

Lec. HOWARD DAVIS.

THE STRUCTURE OF PATTERNS.

- ◆ THE ENVIRONMENT HAS A STRUCTURE OF ITS OWN.

[CENTER FOR ENVIRONMENTAL STRUCTURES ...]

THE PARTS OF THE ENVIRONMENT HAVE A CERTAIN RELATIONSHIP WITH EACH OTHER AND ARE REPEATED IN SOMETHING WHICH HAS A STRUCTURE.

→ 1. ASPECTS OF THE STRUCTURES ARE REPEATED.

→ 2. THE STRUCTURES ARE LIMITED IN NUMBER.

- ◆ THE NATURE OF THE RELATIONSHIPS DETERMINES THE FORM AND PROPERTIES A STRUCTURE HAS.

example: a) The ATOM is determined by the relationship of protons, neutrons and electrons.

b) A Tree only exists and is put in a specific way because of the particular relationship of leaves to branches, branches to trunk, trunk to roots, roots to soil.

WHAT IS IMPORTANT IN THE PHYSICAL WORLD IS THE RELATIONSHIP OF THINGS TO EACH OTHER

- ◆ THE PHYSICAL STRUCTURE AND THE ACTIVITIES ARE RELATED.

example: a Beach scene.

1. There are a limited number of activities which are occurring. Swimming, Volleyball, biking...

i.e. People are in Patterns of activities

2. Each activity has identified with it a certain spatial configuration.

- ◆ IT IS GENERALLY TRUE THAT IN DAILY LIFE:

① THE HUMAN ACTIVITIES RECURR AGAIN AND AGAIN.

② ASSOCIATE WITH IT A TYPICAL SPATIAL REALM.

(The setting reinforces the activity and activity only occurs in that setting.)

M. Oct. 2. 78 ⁽²⁾

→ People tend to describe nature in its structural parts. EXAMPLES:

① → DOORS ARE DIFFERENT BECAUSE:

1. EACH HAS HINGES, FRAME, KNOB, HUMAN HEIGHT.
2. EACH HAS AN INSIDE AND AN OUTSIDE.

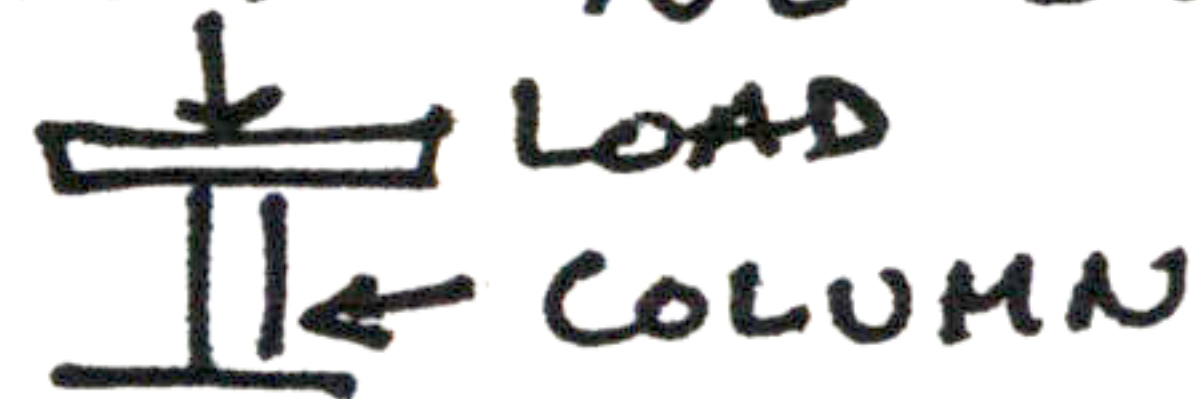
WHAT MAKES THEM DOORS ∴ IS THE WHOLE SETS OF RELATIONSHIPS WHICH ARE OCCURRING.

② → GOTHIC: REFERS TO A PARTICULAR ARRANGEMENT OF PARTS TO GIVE THE CHARACTER OF THE CHURCH.

③ → STREETS: WHAT MAKES A STREET IS THE BUILDINGS AND HOUSES WHICH SURROUND IT AND ITS RELATIONSHIP TO THEM.

④ → PORCHES: ALL DIFFERENT PORCHES - Yet ALL ARE RELATING THE HOUSE TO THE STREET

⑤ → COLUMNS: RELATIONSHIP OF THE LOAD + THE BASE
THE ACTION NOT NECESSARILY A HUMAN ONE



→ EACH OF THESE NOT ONLY DEFINES A RELATIONSHIP OF PARTS BUT ALSO RELATIONSHIPS OF RELATIONSHIPS. FORCING THE THING TO BE WHAT IT IS.

→ EACH RELATES PHYSICAL + NON PHYSICAL FORCES.

~ ◆ ~ THE ABILITY TO SEE THE WORLD IN TERMS OF THESE CONNECTIONS IS THE FIRST STEP TO BE ABLE TO UNDERSTAND THIS INTEGRATION AND UNITY (DESCRIBED AS THE QUALITY) AND TO TRY AND BRING IT ABOUT...

C. ALEXANDER:

N. Oct. 2, 78 (3)

→ PATTERNS ARE ALWAYS USED. EVEN THE UGLIEST BUILDINGS USE PATTERNS.

◇ THE EXTENT TO WHICH THE WORLD COULD BE KNIT TOGETHER IN THE WAY DESCRIBED ~~IS~~ DEPENDS COMPLETELY AND ON THE GOODNESS AND THE STRENGTH OF THE CONNECTIONS WHICH ARE USED TO MAKE IT WORK TOGETHER.

AND THAT HAS TO DO WITH THE NATURE OF THE PATTERNS THEMSELVES.

◇ BY ANY ONE PART OF THE WORLD IS CHARACTERIZED BY A CERTAIN NUMBER OF PATTERNS AT A CERTAIN TIME. THESE ARE LIMITED IN NUMBER. BERKELEY MAYBE IS GOVERNED BY 200 PATTERNS. 18TH CENTURY PARIS MAYBE 1200...

THESE CONSTITUTE THE STRUCTURE OF THE ~~PATTERNS~~ STRUCTURE.

THIS HAS NOTHING TO DO WITH WHETHER THEY ARE GOOD OR BAD. IT IS SIMPLY A FACT ABOUT THE WORLD.

~ QUESTIONS ~

C. ALEXANDER:

→ IF YOU GO TO AN ELEMENTARY CHEMISTRY CLASS AND YOU'RE TOLD THAT THERE ARE ONLY 92 ELEMENTS AND THAT EVERYTHING IS MADE OF THESE ELEMENTS. THIS IS MINDBOGLING AND SOMEWHAT ~~IS~~ DISTURBING.

→ A SIMILAR THING IS PROPOSED BY THE PATTERNS ONLY THEY ARE CULTURE BOUND AND VARY FROM TIME TO TIME.

→ AT ANY ONE TIME OR PLACE ALL OF THIS COMPLEXITY IS GOVERNED BY A VERY VERY SMALL NUMBER OF PATTERNS OR BUNDLE OF RELATIONSHIPS.

◇ THE PRESENCE OF AN ARCHITECT IN THIS SCHEME IS ALMOST INSIGNIFICANT

→ ONE IS IN THE FRAME OF MIND TO DESIGN THINGS ONE TENDS TO THINK OF THEMSELVES AS IMPORTANT.

" BUT WHEN ONE REALIZES THAT WE'RE OPERATING IN A SCHEME OF THINGS WHERE IN A PARTICULAR TIME + PLACE, YOU'VE GOT A CERTAIN NO. OF THESE UNDERLYING PATTERNS WHICH ARE

M. Oct. 2, 18^④

RESPONSIBLE FOR THE WAY THINGS WORK IN
THE WORLD, FOR THE WAY BUILDINGS ARE,
AND THE WAY HUMAN ACTIONS IS, THAT IS AS
MIND BOGGLING AS THE 92 ELEMENTS. AND TO
HAVE EGOMANIAC DELUSIONS ABOUT WHAT ONE
IS CAPABLE OF DOING AS AN ARCHITECT DESIGNING
A BUILDING IN THAT SET-UP IS TO FUNDAMENT-
ALLY MISUNDERSTAND THE SITUATION."

≡ THAT IS THE IMPORTANCE OF ~~THIS~~^{IS} LECTURE ≡



ARCH. 100

WEEK 2.

Wed Oct 4.78.

C. ALEXANDER.

HOW ARE PATTERNS GENERATED.

LECTURE HAS 2 PARTS: 1. GENERAL
2. SPECIFIC TO PATTERNS.1. THE HABIT OF THOUGHT REQUIRED IS THAT OF A GENERATIVE ATTITUDE.◇ STRUCTURES IN THE WORLD HAVE A GENERATIVE CHARACTERISTIC. NATURAL STRUCTURES ARE GENERATED.→ POWERFUL WHEN ORDERLY + HEALTHY
AND
→ WEAK WHEN DISORDERLY + DISEASED.◆ OF PRIME IMPORTANCE How IS THE STRUCTURE GENERATED?- TRADITIONAL PROFESSION WOULD SAY "DESIGN IT"
IF WE'RE CONCERNED WITH MAKING GOOD HEALTHY ENVIRONMENTS, THEN THE PROCESSES WHICH GENERATE STRUCTURES ARE OF PRIME IMPORTANCE.

NOW THE PATTERN LANGUAGE IS A LARGE PART OF HOW A STRUCTURE IS GENERATED BUT IT IS NOT ENOUGH.

EXAMPLE: CONSIDER A SALT CRYSTAL. CUBICAL IN FORM, THE SODIUM + CHLORINE CRYSTALS ATTACH THEMSELVES IN A PARTICULAR FASHION.



- WHY? -

THESE ATOMS ARE GOVERNED BY THE SPEED, THE SHAPE, SIZE OF THE MOLECULES. LEADING TO THE FINAL SHAPE OF THE SALT CRYSTAL.

→ GENERATIVE PROCESS ACCOUNTS STEP BY STEP FOR HOW THE THING IS BUILT UP GRADUALLY & UNTIL ONE UNDERSTANDS THE FORM AS A RESULT OF THE PROCESS.

HISTORICALLY IT IS A NEW WAY TO LOOK AT THINGS. (SEE D'ARCY THOMSON IN BIBLIO.)

→ IN MORE RECENT YEARS THE COMPUTER HAS HELPED UNDERSTAND THE GENERATIVE PROCESS.

Wed. Oct. 4. 78

EXAMPLE I. SIMULATE CAR BEHAVIOUR ON A FREEWAY.
GIVING A STREAM OF DOTS RULES TO FOLLOW
UNTIL IT COULD REPRODUCE WHAT COULD
MOST LIKELY TO OCCUR IN REAL LIFE.

EXAMPLE II: AN OCEAN WAVE BREAKING.

TO SIMULATE AND UNDERSTAND THE RULES
GENERATING THE BEHAVIOUR OF THE WATER
DROPLETS. AS A STRUCTURE, IT IS GENERATED
BY A SMALL NUMBER OF RULES.

IN 2 MAJOR FIELDS THIS METHOD IS BEING APPLIED:
GENETICS + LANGUAGE.

→ GENETICS: THE FORM OF THE ORGANISM IS DETERMINED
BY ITS GENETIC MATERIALS. BUT HOW?

→ SOMEHOW THROUGH A VERY COMPLICATED PROCESSES
OF SYNTHESIS, THE PRESENCE OF THESE INSTRUCT-
IONAL CODES TRANSMITS DIFFERENTIAL RATES OF
GROWTH ON THE GROWING EMBRYO SO THAT
THE WHOLE LIVING THING IS PRODUCED.

ALL AGREE: THERE ARE RULES, WHICH OUT OF THEIR
INTERACTION (UNDER CERTAIN ENVIRONMENTAL
CONDITIONS) STRUCTURES ARE PRODUCED.

IN PARTICULAR, A GENERATIVE PROCESS RELATED TO
THE OCCURENCE AND REOCCURANCE OF STRUCTURES
IN THE ENVIRONMENT IS CALLED A PATTERN LANGUAGE.

→ LANGUAGE: CHOMSKY DEVELOPED THEORY OF GENERATIVE
GRAMMAR. THE QUESTION: HOW TO GET A
COMPUTER TO CONSTRUCT PHRASES AND
SENTENCES?
HE WAS ABLE TO SET OUT GENERATIVE RULES
TO PRODUCE SENTENCES.

LANGUAGE: A SET OF ENTITIES AND RULES
GOVERNING THE COMBINATION OF THESE
ENTITIES AND RULES BEING CAPABLE OF
PRODUCING COHERENT MEANINGFUL SENTENCES.

2. PATTERN LANGUAGE:

WHERE
→ ~~HOW~~ DO THESE PATTERNS RE COME FROM?

→ HOW IS IT THAT A GREEK FARMER BUILDS

Wed OCT. 4.78

HIS HOUSE EXACTLY IN A CERTAIN WAY?

ANSWER: THERE IS A COMBINATORY SYSTEM SIMILAR TO LANGUAGE BY WHICH ELEMENTS ~~ARE~~ + RULES ARE COMBINED TO PRODUCE BUILDINGS.

IN GENERAL, THERE ARE RULES WHICH GOVERN THE STRUCTURE OF THE ENVIRONMENT. RULES OF THUMB, U.B.C. CARPENTERS HANDBOOKS, etc. THESE RULES REPEAT THEMSELVES MUCH LIKE IN LANGUAGES.

IN TRADITIONAL SOCIETIES THESE RULES ARE MORE COHERENT.

— JAPANESE TEA HOUSE EXAMPLE —

→ EACH HAS CREATED SOMETHING ENTIRELY DIFFERENT USING 1 LANGUAGE.

THIS LANGUAGE IS PRECISE AND COHERENT. UNLIKE ONES IN OUR TIME WHICH ARE FRAGMENTED AND TAKE THE FORM OF CONSTRAINTS RATHER THAN HELP OPEN UP A PERSON TOWARDS CREATING BEAUTIFUL THINGS.

→ THE ENVIRONMENT IS MADE OF PATTERNS ~~AND~~ WHICH ARE A FEW AND WHICH REPEAT THEMSELVES AND ARE SPECIFIC TO ANY ONE GIVEN TIME AND PLACE BECAUSE PEOPLE SHARE THE SAME LANGUAGE.

→ AT PRESENT PEOPLE HAVE LOST CONFIDENCE IN THESE LANGUAGES BECAUSE THEY ARE FRAGMENTED.

→ IT IS IMPORTANT TO UNDERSTAND THAT THESE PATTERNS ARE DEEPLY CREATIVE THINGS, AND ONCE WE UNDERSTAND THEM FULLY:

① LANGUAGES BECOME STRONGER AND WOULD HELP A LARGER GROUP OF PEOPLE TO BUILD.

② THOSE CONCERNED WITH BUILDING COULD BECOME MORE AWARE + STRONGER AND ∴ ABLE TO WORK COLLECTIVELY WITH LARGE GROUPS OF PEOPLE WHO ARE LESS POWERFUL. WHO CAN ALSO BUILD.

