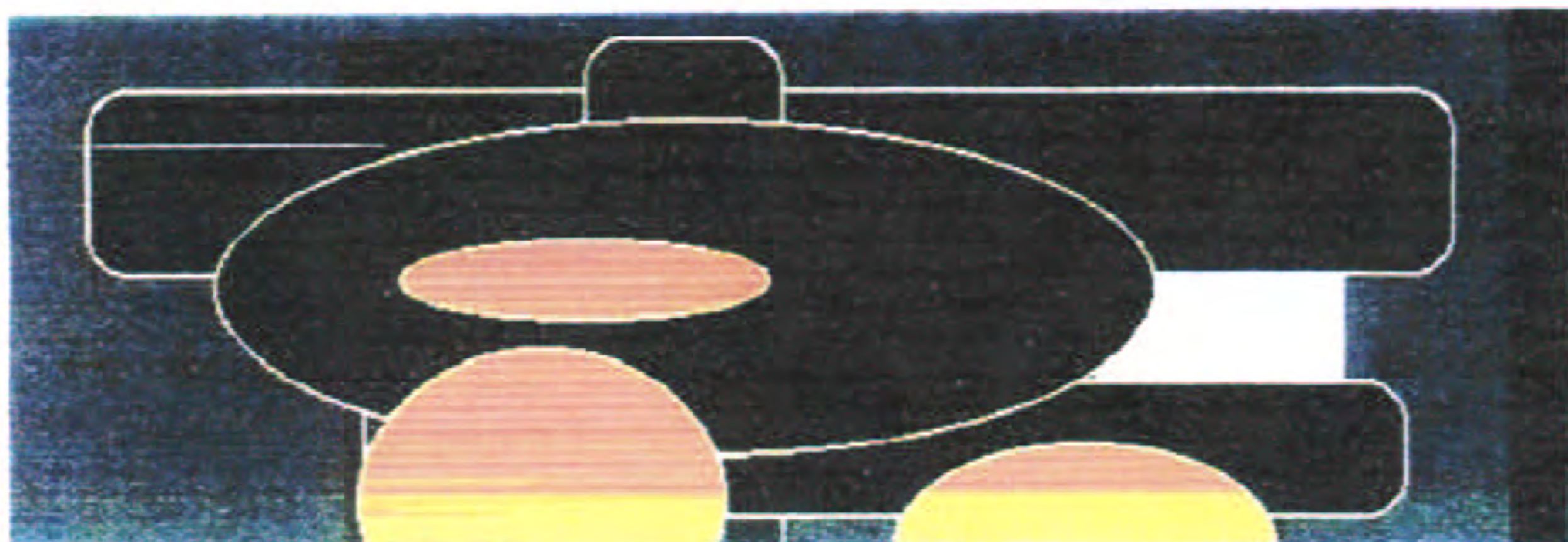


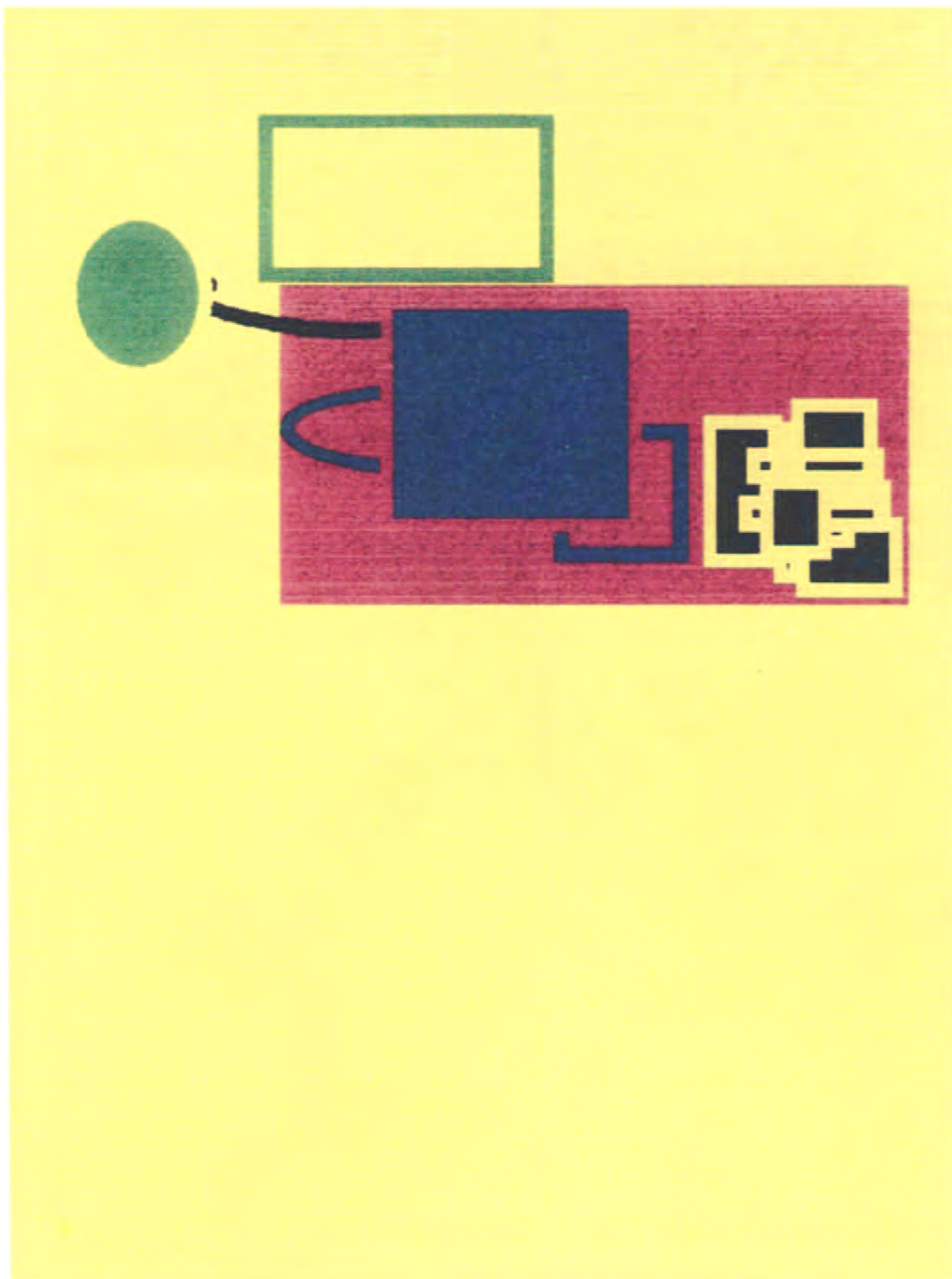




COMPUTER DESIGN



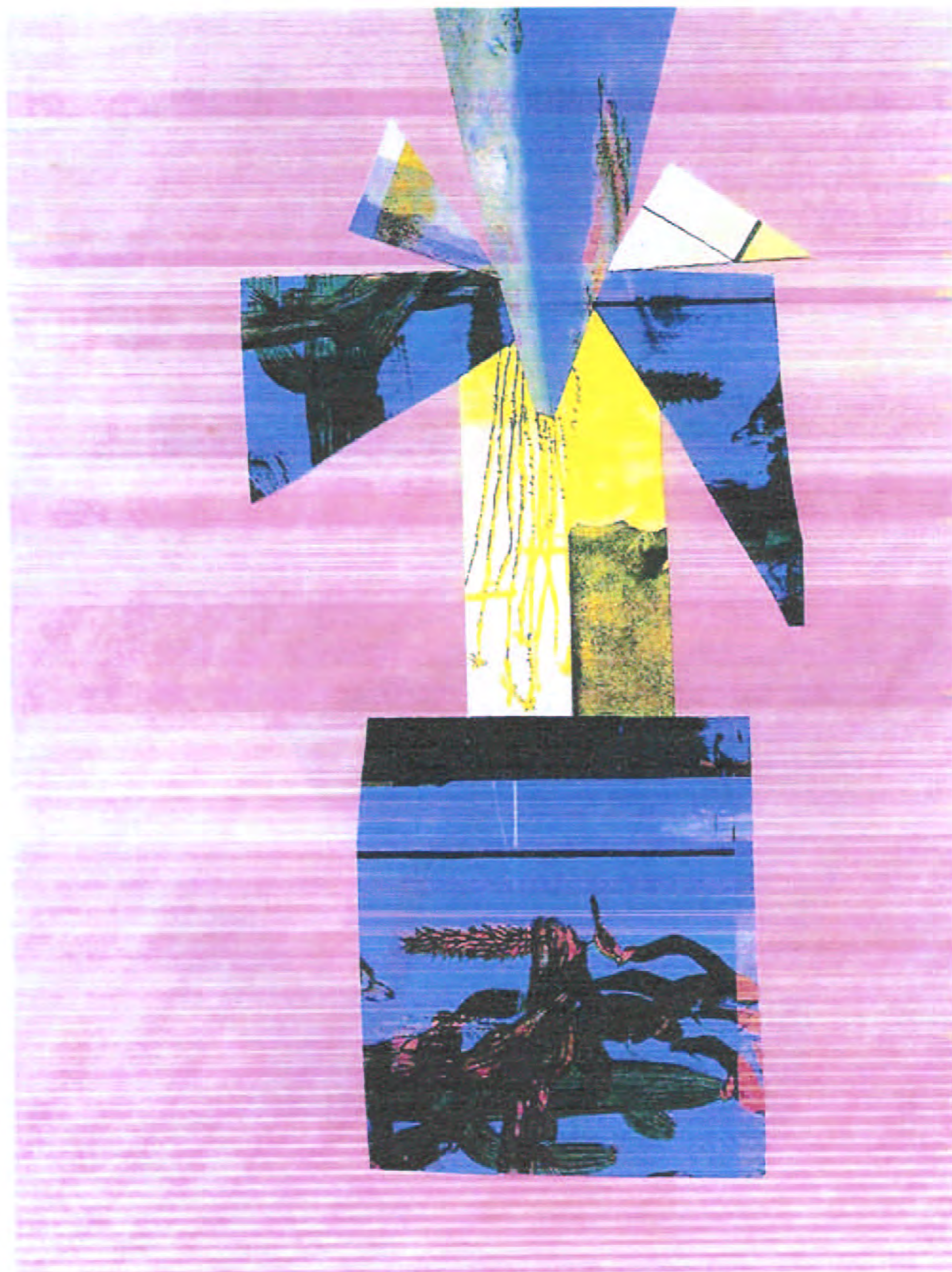


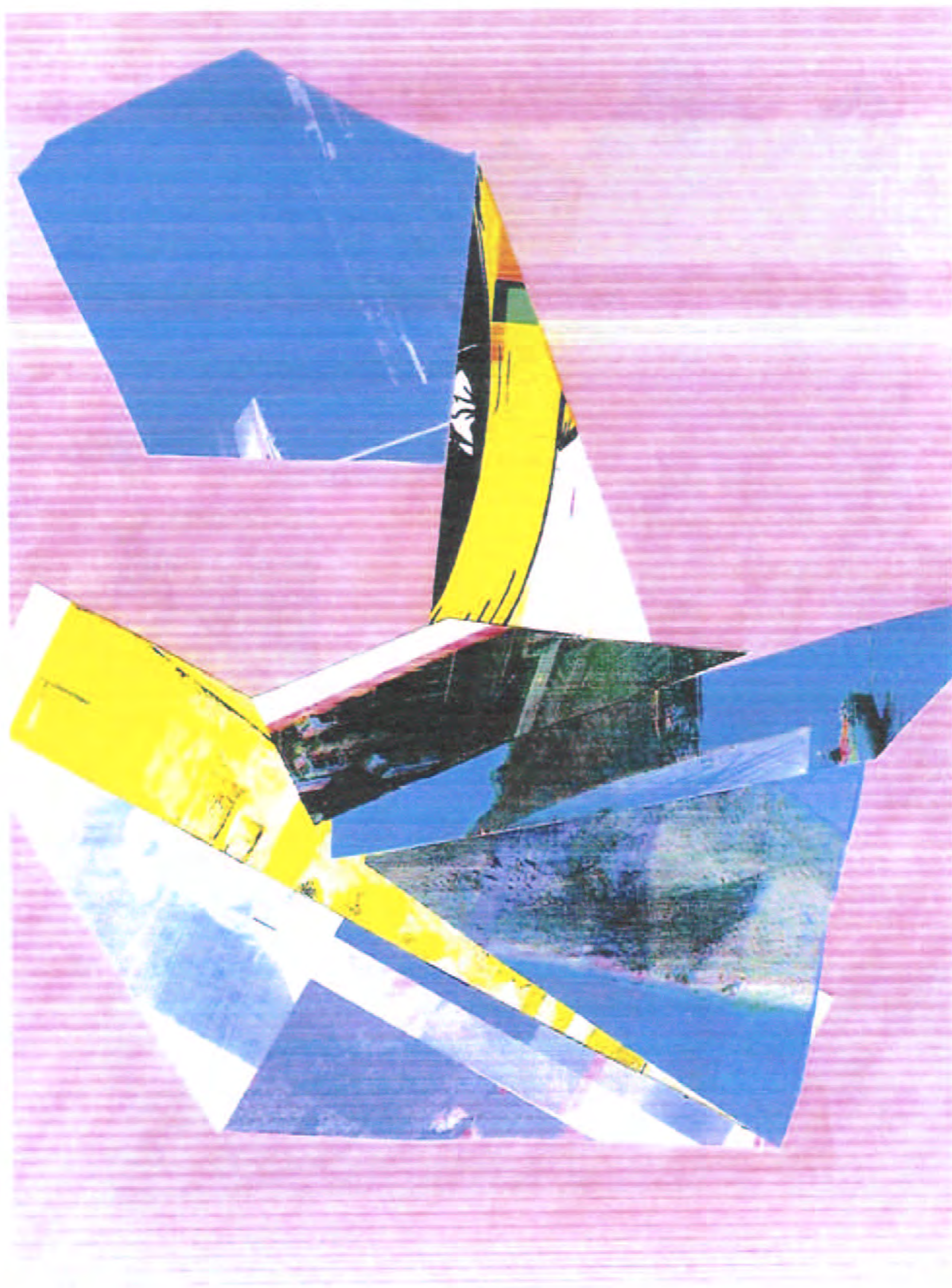




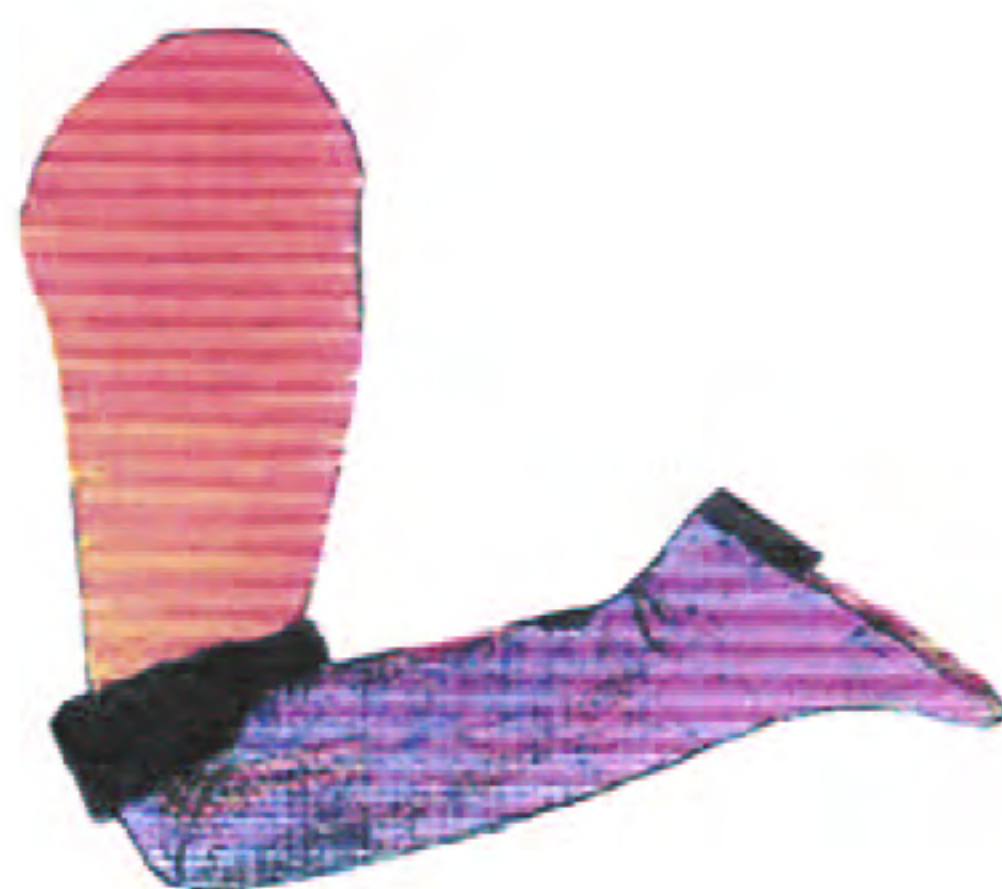
SEMI - COLLAGES
(“Neutrosophic Life”)







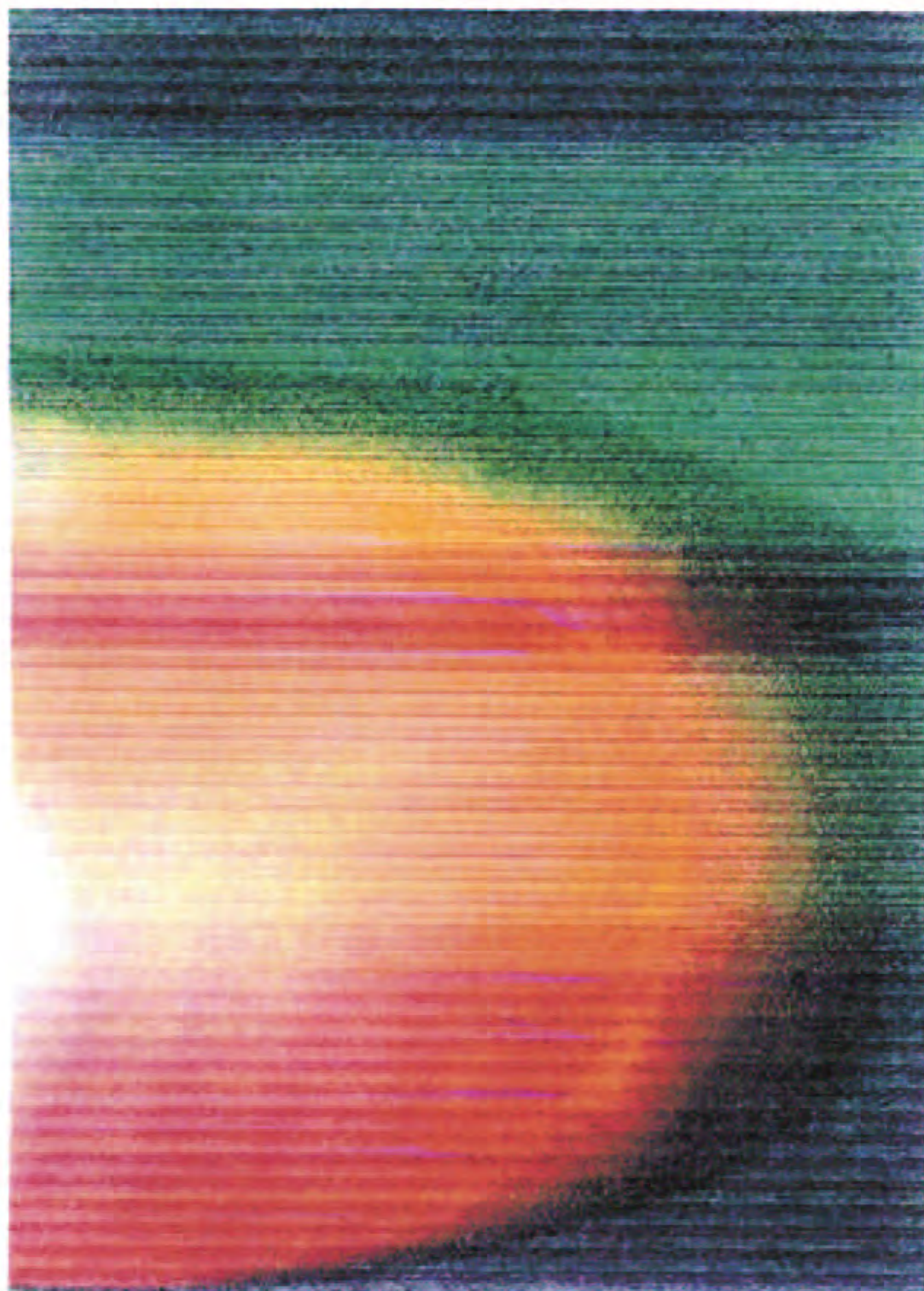


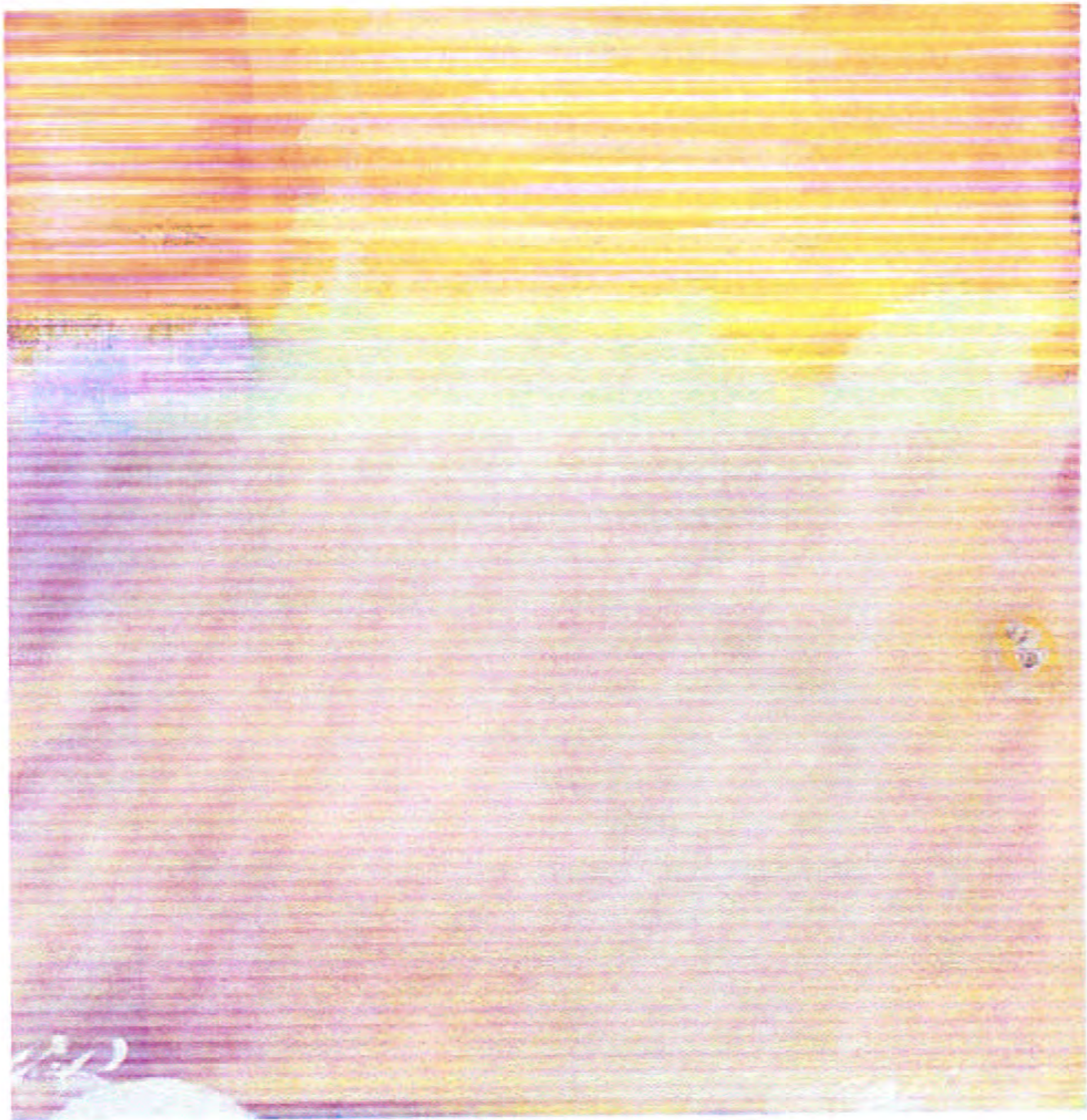


SUPER - PHOTOS













Contents :

ABSTRACT LANDSCAPES (1-13) :	3
EXTRA - FLOWERS (1-6) :	17
SUBMARINE COUNTER-IMAGES (1-2) :	24
OVERPAINTINGS ("Kachina, the Great Spirit of Indians") (1-12) :	27
GEOMETRISM (1-9) :	40
SNAPSHOTS (1-6) :	50
SCRIBBLINGS (Ante-Art & Post-Art) (1-30) :	57
MECHANICAL DRAWINGS (1-3) :	88
ANTI-DRAFTS (1-4) :	92
PARADOXIST DRAWINGS (1-5) :	97
BAD DRAWINGS (1-4) :	103
NON-DRAWINGS (1-6) :	108
 COMPUTER DESIGN (1-4) :	115
SEMI-COLLAGES ("Neutrosophic Life") (1-5) :	120
SUPER-PHOTOS (1-6) :	126

Printed in Roumania
ABADDABA Publishing House
Telefax 004059153792
E-mail abaddaba@rdsor.ro
Computer design: Theo Virt

ISBN 973-8102-00-6

Florentin Smarandache got a M. Sc. degree in both Mathematics and Computer Science in 1991, and a Ph. D. in Mathematics in 1997. He published 42 books in mathematics (number theory, non-euclidean geometry, logic), philosophy, literature (poems, short stories, novel, dramas, essays, translations), and art (experimental drawings, paintings, computer design, collages, photos) in Romanian, French, and English.

In mathematics there are several entries named Smarandache Functions, Sequences, Constants, and Paradoxes in international journals and encyclopedias. He generalized the fuzzy, intuitive, paraconsistent, multi-valent, dialetheist logics to the <neutrosophic logic> (also called "Smarandache Logic" in the Denis Howe's Dictionary of Computing, England) and, similarly, he generalized the fuzzy set to the <neutrosophic set>. Also, he proposed an extension of the classical probability and the imprecise probability to the <neutrosophic probability>, that he defined as a tridimensional vector whose components are real subsets of the non-standard interval $[0, 1^+]$.

In philosophy he introduced the <neutrosophy>, as a generalization of Hegel's dialectic, which is the basement of his researches in mathematics and economics, such as <neutrosophic logic>, <neutrosophic set>, <neutrosophic probability>, <neutrosophic statistics>.

In arts and literature he founded in 1980's the avant-garde movement called PARADOXISM, which has many advocates in the world. It is based on the excessive use in artistic and literary creations of contradictions, antitheses, antinomies, oxymorons, paradoxes - both at the small level and the entire level of the work - making an interesting connection between mathematics, philosophy, and literature. He introduced the <paradoxist distich>, <tautologic distich>, and <dualistic distich>, inspired from the mathematical logic. Literary experiments he realized in his dramas "Country of the Animals", where there is no dialogue!, and "An Upside-Down World", where the scenes are permuted to give birth to one billion of billions of distinct dramas! In 1999 he was proposed for the Nobel Prize in Literature.

But art was for Dr. Smarandache a hobby. He did: - graphic arts for his published volumes of verse: "Anti-chambres/ Anti-poésies/ Bizarries" (mechanical drawings), "NonPoems" (paradoxist drawings), "Dark Snow" & "Circles of light" (covers); - paradoxist collages for the "Anthology of the Paradoxist Literary Movement", by J. -M. Levenard, I. Rotaru, A. Skemer; - covers and illustrations of books, published by "Dorul" Publ. Hse., Aalborg, Denmark; - illustrations in the journal: "Dorul" (Aalborg, Denmark).

Many of his art works are held in "The Florentin Smarandache Papers" Special Collections at the Arizona State University, Tempe, and Texas State University, Austin (USA), also in the National Archives of Vâlcea and Romanian Literary Museum (Romania), and in the Musée de Bergerac (France).

He contributed to 50 scientific journals, and to over 100 literary and artistic journals from the world map.