

C. W. HANSEN

EARTH'S FAMILY: TOWARD
AN EVOLUTIONARY,
ECOLOGICAL, EDUCATIONAL
EXPERIENCE

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Earth's Family

EARTH'S FAMILY

Toward an

Evolutionary...Ecological...Educational...Experience

A thesis report prepared for Architectural Program Writing

by

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for committee chairman Gifford Pierce

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I. INTRODUCTION

I am submitting this thesis proposal entitled Earth's Family in fulfillment of the requirements for a Bachelor of Architecture degree at Montana State University.

The scope of this report attempts to cover the preliminary research which is requisite to the design and planning of any structure.

This report is being presented in two basic sections.

- 1) A discussion of a personal philosophy regarding a solution to the environmental crisis has acted as a catalyst in approaching the functional design considerations essential to an architectural solution. As my proposal is of a somewhat controversial nature, I have allotted more space to the justification of its seeming necessity.
- 2) A discussion of functional considerations and their accompanying space requirements.

The physical, economic, and background considerations are mentioned in this report to the extent of importance I place on each. All area sizes are approximated so as to preserve flexibility in planning. Also, I have allowed only a minimum of assumptions regarding a design, so as to preserve an openness and thus, the potential reality of spontaneous, involved community action regarding actual design. Priorities are of main concern in a limited economic endeavor of this nature. I have indicated what buildings should be first constructed and have planned for the

added community facilities I consider necessary in a sub-
sistance level operation.

SCHOOL OF ARCHITECTURE.....THESIS PROPOSAL October 22, 1970

In view of the world ecological "crisis" and the university's inability to provide an "Environmental Studies Center" program, one must conclude that the value of such is apparently considered nothing more than a frill or luxury.

In this light, I feel compelled to propose an interdisciplinary, comprehensive, environmental studies center experimentally focused toward possible efforts in developing a self-sufficient group (family) living experience. An intensive expanded ecological awareness and understanding would reflect the cohesive factor or purpose that is necessary toward a mutually organized effort. The emphasis of such effort would be to unite various disciplines of thought (sciences and arts) toward the relevant, urgent needs of our time. Human Survival. As such, this proposal is opposed to the institutional endeavors doomed to incomprehensible fragmented specialization.

At the present moment, I am at loss for an adequate name or label. School, College or Institute do not seem to hit the mark, as they are more commonly associated with the idea of an institution. Words and labels seem to reflect an unchanging quality, and I view this effort in light of a continual activity or life, that is in a continual state of change. Perhaps the name, if there need be one, would take on the characteristics of a verb.

C. W. Hansen

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SECTION : 1

I. Introduction discussing the indications of an environmental crisis.

As my major field of study is architecture, thereby mainly involved in the arts, I cannot, and do not begin this paper claiming any binding truths or ideologies, at the expense of any other; rather my orientation merely rests on an in-depth self-examination of personal reactions to an existential position. This position may negate sociological inquiry, in recognition that sociology is mainly oriented toward viewing the individual as part of a group, system, or nation; and as such, my direction reflects a determination to remain independent. My ideas may appear to be asocial, but I reflect this view, only in as much as to negate the conceptual confinement that a system tends to impose, as argument for a more reasoned conceptual open-mindedness or reasoned selectiveness. To further a realization of this position I shall attempt to discern the situation and frame of reference that characterize man's "present" relation to an ecological crisis.

Cities today are being faced with the absence of pure air and water, forcing man to re-evaluate his frame of reference. People are slowly becoming aware of the massive ecological imbalance that has, in effect, caught up with their life style. This orientation is directly related to what man conceives to be his destiny, and as such, encounters a coming to terms with death's eventuality, or in a larger sense, the possibility of species extinction.

Urban centers, from a biological standpoint, constitute a complex ecosystem by way of their dependence on the photosynthesis process for food production and respiration. Today, this ecosystem has been disturbed to the extent as to render it frighteningly unstable.(12,34) It has been suggested that cities, as human dominate ecosystems, do not contain the variety of total biomass needed to maintain a natural ecosystem. Science has also come to question whether man himself, through relating progress with technological change, might be the disturbing factor that renders this ecosystem uncontrollable. In view of this idea it appears that a more fundamental form of analysis is needed to possibly cope with this dilemma.

Possible solutions have been offered through attempting to slow down this rate of technological change, in order to more fully concentrate on efforts to move toward a more stable society that does not accept only change that is technologically feasible.(10) Both Harvey Cox and Marshal McLuhan adhere to a state of affairs that could realize this step through cybernetic innovation. Cybernetics being the science of communication and control. The computer as such could be used to direct a network that supposedly could optimize human awareness by programming the sensate life of the entire population.(20) By a computer controlled media we could possibly stabilize a culture's emotional climate. But to affect this step, we must realize a pro-

gram of this caliber depends on the form or nature of future society. As such, a system of this sort would require two conditions: One, that the information be accurate, and two, that action is not stifled by a bureaucratic net. These two conditions are not met by our present bureaucratic system. I agree with Max Webber's contention that a bureaucratic system is the most efficient, but in view of our present value system, I think the results would be highly unfavorable. To afford the usability of cybernetic principles we would have to develop, both mentally and spiritually to a degree at which the use of the computer would enhance human freedom, rather than destroy it. And I see little evidence that we are retreating from our ingrained values. Such a system could only function on the virtues of honesty and responsibility, what in the past has been offered by religion, but has been destroyed by organized institutionalized religion, in its tendency to resist change. In relation to technology's increased ability to afford us material wealth, it is ironic that these organizations have relaxed the emphasis on individual religious discipline in relation to the increased responsibility necessary to deal with the change in values that material wealth has provided. C. G. Jung suggests that perhaps, "It is necessary to give up the utilitarian idea of conscious planning in order to make way for the inner growth of the personality." (17)

In this light, I am convinced that the environmental deterioration we face is directly related to our increasing problems involving social change, poverty, and issues involving war. In other words, I am suggesting the environmental crisis involves much more than mere smog-control devices and air filtration units, as they are only an indication of a larger "ecological crisis"; demanding a deeper questioning of our life style, reaching beyond current cybernetic innovations and theories of social control.

The question that R. Theobald asks is "whether we have the structures we are going to need in the near future."⁽¹⁵⁾ To do this, one must expose the underlying pattern, that limits and therefore, renders the existing institutions unworkable. This approach may seem to reflect at first glance a negative character in that it challenges and questions many basic assumptions to our way of life. But, because this questioning reflects the spirit of scientific inquiry, it becomes essential to positive action.

II. Critical reflections on man's evolutionary condition

Do we really face a crisis today?...or is it a peculiar attribute of man that he always views himself at a turning point or some crisis in time? This idea may be refuted as a reflection of man's ego, in over accentuating the problems that modern man faces, or it may be man's in-nature allowing him to continually evolve. Nevertheless, it seems to exist, and history is witness to its existence. Considering change essential to life renders this idea of "crisis" a certain credibility, in relation to "reality", and modern man seems to be intoxicated with this idea. I contend that to rationally understand this aspect of change, time would have to be understood in terms of growth. The French philosopher, Bergson, reflects this idea in stating: "Duration is the continuing progress of the past which grows into the future and which swells as it advances."⁽⁹⁾ We are often prone to say change does not occur over night; which may merely reflect an inherent resistance to change. Dostoyevsky noted that, "taking a new step, uttering a new word, is what people fear most." This may now be valid considering the whole of humanity as a slowly evolving mass, but change in relation to individual consciousness occurs with every minute increment of time. Bergson also speaks to this idea, "Each moment is not only something new, but something unforeseeable;... change is far more radical than we suppose."⁽⁹⁾ Relating

change, crisis and consciousness, Hegel states, "the History of the world is none other than the progress of the consciousness of Freedom; a progress whose development according to the necessity of its nature it is our business to investigate."⁽⁴⁾ The question asking would then seem to be where are we as humanity in relation to this crisis or turning point? in order to gain a perspective concerning the orientation of "modern man".

To answer this question, we must ascertain that a scientific mode of thought or logical positivism has been the distinguishing characteristic of our civilization. We often project science as the ultimate form of knowledge, and as such, an unquestioned ruler of human life. We experience an extension of this attitude in our sociological and political makeup, where we appeal to technical experts for justification; who in turn, seek their exoneration in unquestionable scientific forms of knowledge. In relation to architecture and planning, our emphasis on comprehensive planning provides the organizational integration that is the limit of this social form. To obtain such an integration science demands an unquestioned efficiency in large scale coordination to achieve increasing manifestations of collective human power. As a result of this orientation we have achieved a material wealth never before realized by man. A negative aspect of this materialism is that it has tended to allow natural elements to assume

priority or more importance than human life: the result of which has alienated man from his fellow man, paving the path for the paranoid self-righteous use of others as mere numbers. Objectivity has, in this sense, tended to become a commanding life style in our society; giving way to an authoritative manner of regarding reality, self and others.

In relation to architecture and planning, our mere objective orientation of labels and classifications, tends to alienate that which is being perceived, resulting in a lack of understanding required for a total comprehension. Man learns to observe at distances and not as one who belongs, as part of that which he is observing.⁽²³⁾ The architect or planner, becomes one step removed from the actual experience of the "natural" world in its variety of articulate feelings. To view at a distance, one becomes aware of nothing more than the behavioural facade of the observed. Henry Bugbee suggests:

"Perhaps in all ^{strictness} ~~structures~~ we would have to realize more and more that experience is not a subject matter susceptible to objective representations and deliberate control."⁽⁶⁾

~~In other~~
In other words, no matter how individual acts may assimilate each other, these behavioral patterns cannot be justified in themselves as the only means of viewing the human being. This form of rationale, in its concentration on a specific system as a solution, seems to enclose itself, and by the limits of the enclosure to negate the system. Architecture in relation to man's spirit can recognize no

limits. Because this positivism, resulting in an objectification, tends to place limits upon the human mind, as reality being only that which is found to be scientifically meaningful, I must reject behavioral methods of inquiry as the only means of experience. This does not necessarily reject or negate the value of such inquiries, but rather affirms that systems of logical thought or rationale can only be employed as a tool to embark beyond thought so creation attains that which becomes itself. Perhaps we must enter the pragmatic world as Bugbee suggests,

"The practical importance of ethical thought lies not in its yielding a blueprint on which we might construct our lives and model actions, but in the possibility it may afford of immediate calification with regard to a foundation of like that is absolutely genuine (as opposed to optional, arbitrary, or conditional, and utterly beyond artifice or manipulation)." (6)

It is exactly this objective orientation that has allowed "Western man" the ability to project the illusion of living on an illimitable plane. As may be seen by the great western expansion. This is also indicated by his values contained by the idea that "more is better". But, what is more? In a sense, Western man is now being faced with the problem that the oriental has been living with for centuries. Wm. Barrett and Alan Watts, along with many others, suggest it may even make sense that Western man may possibly have something to learn from the Oriental thought process of looking inward to the here and now. (2)

The idea of East meeting West is substantiated today, and can be perceived as an evolutionary shift in human consciousness. The physicist Heisenberg demonstrates the unavoidable limits to human reason via his theory of "Indeterminacy". In mathematics Godel shows that any mathematical system is doomed to incompleteness.⁽³⁾ Einstein's theory of "relativity" and Gibb's theory of a "contingent universe" both reflect a probabilistic universe beyond the deterministic nature of Newtonian physics. Freud and Jung both adhere to ideas that human behavior, and thoughts contain elements of the irrational, rendering man's actions relative to his situation. C. G. Jung states,

"The gift of reason and critical reflection is not one of man's outstanding peculiarities, and even where it exists proves to be wavering and inconsistent."⁽¹⁸⁾

This very idea of a contingent universe refutes the static materialistic, conceptual outlook, thus allowing a dynamic remolding activity of the mind. Bergson notes:

"That we all naturally incline to materialism because we tend to think in terms of space; we are geometers all. But time is as fundamental as space; and it is time, no doubt, that holds the essence of life, and perhaps of all reality."⁽⁸⁾

De Chardin notes:

"The crisis man faces is a direct result of his confrontation with space-time in non comprehension leading to a disoriented state and human anxiety. How do we live, while recognizing the magnanimity of the cosmos? What can we ultimately hang on to? and where are we going?"⁽²⁶⁾

Life, from an evolutionary point of view, negates the problem of separation between subject and object, although in relation to man's immediate materialistic tendencies subject and object are separated. Will Durrant says:

"Materialism is like a grammar that recognizes only nouns, but reality like a language, contains actions as well as objects, verbs as well as substantives, life and motion as well as matter." (9)

Life viewed as a penetrating flow dissolves the separation of space-time, matter-mind, and subject-object. A consciousness of evolution allows movement to be the measure of progress and not material gains. Julian Huxley explains this idea of evolution as man discovers that "he is nothing else than evolution become conscious of itself," (15) or in terms of another evolutionistic thinker, De Charden:

"The consciousness of each of us is evolution looking at itself and reflecting upon itself.

"Blind indeed are those who do not see the sweep of a movement whose orbit infinitely transcends the natural sciences and has successively invaded and conquered the surrounding territory--chemistry, physics, sociology, and even mathematics and history of religions." (26)

It was a tendency of earlier Darwinian investigation to view the evolutionary process merely in terms of a continual physical development, thereby exemplifying this error of objective scienticism in separating subject and object. Again this illustrates the pit-fall of an objectified orientation regarding man or scientist in this case, removed from the continual flow of life. "It did not occur to the first evolutionists that their scientific

intelligence had anything to do in itself with evolution." (X)

Since man cannot be separated from the unceasing evolutionary flow, his emergence from the biological sequence of adaptation to a psychological mind consciousness era is regarded as a dominate characteristic of a species. In other words, the fact that man can consciously adapt allows him dominance. Julian Huxley demonstrates this idea by noting five psycho-social, historical thresholds that demonstrate man's advancement.

- 1st The first system, or primitive society, as we know it, reflected a tribal organization whose material welfare was primarily dependent upon hunting and food gathering.
- 2nd The second phase demonstrated a developed agriculture, and the implementation of domestic animals. The resulting social system was a disintegration of tribal ties initiating small towns and villages.
- 3rd The third phase by the growth of trade routes initiated the idea of organized cities. A more sophisticated social system developed into casts, professions and guilds.
- 4th The "age of enlightenment" Renaissance (Rebirth) and Reformation characterized by an emphasis on scientific inquiry and organized objective orientation was the fourth stage. (15)
- 5th The fifth stage of development was a result of the industrial revolution, which preceded a specialized technology. As a result of improved technological advances the human population growth rate increased immensely, and the adverse effects of technology (pollution, etc.) could be thought of, in relation to history as an abnormality; but in relation to evolution they merely become the "natural development of a unique species." What is abnormal then becomes this species (man's) inability to now rationally contain itself, in limiting the furthering of such atrocities. The idea of man as a "conquerer of nature" free from biological laws was realized and substantiated by this technological revolution.

Each of these systems altered the organized conceptual orientation of man toward his environment, social role, and his destiny. The one common element to all these systems was an emphasis on competition which follows the evolutionary idea of survival as a "succession of improved dominate types." (15) Hegel writes concerning competition:

"Passions, private aims, and the satisfaction of selfish desires, are on the otherhand most effective springs of action. Their power lies in the fact that they respect none of the limitations that justice and morality would impose on them, and that these natural impulses have a more direct influence over man than the artificial and tedious discipline that tends to order and self-restraint, law, and morality...and we may affirm absolutely that nothing great in the world has been accomplished without passion." (4)

In view of this and history, we see competitive groups and divergent trends of thought run a limited gambit, whereas only in terms of evolution do they contain the seeds of self-correction.

The question now, is can we today, in a competitive system achieve the necessary co-operative effort, in view of the collective manifestations of human power and potential? My contention throughout this paper is that we cannot rationally speak of competition in relation to a group effort or particular system. We can, and must speak of competition only in relation to the individual, and cooperative effort only in terms of an organized system. Systems cannot contain the competitive nature of the individual and therefore cannot be based on it. All the power,

resulting from a system based on individual competition in the world cannot insure a cooperative effort. Cooperation only rests on the realization of a common aim or destiny.

The idea of man's consciousness, by way of his ability to externalize his intellect in technical systems, is demonstrated by his changing traditions and various concepts of culture, as opposed to mere genetic transformation. Institutions of social and political systems, as culture, reflect man's adaptation to a specific point, while at the same time attempting to contain or preserve what was before, thus tending to limit complete adaptation or change.⁽¹⁵⁾ This seemingly has projected the illusion of a more direct control of future development. These past systems have, for the most part, developed according to their relationship to the "natural" environment, thus determining their traditions and customs. This "nature" determined adaptation, in view of today's advanced unlimited technological potential, becomes meaningless, thus allowing man to deviate from this man-nature relationship. Man no longer has to conquer nature, but must contain nature. Jaques Ellul indicates two essential differences in this relationship:

- 1) That western man lives in a tech environment-assumed to be no longer of natural surroundings.
- 2) And because of this relationship man's adaptation can no longer be spontaneous, but must be conscious and voluntary.

He notes that even where nature still exists unaltered by

man, that it is thought of in voluntary terms, which are essentially technique, i.e. agriculture, sports, and organized travel. All these ideas are of a conscious voluntary nature. As technique tends to form our environment; technology tends to overstep the function of a tool between man and nature as it becomes an end in itself, forcing ecology to be viewed as an adaptation to technical environment. This overstepping also tends to perpetuate the illusion of man's work being greater than man himself.⁽³⁰⁾

This technique is also perpetuated in our political system by means of a mass-media rendering the citizen's experience removed from political reality. No matter how true information is, the volume is so great and so complex that the citizen is, in a sense, lost in his responsibility to make valid decisions. This idea has also alluded man into viewing the possibility of psychic manipulation. Adaptation to a technological environment must be contained by a conscious, voluntary response, in contrast to spontaneous, instinctual response, in order to dispel the illusions they both tend to create.⁽³⁰⁾ This does not necessarily imply the idea of an ever-expanding technology, but does indicate that man's response must be geared to an individually willed consciousness of technique. In other words, man's adaptation demands a consciousness of his development.

The inventions of science have in the past been the vehicle of thought to insure an increased probability for

survival, by the provision of a vast material wealth. But today we witness the illusory nature of this idea in relation to social and political systems faltering attempts to relieve man of social burdens by means of this ever increasing material well being. The growth of mental illness and psychiatry indicate the failure of these systems to cope with what they propose to relieve. It is relatively simple to see how institutionalized systems tend to invent other systems, and thus further the initial problem. This all happens under the guise of progress, or innovation, but is nothing more than re-invention. Progress, in this sense, tends to project the illusion of depleting the responsibility of man to his environment when, in fact, his responsibility is increased as history is made.

McLuhan notes that, "In the name of "progress" our official culture is striving to force the new media to do the work of the old." (20) In a similar sense we cannot view or accept the idea of a contingent universe through the eyes of a mechanical power oriented system. In other words, we have developed technologically to the degree of inventing an instant electronic media, but because of the momentum of a mechanically oriented age, man's innate nature to resist change, we have barely begun to achieve the state of mind to cope with our inventions. I am not discounting man's ability to conceptualize, as this appears to be an inherent faculty of man; but it is only in terms

of comprehending evolution that a balance is maintained between his intuition and rational mind. Man does not create his material well-being, rather, he invents it. He only creates the conceptual state of mind that can cope with his inventions. Creation in this sense relates the material and the spirit, which in the light of evolution becomes a continual creation of himself. The thoughts contained in this paper are conceptualizations of myself at this point in time.

Bergson reflects this idea as a creation: "for a conscious being, to exist is to change, to change is to mature, to mature is to go on creating one's-self endlessly." (3) Harvey Cox, contends that to realize secularization, requires of man a "real maturity", and that a "nihilistic reaction in a valueless system is an adolescent reaction." (7) Cox speaks of secularization as not so much a state of affairs, but rather as a process of becoming. If secularization is not understood in these terms, then the title of his book The Secular City, in tending to import a stasis is meaningless. As individual consciousness is in a state of kinesis or "becoming", so is the city. In terms of theistic existentialism, Kierkegaard notes that existence is a process of "becoming", by moral striving and, as such, man can never be a Christian, but only attempt or strive to become one. (16) In terms of conscious evolution, this existential becoming, by grasping the whole image of man, exhibits a

more authentic expression of our contemporary experience, by reflecting the agonizing process of change. To quote McLuhan, "Survival is not possible if one approaches his environment, the social drama, with a fixed unchangeable point of view," and that, "The established order so vehemently resists changes; their entire state of security and status is in a single form of acquired knowledge, so that innovation for them is not novelty but annihilation." (20) Kenneth Boulding presents a psychological basis for our refusal to change, in that we have formed an image of the way things "should be."

We have been taught that effect follows cause, that clocks keep time, or that if people disagree with us they are our enemies. These relationships of things to each other are encoded in our nervous system and we feel quite strongly that they are not to be bent, spindled or mutilated. We have seen throughout history, that a static view of the universe is disruptive to innovation and creation, as it has no means to rejuvenate itself, resulting in a despairing apathetic (total) condition....to which we are today witness." (9)

The common element of our age is that we are experiencing a painful transition period in time, a period of great tension exemplified by extremes and the potential power of total annihilation, thus creating pressure to conform on the individual. As a result of this dilemma many solutions are manifested in uncounscious and conscious attempts to find assylum. Unconscious endeavors toward group living are witnessed by society's gravitation toward condominium,

apartment, trailer park and experimental living groups etc. Because there exists a lack of knowing why they are impelled in this direction, other than economic reasons, these efforts remain largely unconscious. Many conscious attempts to discover a certain identity within communal living and "Hippy-dom", are not so easily accepted by society, and as such, result in negative reactions to social norms. This is the pressure I write of. The ensuing discord between these efforts to solve the same problem (man's aloneness) have, in time, the potential to completely polarize society as we know it. The results of these trends may be viewed as initiating the conflicts occurring today. The McLuhan idea of a retribalization, whether due to an instant electronic media or not, is taking place but will not, as McLuhan has indicated, result in any peaceful "Global Village" unless people become aware of why they are bent to a group living situation. I believe it is not enough to view the electronic media environment as the solution to fulfill man's social and psychic needs.

I do not want to judge the validity of any of these group solutions but only point out that banding together out of pressure, in any group, without an awareness of why the group is formed will result in an extinction of the individual personality allowing a certain vulnerability to any form of dictatorial rule. We then must become aware that the very word "society" as a result of our scientific outlook,

can be nothing more than an abstract idea.⁽¹⁸⁾ Because of the media we often assume that society would indeed become a primitive form of society, subject to autocratic rule. We must recognize, that if all is taken from man, by this social form we will produce negative effects toward the individual psychic attitude, of which there are many indications of today.

In order to arrive at a more meaningful humanistic approach to the existential problems of group living or social forms, I have for the most part questioned the objective consciousness with which we are taught to live by, and that is estranging us from what we experience, and whose limiting result is an unacceptable universal alienation. Man has, as a result of losing his emotional identity with the natural phenomena, become a dehumanized isolated being with no real direction, and we are not prepared mentally to live that way.

One may argue that to deny reason, and to accept unconditionally such a seemingly irrational nebulosity as change, would be to deny the rational nature of man. Incontend that man must realize that he is an instinctual creature, reason being inherent within him, and that his true nature is the union of these apparently conflicting elements, rational and irrational. In other words, man must attempt an understanding of his inner self, to preserve his individuality, by understanding the duality of his nature.

We often tend to be deluded in thinking that progress,

will eliminate man's tensions. I contend that it is this tension or mystery that allows us to continually evolve. In an evolutionary sense tension and balance merge as one, without which there would be no evolution. In the case of extremes in-balance, where one power or social system dominates, we run the risk of either war, decay, or revolution.

In relation to this Heraclitus states that, "Conflict is the father of all." Physical science also substantiates this idea. Evolution, as directly related to ecology, ascertains that human life is contingent upon more or less stable interrelationships of variables that are precariously balanced symbiotic relationships. As such, man is only one species existing within a complex, interdependent, highly organized community of species. The study of an ecosystem places emphasis upon the flow of energy, from solar energy to stored chemical energy to produce biological work, and is then converted into thermal energy, which for all intents and purposes is considered energy lost. This observation conforms to the "Second Law of Thermodynamics" which indicates that, within a closed system, energy tends to decrease in its potential to do work. We observe this relationship in heat (energy) flowing from a higher temperature to a lower temperature. As such, a closed system tends to deteriorate and as confusion increases, order decreases. The measure of this tendency is called entropy characterized as an increasing quantity. As such, our idea of progress is naturally opposed

to entropy. (27)

Natural ecosystems, although tending to form a closed loop, are still essentially open systems, with inputs and outputs to their environment. This openness is characterized by a dynamic energetic behavior, similar to man's inherent struggle. These systems also contain inherent network constraints of energetic behavior, similar to man's tendency to form closed systems, organizations, institutions and governmental systems of checks and balances. These constraints attempt to control the impact of disturbances from outside the ecosystem, rendering a relative stability or climax state in which the system is said to occupy an "energy niche". But as this "energy niche" is continually exposed to new energy inputs, such as seasons and tides, changes within the systems established thresholds occur. Howard Odum has suggested that,

"This fluxation offers periodic opportunities for some new species to break into food chains and "energy niches", which early man took advantage of such opportunities." (35)

I have not presented any argument for a new world mind, a new human consciousness, or a cultural transformation as solutions to the ecological crisis today; rather I have taken cognizance of their reality in order to further an understanding of the vast expanse of a total ecological prospect, to which political action could be enacted, if man's increasing consciousness were not simply negated. The idea of evolution is directly concerned with a remolding

of the mind or man's consciousness, and that the cognizance of this provides a reorientation of purpose; that the universe is a matter of elusive contingency, and that man's becoming is directly concerned by way of an increasing consciousness, with increasing the probabilities for his survival. In a political sense we usually contend that collective action would be most effective as a solution, as voluntary action is viewed as being unfeasible within the existing political-economic system. But we must recognize that collective action is based upon individual aims, as a group is oriented only in as much as the individual is concerned. Ellul echoes this idea of individual concern, in contending that an adaption from a "natural" to a technological environment must include all of society (each individual) rather than, as mainly in the past, mere modification of institutions, or governing branches.⁽³⁰⁾ In otherwords, it is the individual who is affected by environmental alteration, and as such, the problem must be solved at the individual level. Ellul's reasons are that if the individual has lost an essential identity with the existing institutions, it becomes vain to search for its ideal form.⁽³⁰⁾ This seems to indicate that what we really need is a reorientation of individual aims in order to achieve collective meaning and individual direction that becomes of primary importance. In as much as political science is oriented toward a behavioral manner, relating the individual to some outer frame of re-

ference or structure, it negates the essential nexus of the individual personality, that is containing both social and individual aims. In this behavioral manner we put emphasis on the group and not the individual who in fact constitutes the group. By not achieving a complete picture of man, (as we regard him as being basically bad oriented toward his own ends) in relation to his individual system, we negate the essential element to an ecosystem. This idea of a collective matter then places an emphasis on the individual, and as such, I have mainly concerned myself in an individual inquiry, relating myself to the problem that necessitates my commitment.

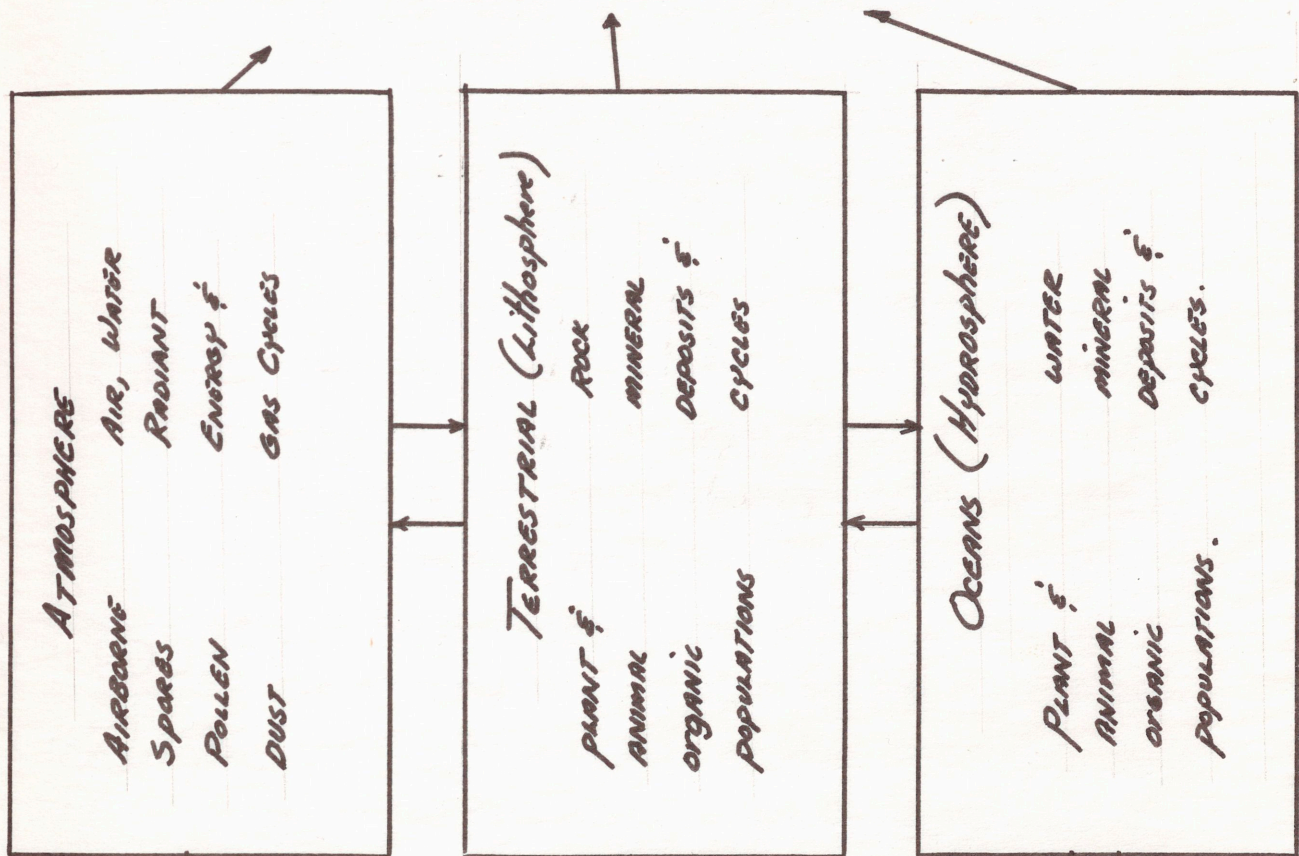
It is suggested that if one desires to convince another of a specific point of view, that he present his material or idea in question as an evolutionary matter, as opposed to a revolutionary approach. Radical or revolutionary ideas are commonly thought to be unfeasible, or not workable. The mass of humanity, we have ascertained does not evolve in a radical behavior, and as such this idea does appear reasonable. I do not consider myself a revolutionary of any sort, but do recognize, that in relation to the individual, change becomes essentially a radical matter involving man's conscious orientation. By way of an individual's conscious orientation as effecting thought, and conscious thought being essential to collective political action, this action must contain an intrinsic involvement with radical matters. In other

words, evolution, as increased consciousness of position, imparts a positive involved meaning to revolution, the two becoming synonymous within the individual psyche. Ellul maintains that only through the radical opposition of small groups, who challenge the technological society, that hope can be seen for a real questioning of society.⁽³⁰⁾ This of course, necessitates that the existing political structure must not meet these challenges with repression. I believe that the only way the existing system cannot repress is to become aware of this action in an evolutionary sense or understanding. This understanding does not exist if we negate the validity of this increased individual consciousness. Only in the manner indicated above can these groups expand to form new institutions corresponding to its needs of personal individual expression.

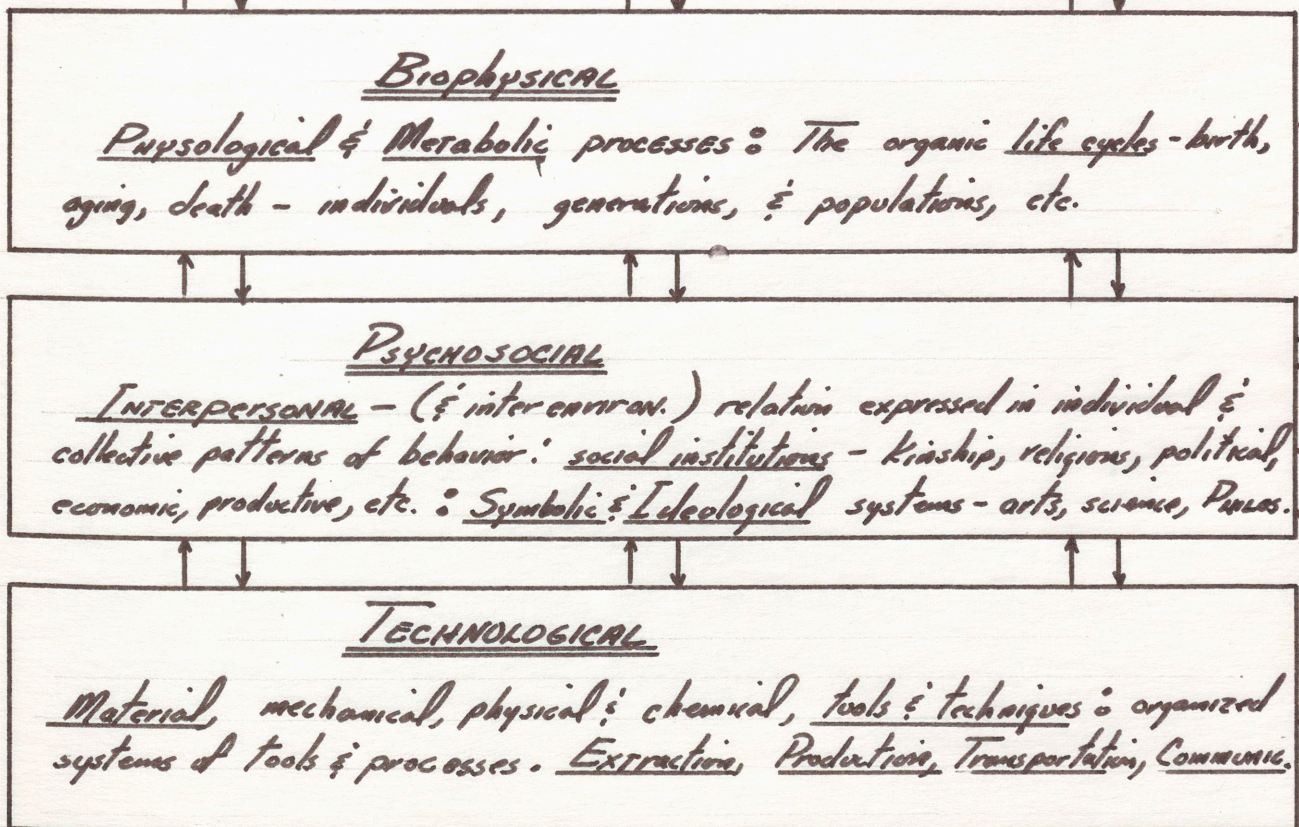
I have ascertained man's tendency and ability to intellectually externalize systems, social, political and religious organizations as institutional adaptation features to restrict change. The fact that man constructs these systems demonstrates the existence of change, and the fact that they tend to negate the effects of change in terms of the individual's psychic well-being, renders them as self-limiting and doomed to failure in the end. As these structures tend to be in time, closed systems the theory of entropy holds to demonstrate the reason why they deteriorate.

GLOBAL ECOSYSTEM

ENVIRONMENTAL SYSTEMS



HUMAN SYSTEMS



III. A Critical discussion relating environmental and educational problems.

"Modern Education has substituted reason for faith, and productivity for soul. Productivity is of positive value only in the face of scarcity and scarcity is no longer a key concern of our affluent culture." (39,618)

The deterioration we witness in our educational system has, by students, been attributed to the system's failure to deal with real life. The institutions efforts toward expansion and reform are futile, in not understanding the essential problem as a vacuum created by an increased consciousness of their situation here and now. Many liberal programs are proposed and initiated but the basic structure remains the same beneath this facade. Our education is still immersed in the deterministic industrial age, which does not fill the void created by the cognizance of a contingent consciousness, and in this sense, education fails to deal with real life. This void is apathy or nothing. We evidence this lacking in our own school of architecture, where a reform oriented "Contact 1" proved to be totally fruitless as a attempt to rid students and faculty of their apathetic attitudes. It is not simply that students are lazy, and that the faculty fail to do their jobs, as this superficial approach amounts to nothing more than infantile name calling. If apathy is "nothing" the question is how can something come from nothing? This demonstrates the limits of rationale. If man has always existed in an apathetic

condition, involving crisis, it further demonstrates his other than rational nature. It is in this "nothingness" that man exists. This feeling is accentuated in our present day crisis, where the only hold man has on the future is to become aware of this "nothingness", which can be nothing less than a personal resolve, maintaining the essence of man in his "nothingness" which is an essential mystery of man.

In this light, it appears that traditional means of change are not enough. These traditional methods are negative, because by working within the system, resulting actions are against part of the system. As such, the bulk of my inquiry contests, not negates, the traditional conservationist, anti-pollutionist approach to our pending ecological problems. These traditional approaches rest on the fallacy that environmental problems are more-or-less independent of one another. To deal with these problems in a separate manner creates conflict within separate vested interest groups. A conservationist group attacking the building of a dorm in a certain area will possibly propose the construction of a nuclear power plant in another, while the anti-pollutionist group will contest the nuclear power plant in favor of the dorm. Both groups tend to balance each other out and when action is finally taken it may be too late. As both of these groups have vested interests in their specific project, no question is ever asked as to whether the dorm or plant should be built at all. (28) This approach, as we have

seen in the similar case of institutional change is self-limiting, as it accepts band-aid facade change measures as final solutions. This relates to the idea of an inability to have infinite progression or progress within a finite system. Only if man's work is understood as being less than man or technology as a limited product of man's unlimited mind can we achieve a positive change. That man's mind is unlimited allows him to always be free of external control. If we think of solutions in the negative sense, as indicated above, we run the risk of permanent irreversable damage. Many eco-action failures today are evidence to this loss.

As in the case of education and ecology an alternative approach must be developed, rooted in individually oriented social and moral decisions, rather than only technological decisions. Ecology and Education become directly related, as the ecological interrelatedness of all environmental decisions is a matter of a unified understanding---fostered through a relevant education. Traditional reforms are ineffectual as an attempt to rejuvenate this vacuum of utopian dreams. We need positive efforts toward a redefined aim to be manifested in a new over-all plan or pattern of thinking, allowing new vision and constructive purpose.

The purpose of a relevant education would then lie in fostering an awareness of the unity of man as an evolutionary species in efforts striving toward a planetary interdependence. Technological advancements have increased the

ability to conceptualize the Earth as a "life space" or "space ship", furthering the potential to accept a "One World" view. If we accept this view in only conceptual terms it escapes an essential element of reality. Such a concept would have to involve local decisions in relation to the "whole", and local decisions could not be made regarding mere local economic political convenience and transient values. It is unrealistic because it does not consider the immediacy and variety of individual wants, desires and needs, which with our present frame of reference would necessitate an overall control of man. The reason why this conceptual idea is prone to failure is the same reason why social theories do not tend to work in practice, and are therefore, unrealistic. They do not get to the heart of the problem of what they are and what they are for. By emphasizing the individual's necessity to society, we tend to overlook the reality of the individual's necessity to himself, thereby creating the unnecessary pressure to conform. The fact that societies and groups exist is witness to the natural tendencies of man to conform, and as such, the purpose of education would be to teach, not when to conform, "but how and when not to" conform.⁽¹¹⁾ Therefore, it would be the task of education to further an awareness of a "One World" view possibility, and also to affirm, that in terms of scientific theories a "One World" view is nothing more than a method of viewing the world, and not an actual view of the world. Without this

added knowledge we tend to interpret this "One World" view as a world bound to a technological end, where as we must understand technology, as it is extended from science, evolves from not so much what it sees, as much as to how it sees. Man in this sense is prone to allow the illusion that technology is the only solution to problems in underdeveloped countries. Technology understood in this illusory sense has tended to render science a closed system and therefore doomed to failure or chaos. The main task in fostering an awareness of a world view would be to dispell this tendency toward illusion by integrating science with other branches of learning, reflective education as a comprehensive whole. Education in this sense will present ideas relevant to man's destiny in an open-ended scientific outlook. To preserve this open-endedness of science, education must fully understand the reality of man contained within this open-endedness. This does not, as is the tendency of our education, contend an annihilation of myth and mystery, as the limit of this action is the extinction of a species, nor does it mean to ignore mystery; rather education must affirm a containing of mystery, while emphasizing a solution. Only then, mystery or an awareness of the unknown, is the truth that allows us to continue in a creative manner. Because of science's closed orientation, cognition of the unknown becomes the only element that allows re-creation or open-endedness. The main shortcoming of our concept of humanism is that it attempts to dispell mystery as an element

of man's irrational mind, and its social implications contain efforts to preserve a false mystery, being that if all were content, all would be good. This is the main drawback of Socialism. The goal of education lies in the affirmation of a contingent universe in all of its manifestations, and to not only solve the mysteries encountered, but also, to show where the enigma still exists. This idea contains the essence or spirit of authentic scientific inquiry regarding individual existence, which we have indicated as the common direction to be sought. I am convinced that our only recourse regarding human individual control, lies within our education's ability to foster an awareness of man's collective mystery, allowing him the means to achieve an authentic existence, which is the key to both biological and human ecological understanding.

IV. A Reflection on the Integration of the Arts and Sciences

This idea of essential mystery suggest an integration of the arts and sciences, a relationship that has tended to separate in our present educational system. John Dewey speaks to this point,

"It is by way of communication that art becomes the incomparable organ of instruction, but the way is so remote from that usually associated with the idea of education"... "But our revolt is in fact a reflection upon education that proceeds by methods so literal as to exclude the imagination and one not touching the desires and emotions of men"... "Art has been the means of keeping alive the sense of purpose that outruns evidence and of meanings that transcend indurated habit." (8)

Man's efforts, directed mainly toward the preservation of the institution, have lost contact with the symbols that they the institution have lost contact with the symbols that they present. Paul Tillich, in this sense, speaks of western culture as the "Land of Broken Symbols"; or in the words of C.G. Jung, "We have stripped all things of their mystery and luminosity, nothing is holy any longer." Jung notes that we have lost a conscious contact with the elements of our psychic forces by way of our emphasis on mere objective inquiry, but that these forces do not disappear, as they are repressed in our unconscious psyche. (18) Art has always been the means to become conscious of these symbols, and as such, is witness to their repressed existence. As consciousness has increased in relation to evolution; and ecology is the investigation of balanced interaction between organism and environment, the idea of art becomes essentially

meshed in this endeavor as an investigation of man the becoming individual and his experienced environment. Art, as such, cannot be separated, as it provides another means or key to unlock the mystery of man's intuitive, imaginative elements, that have been repressed in the unconscious individual psyche. Artistic inquiry is thus a means to contain the mystery of man's essential open-endedness. This creative intelligence can no longer be distrusted if man is to evolve as a "whole" in relation to an interplanetary dependence. Regarding an evolutionary view one must learn the ability to ascertain, as in the words of Dewey,

"To be beyond good and evil is an impossibility for man, and yet as long as the good signifies only that which is lauded and rewarded, and the evil that which is currently condemned or outlawed, the ideal factors of morality are always and everywhere beyond good and evil." (8)

Art as an evolutionary idea goes beyond conceptual statistical predictions; thus confirming the enigma of man, insinuating the possibility of a reality, life styled, rather than a conceptual styled environment. The artist in coming to terms with reality affirms the nature of all living things, through projecting an awareness of their essential being, contained within the mystery of a changing changelessness. The artist in this sense recognizes in all of its manifestations the inevitable destiny of man, allowing a positive affirmation of life as rebirth. Through the act of creation, as the spirit in which an act is undertaken, one is genuinely immersed in the process of becoming, capturing in minute de-

tail the full intensity of the infinite moment.

In an analysis of the moment in time, both the past and future are present. That man plans and anticipates is indicative of the future element, while at the same time, the past is indestructibly linked to the present moment. It is the decisive nature of the moment, the here and now, that lend it eminent importance in an expanded awareness. The present (now) or captured moment becomes a point in which time is contained or human temporality is comprehensively overcome, allowing the universal quality or life force to become fully elucidated. The awareness of this universal life force or continually renewed sense of the individual ~~psychic~~ will becomes the common direction or only human orientation, deemed necessary to achieve a becoming (Open-endedness) social oneness, in relation to planetary interdependence. Only the process of becoming, can overcome entropy as a manifestation of the individual will in relation to humanity. This process is essential to a comprehensive vision directing positive collective action. The individual in control of himself is the only form of control that we can rationally speak of in relation to the universe as a unit of mankind.

John Fowles speaks to this matter,

"If humanity survives the desperate race between the bestial tendencies in itself that it cannot eradicate, and the human tendencies that it cannot sufficiently propagate, then it will survive into an age of great leisure.

Some activity will have to take the place of labor; and the only foreseeable activity which can satisfy man is learning, that is, science, and the individual expression of experience, which includes learning, or science; that is, art."(11)

V. Individual reflection on Crisis

With respect to the individual mind, an externally oriented ecology negates the ideal striving to maintain a balanced steady state, which, in turn disputes the idea of progress as becoming. Evolution thought of in terms of achieving a specific future goal therefore becomes meaningless. We can observe indications of "balanced" states in relation to biological law concerning exterior systems, but in recognition of the individual mind or psyche, as a limitless reservoir as human consciousness, this observation eludes total comprehension, and as such, indicates the failure of external control. This discussion appears paradoxical, which demonstrates the essential mystery of human consciousness. Understanding of this mystery is essential to further evolution or becoming. In the words of Hegel, "The truth of being and nothing is accordingly the unity of the two: and this unity is Becoming."⁽⁴⁾ Being and nothing as such form a paradox that can only be resolved by way of the valid recognition of an increasing consciousness or evolution. Hegel confirms that, "logic is the all-animating spirit of all the sciences,"⁽⁴⁾ but as we have ascertained logic, carried to its limits results in paradox. Therefore, logic exhibits a certain tension in relation to a contingent universe; and as action springs from tension, it becomes the spirit in which one must strive to initiate meaningful action. The idea of control, without total individual compre-

hension of this fundamental enigma negates man's basic necessity of achieving a collective direction.

The notion of a balanced state, presents a mystery to logical analysis and only becomes real in terms of duration. As an ideal the balanced state becomes meaningful only through striving to attain its elusiveness. This striving is concentrated in a matter of becoming and, as such, places a decisive emphasis on the moment in time. As these individual decisions effect individual behavior, whether active or passive, they are essentially radical. This ideal can only be realized through a radical evolutionary understanding, to enable an authentic workable control. This control is not a manipulative control imposed by man's systems; rather it is control realized only by the individual...through individual effort.

This individual existential idea does not negate the value of group, or systemitized cooperative effort, rather it contains these efforts in a positive manner that resists negation. Individual conscious experience, manifests itself into cultural groups and traditions, but in terms of duration these customs, systems etc. tend to become rigid and inflexible, thus containing the seeds of the negation. This is because they are continually trying to recapture the essence of the experience through artificial means (words and more systems). C. G. Jung speaks to this point, "

"More and more people have no personal know-

ledge of the original experience, and can only believe what their elders and teachers tell them about it. They no longer know that such happenings are real, and they are of course ignorant about how one feels during the experience." (17)

Harvey Cox, in speaking of "real maturity" through an understanding of secularization says, "Man must live with the realization that the rules which guide his ethical life will seem just as outmoded to his descendants as some of his ancestors practices now appear to him." (7) By way of man's logical rationale there will always be groups, and therefore illusion, and only the free individual stands as a balancing element, to the self-destructibility of group action in time.

I must emphasize that I am only speaking in terms of now, which is essentially the only time I can logically talk about. Only the fact that we live in an era of tension, which I am not so sure does not always exist in regard to evolutionary time; is the individual directed toward radical thought. This is demonstrated by the variety of individual groups and factions that spring up in time of tension; and which accounts for the pressure on the individual as a social animal to join. To quote John Fowles,

"Time forces man to evolve by placing him in a situation where his old knowledge is inadequate or useless. In perpetual midstream, he has to change horses there." (11)

The individual striving fortitude, determined not to submit to peer pressure, is positive rooted radicalism. I write of it in attempting to provide a balancing element or

ideal, that in time of tension is precariously balanced. This ideal exists, because we are individuals, in a personal existential position. Only through accepting this tension in recognition of its necessity to change, do we affirm a humanistic attitude that does not surrender the instincts of many in a detachment from society and moral law. This effort enhances the concept of humanism in a comprehensible manner, through understanding the existence will or irrational nature of man. Only by way of an evolutionary orientation does humanism, by not providing a conceptual straight-jacket, recognize individual freedom with regard to societies moral perfection.

In view of evolution man's roots are ever changing, but not depleting, and his only equilibrium rests in the embrace of an inexhaustible future inspired by his inherent element of hope. Perhaps Erich Fromm expresses this idea better in his book, The Revolution of Hope,

"if we understand the crossroads we are facing, and have the courage and imagination to shift from the priorities of things and death to the priority of life and man." (17)

VI. Discussion of a Group Proposal

I have suggested as my thesis that the orientation of means to cope with the environmental crisis could possibly take the form, or be focused toward experimental efforts in developing a self-sufficient group (family), or a living experience. I hesitate to speak in terms of a group, school, or institute, in that it tends to imply merely a specific structure, which is artificial in light of the total meaning of the experience. I could probably justify such an effort as an attempt to design an experience, where the phenomena of "gathering together" or grouping is viewed experientially.

Communities initiated outside the realm of established society have in the past been termed intensional communities. A more common word to describe these efforts today is the Co Commune. These alternative living arrangements serve to retard the growth of a megalopolis where 70% of our total population is squeezed into 2% of our available land area, by thinning out the population into smaller more liveable communities. A spreading out into smaller groups also tends to satisfy man's territoriality and needs for privacy and solitude. A group's existence lies in its cohesive root or common elements that are taken to be unquestionable. Past efforts in group formation have by-in-large focused on non-rational intensions, i.e. religion, nationalism rather than the more rational motives, i.e. philosophy, economics

etc. I would suggest that what would, or cannot be questioned as a basis is the collective feeling toward essential unremitting questioning--where experience is integrated with examination. This experience is selective only in as much as the idea or word group implies, and that its existence is a manifest openness. The experience in this light implies the common element of psychic necessity, and as such would only attract people who shared a realization of this feeling.

Communal efforts have often disintegrated due to interpersonal difficulties, outside temptations, bankruptcy and loss of faith, but if these very indications of limited survival were viewed as the rationale for the groups initial formation, I think a more positive effort would evolve. In otherwords, a community would evolve that would be rooted in a form of group psycho-therapy, thus relieving the many anxieties and tension so often encountered in the established society. I am not suggesting that tension will be disapated, but rather that tension would become a positive element as an occasion in which decision and change would be implemented. An effort in these directions would tend to destroy any non-rational ideals as moralistic judgements. A psychic therapeutic orientation of responsible concern would serve as the cohesive community element dispelling inevitable behavioral problems.

This experiential group is radical in that it is

rooted in a choice that is essential to the matter of questioning. By radical, I do not suggest the negative connotations that have pervaded our times by an extensive mass media in its efforts to preserve its institutions. On the contrary, I would suggest a return to the positive implications of radical, as "having roots", or fundamental principle. This experience would necessarily cut across the usual social and organized affiliations of society, not to be in conflict with such, but to be merely independent allowing a creative search. This experimental search for improved living is based on regenerating the quality of the individual spirit by individual effort. C. G. Jung notes this idea as the process of "Individuation" or as,

"a process in which man in common with all other living beings unconsciously lives out his innate human nature, and is possible because of man's unique ability to participate consciously in his development."(17)

In other words, I view this undertaking as a search to reap the harvest of the individual self, with each man seeking his own truth and formation of values through a mental awareness.

The existentialist orientation, I have suggested in the bulk of this work, can be viewed only as initiating this endeavor, of stripping the illusions of the ego to a proper perspective allowing a more basic form of existence; an effort that concentrates and contains the self; not simply a denial. This existential effort can be recognized as only

portending the door to the unconscious, failing to let it open. To further this attempt, we must accept a fundamental theory of psychology that, "consciousness is a precondition of being,"⁽¹⁷⁾ and that we must attempt to relate the conscious and unconscious aspects of the human psyche by understanding the duality of our nature. To further this understanding we must become aware of how the unconscious manifests itself within the conscious.

Civilization has tended to separate itself from man's basic instincts. The realization that these instincts have not disappeared, is our task through this individuation process, or by understanding how these instincts reveal themselves in our unconscious psyche.

C. G. Jung has indicated from psychological studies of social behavior that the individuation process is best accomplished in small groups from ten to fifty persons. A small group, about this size creates the optimum conditions allowing a certain spiritual psychic health for the individual as well as the group, "thus allowing cultural efficiency to flourish."⁽¹⁷⁾ One can notice this grouping tendency within himself as he defines his feelings between certain individuals, while at the same time experiencing a relation to the group. This does not eliminate the occurrence of minor conflicts, but rather, it insures that negative projections would be kept to a minimum, in that the relatedness of one to another would be created by the self--not sustained by an institution. In

otherwords, by man withdrawing to listen to his "inner voice", and the conscious ego, he will be able to overcome such conflicts. Jung states that, "unconditional duration to one's own process of individuation, also brings about the best social adaptations." (17)

As I have indicated earlier, I believe many of the ills of contemporary society are a direct result of the western, objective space oriented tradition, contrasting man with nature, which leads man to emphasize only the material aspect, rather than its spiritual aspect, or common direction. By way of our civilized consciousness, natural phenomena has lost its symbolic meaning, and since man is part of nature, we have lost an essential part of ourselves, resulting in our feeling isolated within the world. (17) For this reason, I have chosen a "natural" unaltered environment for this undertaking--to seek in the land, and in one another, meaningful work, mutual love and spiritual rebirth.

"In nature we must safeguard what is left of our primeval inheritance: In our culture we must emphasize continuity as essential to all rational change; and in the depths of the individual soul we must attempt to transcend the limitations of our time and our place by seeking what is eternal and divine...addressing ourselves to possibilities still unplumbed and to ideals that still have to emerge. There and not through rocket trips to outer space lies the "New World" that still has to be discovered and domesticated by the spirit of man."

Lewis Mumford (36)

A view of nature as being only a material world known by the senses, becomes nothing more than something that man

wants to conquer, to use for his material welfare. To view nature in this manner has allowed man a tendency to exploit nature for his own selfish ends. With this egotistical rationale, nature is regarded to operate chaotically; and as such, man is confined in striving to amend nature to his concept of rational. This concept of rational has perpetrated an illusion of conquering or domination, by subjecting nature to forceful improvement. It must be the epitome of man's irrational, to attempt to make nature obey his own will, or that nature, as all exterior things, is under his direct control. For example; climate and landscape are today redesigned in such a way that nothing that is not fashioned by man can enter. In similar fashion, if man is bent on controlling nature, then he himself must also come under deliberate control. (24)

Man must become aware of nature in such a way as to understand his relationship to nature, which presupposes that man would become aware of his own nature. To quote D. T. Suzuki, "The problem of nature is the problem of human life," (24) and C. G. Jung, "In spite of our proud domination of nature, we are still her victims, for we have not even learned to control our own nature." (17) In this light, reason becomes man's greatest illusion, in that when dominated by its narrow framework, we assure ourselves we have conquered nature. Nature's undaunted course is not accommodating; rather it is man who must befriend nature, by accommodating himself to na-

ture. This is a matter of acceptance, through an awareness of a basic necessity, and in this sense nature becomes manifest in a spiritual awareness or faith. We must learn to again speak the language of nature. I do not view this step as a matter of repressed submissions to the inevitable, but as an unrestricted active acceptance of a positive participation in life.

Within this group living experience, one must be aware that in reality the whole human being strives for satisfaction, but not of just the objective exterior faction of the personality. It would be a negative force to limit our personalities; instead we must provide to allow man's mind to expand and embrace the vastness of experience that allows an awakening or expanded awareness of the worlds majesty and mystery. Only in this manner can we allow our lives to grow, and become full, and thus complete the journey to an eternal return.

This direction cannot be realized by limiting our individual perception of experiences through merely an expanding objective analysis that serves as an end in itself, although this is precisely the direction we are headed in our talk of increased control. The answer rests not through attempts to control the masses, which contains the potential to repress reactions to the unconscious, and to quote Jung, "must fail in the end as they are basically opposed to our instincts, but to allow for an individual openness to experience." (18)

We can only achieve this expanded state of mind through an acceptance of the subjective nature of our psyche, which can be facilitated only through an allowance of this individual effort. Man must continually strive, to not strive, in order to facilitate an awareness of his subjective psychic nature as a balancing element of his objective nature, and as the one element that allows us the objective direction so needed in our contemporary existence.

VII. Summary

The existential position I have maintained is not a philosophy in the traditional sense, nor does it portend an ideology, or specific theory without reference to reality. In view of theory, as a rigorous intellectual activity, I will have to submit, but in relation to an everchanging action, the only authenticity it possibly maintains is that it is being continually re-thought. I accept the generalized criticism that, intellectual inquiry tends to be wrong in relation to political and practical action, only with recognition that radical action and revolution tend to be right regarding perserverance and duration. Time seems to be what we are concerned with...do we have enough..., and therefore it seems reasonable that we should accept this notion. My existential position is therefore nothing more than a reaction, or effect of a specific situation, whose orientation, although not an ideology, tends to portend an ideal in that it strives for a balanced state. In this light, existentialism is ecologically oriented toward a stable state at the threshold level.

I recognize this discussion as indicating a means or tool in which a solution must be sought. The only immediate solution conveyed, is that man must through a complete acceptance of change, therefore, change himself and help people become aware of the infinite damage, that is threatening our survival as a species, with respect to the blind

ideals of a frame of thought that is outmoded in the modern world. It is only through this acceptance, that we can bridge the gap between the present and indefinite future; to where the need to act is not stifled by prolonged studies and urban analysis does not lose a vital contact with reality.

SECTION : 2

I. General Discussion of Conditions Creating a Need

A. Education

"Whatever the deliberate intension, schooling today serves mainly for policing and for taking up the slack in youth employment."(33)

* For the most part I tend to agree with this statement in that it reflects the inadequacy of today's educational institution. The institutional environment today provides no sense of belonging, purpose, or community in its planned, programmed, educational efforts. The need to change, as noted in the previous discussion, defies the universities' structural visions of a relevant education of processed students. To create a semblance of order institutional plans are often broken into separate disciplines and activities that accentuate education as a product which denies the rich diversity of education as a way of life. I am convinced that the root of this problem coincides with the societal problems of today, imbedded in an overextended administrative bureaucracy unable to cope with the problem.

"The end result is that nobody in authority has been able to take care of the country's mounting needs. Our welfare roles keep growing, our air and water get dirtier, housing gets scarcer, airports jam up, road traffic clots, railways fall apart, prices rise, ghettos burn, schools turn out more illiterates every year, and a war that nobody wants drags on an on. Small wonder that so many young people are losing confidence in American institutions. In their present state, they don't deserve much confidence."(31,23)

Jan Rowan, past editor of P. A. has suggested that our idea of an educated man may very well have to change to

meet the challenge of the times.

"The measure of an educated man would be the degree to which he understood his environment and his impact upon it. We have reached a point in time when that measure is not just desirable; it is essential to our continued existence." (28)

The degree to which a student understands his environment is the degree to which he belongs to his environment or is actively involved in his community. This suggests that the ideal University, as a higher educational institution, must be a community of scholars. This goal is the overall direction of my investigation, and the question I am concerned with as an architectural student is, how can I further this ideal of a "Community of Scholars?".

One may disagree with this approach, but one cannot deny that there are young and old people in rebellion against the increasing values of materialism, conspicuous consumption, class and racial distinctions, and archaic social mores and attitudes.

"We separate living from learning, play from work, us from each other and from Earth. Perhaps even more defeating is our blind faith in man as being some benevolent human deity incapable of being wiped out of life."

Falls Creek Project

Cognizance of this painful truth supports or dictates the primordial ethic of survival to be the guiding principle in attempting to consolidate an understanding of the interlinking threats to human existence. Our fragmented approach to contemporary education and community is meaningless

if not organized around this central vision of the world. Ecology as the community-school orientation, will not be understood as a subject, but rather will constitute the core around which other subjects will be studied. Such clearly defined goals must be comprehended by the students.

1) The school must grow out of a single guiding concept capable of uniting all strands of study allowing coherence and visible purpose.

2) The school must be focused to also equip young people to do something about what is going on in the world--thus, to attempt to measure life's quality.

As survival is the purpose of ecology, the intension of this educational community would be focused toward the "Way" of all living things, men, women, children and how they commune together with the air, earth and water as the supporting elements of life. As such, the intension is to examine problem areas, seeking meaningful active alternatives and solutions. The community itself, is thought to be a personal solution for its occupants, but the idea is not to stop there or to be detached from the total society or ecosystem. It must still be active in such, as it is part of such.

B. The Community as an Educational Experience

The intension of this effort will be to produce an integrated community plan thus avoiding the isolated plans of communities today. This effort strives to achieve a realiza-

tion of the wholeness of man, to capture and enhance the humanity of civilized life. To produce a system outside the present collegiate system is not new, but has historical precedent--"where bands of scholars have seceded and set up to teach on their own simple conditions." (13) It is recognized that this attempt be rooted in the traditions of society and its forms, however new, much develop out of them." (25) The effort however, is also recognized as rootless, if forms are predetermined by a blueprint as it must be able to grow according to its necessity. Integrated plans, cooperatives, or collective farms as part of Scandinavian Cultures are examples of man's attempts to integrate man inside a technological society. It must be recognized that the emphasis on results or demands for tangible end products will tend to disrupt or bog down positive attempts at community. The emphasis must be that the community exist in diversity, furthering communication and friendship as tangible justification.

The first rule regarding the natural environment is that diversity and decentralization are the rule.

The integrated plan affirms a cultural communalism allowing the necessary rational cooperation that is lacking in our present day planning efforts. The motives for such a life style have been encouraged as a reaction against today's urban economic and cultural values. The community I am suggesting is not so much a reaction against economic

factors, rather it encourages a simple way of life in a free community as the motivating force. The community occupants must sacrifice the fragmented urban social conditions for a much simpler community life of like-minded people. In this case the prime focus is scholarly investigation stressing the importance of practical application. Learning by doing. This effort can be viewed as a vital experimental ground from which it is hoped that new social ideas may nurture.

Sociologists have termed such efforts as "intensional communities". Paul Goodman in Communities has elucidated the conditions that such an effort is reacting against,

"To put it paradoxically, there is today, so much communication, means of communication, and communication theory, that there isn't any community; so much socialism, social agency, and sociology, that there isn't any society of work and living." (10,104)

From this it would seem the "simple life" would not only be desirable, but is of critical necessity.

The proposed community will prepare students for the simple life by teaching how to consume less. It must be understood that this is not thought of as a drop in living standards, but does certainly indicate the communal change of view of how current standards are measured. Work in the fields (growing own food etc.) would present a life style through which participants could visibly improve the environmental quality of their lives by providing for their basic needs.

C. School Organization and Purpose

The field of studies would concentrate on a working understanding of the complex of natural cycles and of the relationship between systems producing our basic requirements for survival, air, water, food production and waste disposal.

The basic curriculum in Ecology would be to introduce the student to the science of Ecology (food chains and ecosystems, succession, etc.). This investigation would also examine natural laws in relation to our experience, interactions, and attitudes about ourselves and our environment.

Problem Areas would be dealt with by emphasizing transportation, population, industry, housing, land use, production and recycling organic waste.

Human Ecology as an examination of life-styles, cultural patterns and transformation is also of major importance.

Investigation into existing channels of change, traditional conservation and anti-pollution will be presented as political action methods.

Above all, it must be stressed that the solution to any environmental problems lies within ourselves which necessitates commitment. Intensional means commitment to ourselves and each other as human beings for the sake of survival and growth.

"We have environmental problems because we make a difference between ourselves and our environment."

Falls Creek Project

As I have stated earlier, the community is not oriented toward economic gain, other than the support of the community's continued existence. Education is the major economic rule in this intensional community. With today's emphasis on natural and organic food, I could envision the operation of an Ecological Food Store that would sell organically grown foods free of pesticides and preservatives. This type of gardening would also be based upon recycling principles. Products could be both of raw or prepared nature. The existence of such a store would also encourage more people to follow in an awareness of organic methods. Arts and Crafts could also be marketed as a source of community income. Since many of the occupants (faculty and students) are concerned with the professional fields, consulting services could be offered to the Bozeman people at minimal service charges. I see no economic difficulty if the potential resources (physical, mental and environmental) were planned and utilized.

D. School's Basic Goals

- 1) To initiate an ecological conscience in the students specific discipline, emphasizing an awareness of one's interrelationships with the total environment.
- 2) To provide challenges for self-discovery, resulting in behavioral change and growth.
- 3) To import relevant skills and tools to help participants deal with environmental problems.

4) To encourage participation and guidance while providing an opportunity for the students personal investigation.

II. Site Discussions

BI. Site Requirements

1. I believe it would be beneficial both socially and educationally for this community to be located near a university town; not more than ten miles away. The formation of this community is not meant to be any isolationist movement and intends to cooperate and serve as a supplement to the surrounding area. Since the core group or faculty have been closely associated with the university condition, a cooperative attitude between the two would hopefully prevail. Possible use of a larger institutions facilities would be advantageous to the community school. As students would be of a graduate school level, possibilities for accreditation could be provided concerning research study. A type of extension course could possibly be implemented. The proximity to a major university would also provide a source of graduate students who want to continue their education and study in a more quiescent intensive atmosphere.
2. The site should be located along a relatively easy access route to the nearby town. This would aid in construction and the possibility of marketing goods in town.
3. Location in an area conducive to simple agricultural efforts, i.e. gardening, is desirable. This would necessitate a site with some relatively level land or gradual slopes and conducive climate.
4. Location near a source of water or stream is desirable for potential power, treated sewage disposal and water supply.

5. The environmental location must be of such a caliber as to allow for a diversified use of the school in a number of educational and research endeavors, employing the outdoors as much as possible.

6. A site with a good aesthetic view is desirable.

7. Trees and forests providing protection as snow barriers and natural wind breaks is desirable.

8. A site with a southern orientation for maximum use of the sun would be desirable.

9. Adequate room for any minor expansion of the community is considered.

10. Availability of utilities, electricity and telephone communications must be considered.

B. Local Conditions

1) Geographical Discussion:

Bozeman, located (lat 45°40', long 111°03', Elev. 4856'), is the county seat of Gallatin County, and site of Montana State University. It is located in south western Montana (~~see map~~). The Gallatin valley is located 90 miles north of the west entrance of Yellowstone National Park, and approximately 230 miles south of the Canadian border. The valley is surrounded by the Bridger Range and Horseshoe Hills on the north, the Gallatin Range on the southeast, the Madison Range to the southwest, the Tobacco Root Mountains on the west and the Absaroka Range further east...truly the "Land of Shingling Mountains" emphasizing Montana as the "Big Sky Country".

The circumscribed area includes irrigated and non-irrigated farming and grazing land, and adjacent sloping benches and foothills that border the mountains.

This basin is probably one of the richest in Montana and as such, is one of the more important agricultural areas in the Rocky Mountain States.

Two main rivers, the Madison and Gallatin, flow through the area in a northwest and north direction, joining the Jefferson River at Trident to form the Missouri River. These major streams are fed by a multitude of perennial small mountain streams formed by melting snow packs and spring rains. These rivers are favorably used for irrigation and domestic purposes.

Geologically, the Gallatin Basin is thought to be a former lake bed during the Tertiary Period. Following the formation of the lake, it is thought that fine volcanic particles fell upon the lake and land surface. This action resulted in the creation of lake bottom sediments reaching a depth of more than 2000 feet. The rich soil conditions of the Gallatin Valley are a result of this sedimentary condition.

This basin is a relatively high intermountain area including vast differences in elevation. The lowest elevation is located near the confluence of the three main rivers at approximately 4000 feet above sea level. The higher levels employed as farm land range from 5600-5800 feet in elevation.

The surrounding mountain peaks rise above this level another 3000 to 4000 feet, or approximately 10,000 feet above sea level.

2) Climate:

The Bozeman area experiences essentially a mountain valley climate, which due to elevation differences results in wide variations, both seasonal and daily. Due to its unpredictability, weather becomes a main topic of conversation among native Montanans, usually monopolized by the old timers and their vast array of unorthodox methods of prediction. It is said that, "If you do not like the weather... wait five minutes." Variations sometimes occur 30° within 24 hours. The mean annual temperature is approximately 43°F, with winter temperatures sometimes reaching -15°F and -35°F. Summer days are comfortably warm between 80°F-95°F, with a comfortable cooling off at night.

This climate variation affects a wide variety and distribution of plants and vegetal cover. The southeast foothills near the mountains have an increased precipitation resulting in a more abundant plant growth. At 5400-6000 feet, higher on the hills, the cover is largely brush and evergreen timber (Douglas fir, fir Colorado juniper). Grass and sagebrush of various types cover the lower bench areas. Cottonwood groves and willows border the major stream channels. Many varieties of edible berries also flourish in these areas (chokecherry, rosehips, blueberries, wild raspberry) of mois-

ture (canal banks and road ditches).

Winds are also variable in both intensity and direction, from the west or southwest during the day and shifting to the southeast at night. Winter "chinook" or warm winds are frequent often causing snow to disappear in less than a day.

Frost conditions may be expected in the latter part of May or early June. The first killing frost usually occurs between the 10th and 20th of September, but can sometimes be expected, and must be guarded against, as early as the latter part of July. The frost free season ranges for approximately 114 days in the Bozeman area.

Annual precipitation is 17.35", most of which is in the form of snow. The average snowfall per year is approximately 73.1". Most rain occurs during late spring and early summer (May and June). Hailstorms are infrequent, but on occurrence may cause damage to crops.

C. Site Description:

1) Orientation

The site I have chosen is located in the (SE $\frac{1}{4}$, Sec 21, R4E, T45) of Gallatin County. The South Cottonwood Canyon road divides section 21 diagonally. The elevation ranges from 5720' to 5580', resulting in an elevation difference of 140'.

2) Surrounding Area

A grove of aspen and cottonwood trees separates the site

from the road at the lower elevations, while at the higher elevation, the site is defined by groves of evergreens. Cottonwood Creek flows alongside the improved dirt county road that extends about two more miles up Cottonwood Canyon. The site location is approximately 8-10 miles from the Bozeman city limits. A public country grammar school is located approximately 2 miles from the site. The road is not frequently traveled. The wide variation of physical conditions (forests, rocks, mountains) allow this to be well situated in relation to ecological study.

3) Topography

The site is relatively clear, but is surrounded by trees. The site slopes downward to the South. These trees will exist as good snow and wind protection if utilized correctly.

4) Zoning

No zoning regulations are currently in effect, although this will probably become a hot issue in the near future with the current demands for residential subdivision development.

5) Soil Conditions

This area is well drained farming soil, advantageous to agricultural endeavors. Grains would be the main crops. The growing season is relatively short, but is plentiful.

6) Utilities

Electric power lines and telephone communications are readily available to the South Cottonwood Canyon area. Sewer

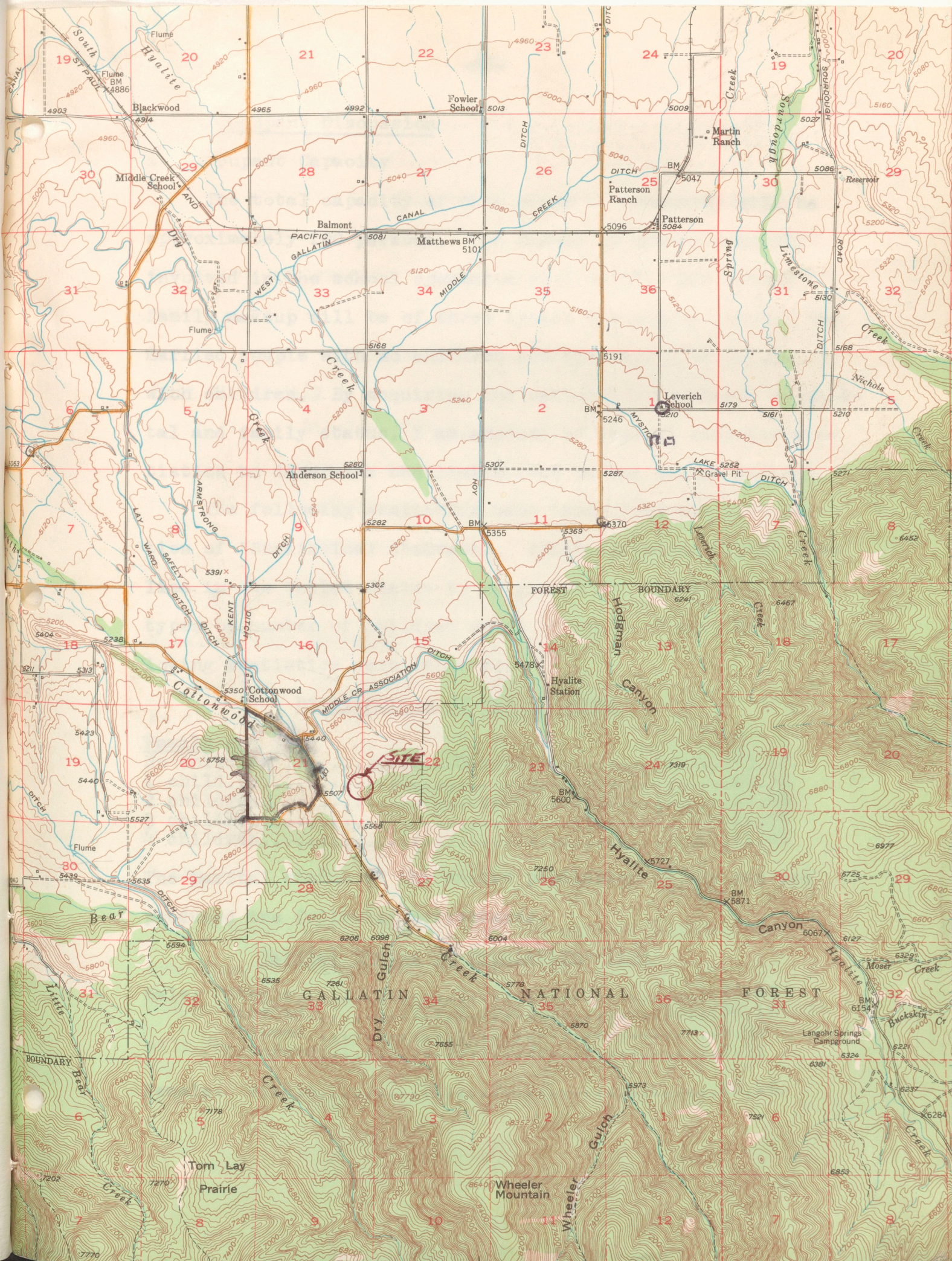
lines and gas are not accessable.

7) View

A good view of the upper canyon and surrounding area is provided.

8) Climate

The mouth of South Cottonwood Canyon experiences a sort of micro climate or localized climate that is warmer than the rest of the canyon area. This will be extremely desirable in terms of a growing season and snow clearance.



III. Occupant Discussion

A. Occupant Capacity

The total capacity of this group or community will be approximately 100 persons. The number of people actually involved in the school operation will be 50. The social family makeup will be of three types; the single person, the married couple with no children and the family or couple with children. By acquiring the national percentages of marital and family status, I am assured of logical accurate statistics to determine the limitations in the design program.

The following statistics were taken from the 1965 edition of "Statistical Abstract". After analyzing 47,436 families in the United States to determine the distribution of types by number of children under 18 years of age, the following statistics were reported. (37)

Distribution of Family Types

<u>Family and Type</u>	<u>%</u>
No children	43.1%
1 child.....	17.3%
2 children.....	17.4%
3 children.....	11.3%
4 children.....	11.0%

The marital status of the entire population by age and sex produced the following percentages.

Marital Status of Population--1964

Male:	Single.....	26.4%
	Married.....	68.1%
	Widowed.....	3.3%
	Divorced.....	2.1%
Female:	Single.....	20.1%

Married.....	64.4%
Widowed.....	12.3%
Divorced.....	3.0%

By applying the figures of % distribution of family types to the average % of the marital status of population, the total percentage of single and family types can be computed.

Average Marital Status

Male and Female

$$\begin{aligned} \text{Single} &= \frac{26.4+20.3}{2} = 23.4\% \\ \text{Married} &= \frac{68.1+64.4}{2} = 66.3\% \\ \text{Widowed} &= \frac{3.3+12.3}{2} = 7.8\% \\ \text{Divorces} &= \frac{3.0+2.1}{2} = \frac{2.5\%}{100\%} \end{aligned}$$

Apply the % of types of families to the 66.3% of the total average marital status.

Percentage of Family Types

No children=	43.1(66.3)=	28.5%
1 child=	17.3(66.3)=	11.5%
2 children	17.4(66.3)=	11.5%
3 children	11.3(66.3)=	7.5%
4 children	7.3(66.3)=	$\frac{7.3\%}{66.3\%}$

I have further broken down the school capacity into two categories--Students and Faculty. The Faculty will comprise one third of school capacity of 50 persons. There will be 17 faculty and 33 students.

1. Students: Total % of Single and Family Types

Single.....	33.7% (33)=	11.1=	16 people
Couples.....	28.5 (33)=	9.4=	10 people
1 child.....	11.5 (33)=	3.79=	5 people
2 children.....	11.5 (33)=	3.79=	2 people
3 children.....	7.5 (33)=	2.47=	0 people
4 children.....	7.3 (ee)=	2.40=	0 people

Student and Family Breakdown

33 Men-----17 Women(wives)-----9 children= 59 people

2. Faculty: Total % of Single and Family Types

Single.....	33.7 (17)=	5.7=	7
Married w/ no child	28.5 (17)=	4.8=	6
1 child.....	11.5 (17)=	1.96=	2
2 children.....	11.5 (17)=	1.96=	2
3 children.....	7.5 (17)=	1.27=	0
4 children.....	7.3 (17)=	1.24=	0
			<u>17</u>

Faculty Breakdown

17 Men-----10 Women(wives)-----6 children= 33 people

3. Breakdown of Community Population

<u>Faculty</u>	Men = 17	<u>Students</u>	Men= 33
	Women= 10		Women= 17
	Children= 6		Children= 9
	<u>33 persons</u>		<u>59 persons</u>

Men Faculty= 17	Women Faculty = 10
Men Students= <u>33</u>	Women Students= <u>17</u>
50 Men	27 Women

Children Faculty = 6
Children Students= <u>9</u>
15

Total Community Population = 50+27+15= 92 ≈ 100
or approximately 100 people capacity.

I have used these percentage only to "get me in the Ball park". The final figures rounded off are approximations that I think lend an element of reality, i.e. the married status of students compared to the single student would be of

a higher percentage.

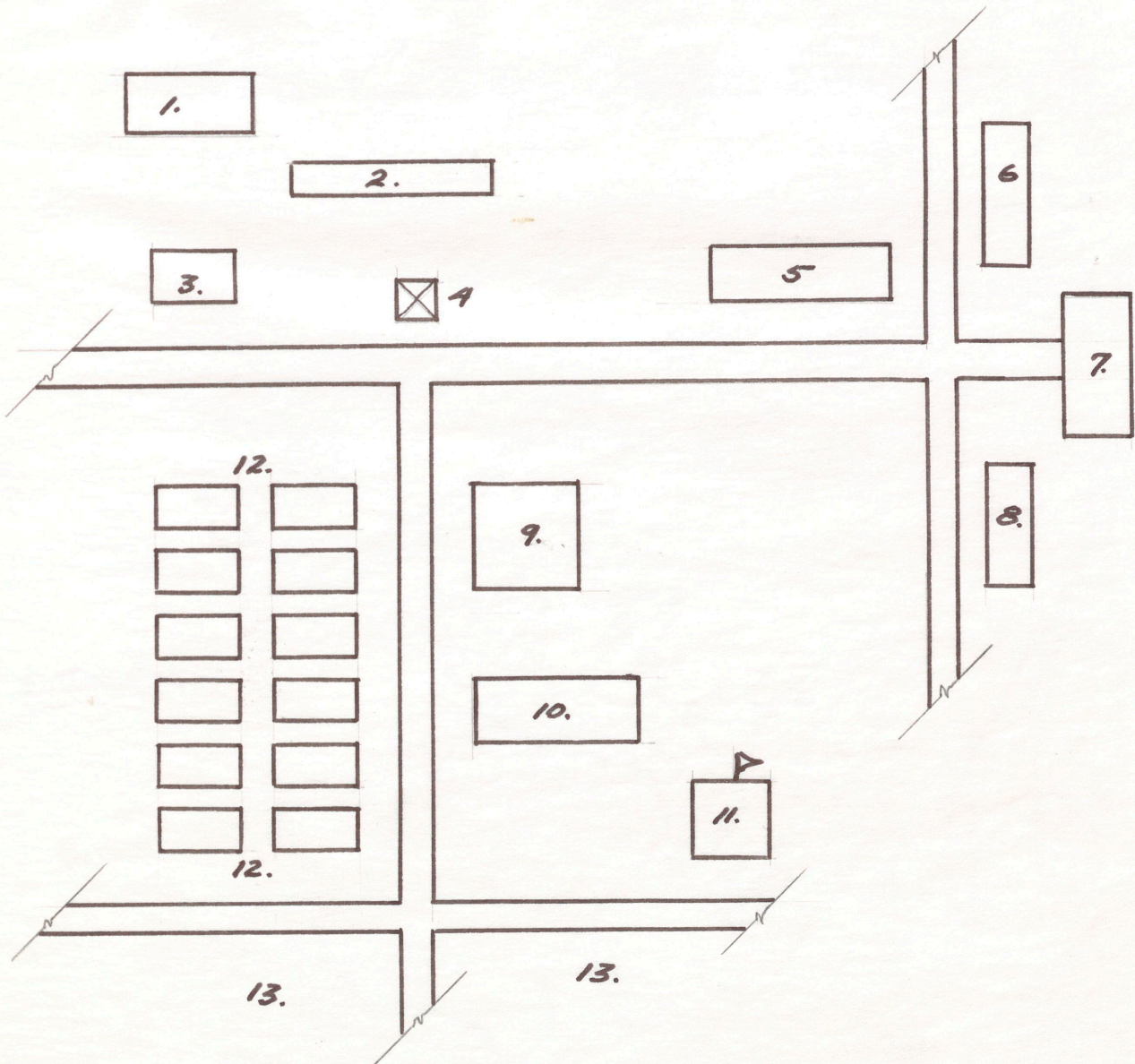
B. Faculty and Staff Discussion

The faculty will constitute a body of specialized skills both manual and intellectual, whose roles and responsibilities are strictly defined and coordinated. This is not a restrictive role. This necessitates that the staff would be trained in planning, evolution, and must be experienced in social action, research, and organizational skills. Professors are not detached scholars, but act as a catalyst or inspiration by the example they set regarding their own work. As such, they must be morally and emotionally committed to the school and community cause.

C. Student Discussion

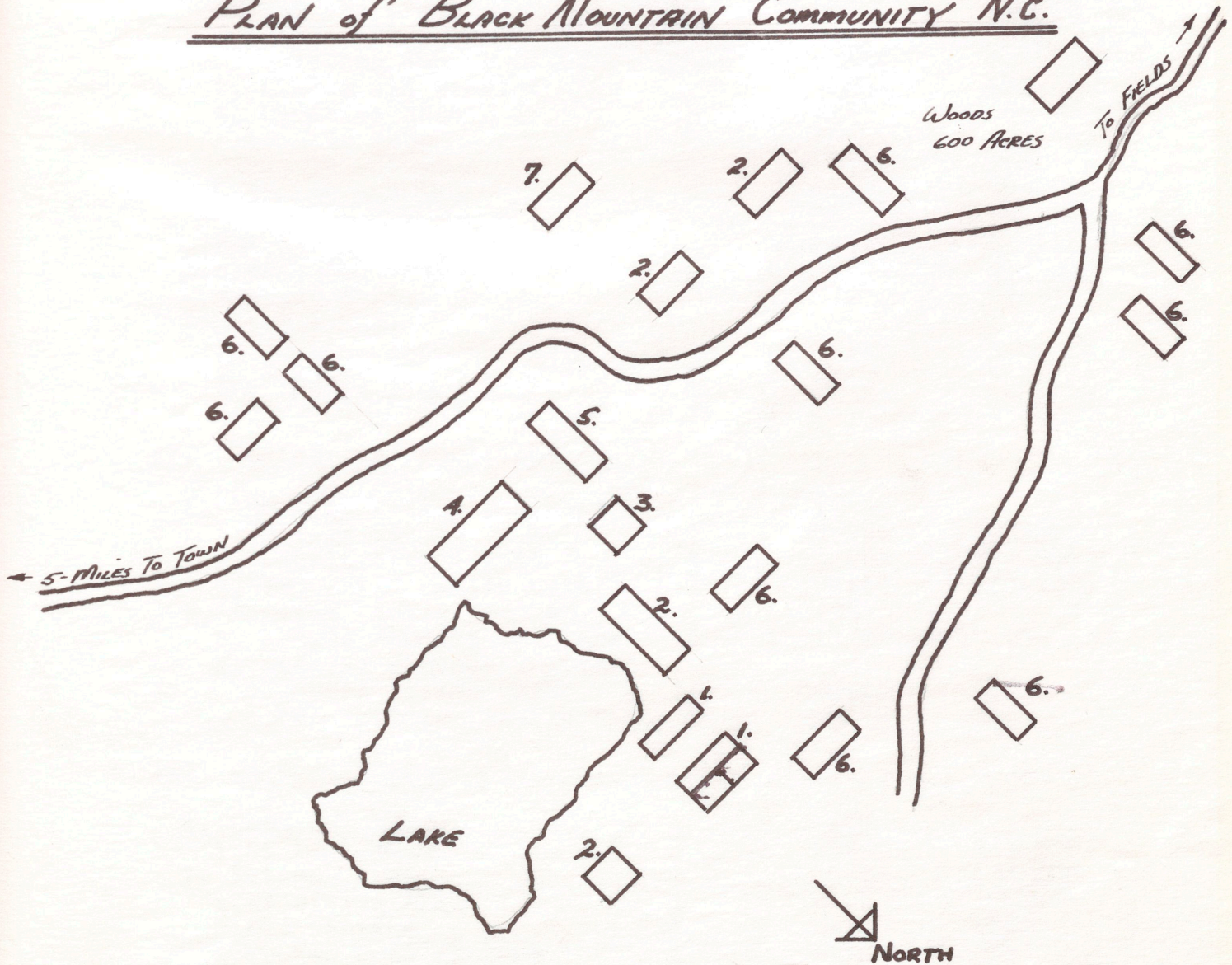
The whole idea of this school seems to reflect a selective nature in light of its physical size and philosophical scope. Students would be selected from a graduate school or comparable level, to allow relative assurance that a firm background in the natural science (ecology) was achieved. This is necessary so that a high level of understanding of ecological concepts is achieved. They must also have reached a certain responsible emotional development in order to further a readiness to learning action skills of a cooperative nature. At this level the student would have been exposed to a responsible experience in both life and society.

PLAN of a KIBBUTZ



1. POULTRY RUNS
2. SHEDS
3. LAUNDRY & BATHROOMS
4. WATER TOWER
5. STABLES
6. WORK SHOPS
7. FORT
8. GARAGE
9. CULTURE CENTER
10. DINING HALL
11. CHILDREN'S SCHOOL
12. ADULT LIV. QUARTERS
13. FIELDS

PLAN of BLACK MOUNTAIN COMMUNITY N.C.



1. BUILDINGS FOR STUDY
2. SHOPS & LABS.
3. EXHIBIT & MEETINGS
4. DINING HALL
5. LIBRARY
6. LIVING QUARTERS
7. QUIET HOUSE

IV. Functions

A. Outline of Functions

I. Academic Functions

	Amount	Max. Capacity	Space Sq. ft
A. Library	1	50	1100-1300
1. Reading areas	10-15	10-15	30-40 each
B. Creative Arts and Crafts			
1. Painting and Printmaking	1 each	15-20	800-900 each
2. Crafts and Weaving	1	10	400-500
3. Ceramics Studio	1	15	600-700
a. Kiln Room	1	1-2	300-400
b. Glazing Area	1	1-2	200
4. Sculpture Lab	1	15-20	800-900
5. Design Lab	1	20	800-900
C. Exhibition Area	1	variable	500-1000
D. Class Room Areas	2	1 12-15	330-400
E. Seminar Rooms	2	20-35	450-550
F. Science Labs			
1. Physics and Chemistry	1 each	15-20	500 each
2. Biology Lab	1	15-20	500-700
a. Green house	1	variable	600-800

II. Residential Functions

A. Faculty living Quarters		17	
1. Single living unit	7	3 units	558-600
2. Double living unit	8	4 units	784-800
3. Two Child Family unit	2	5 units	980-1000
B. Student Living Complex		33	
1. Single Student Quarters	16	$\frac{1}{2}$ unit/student	98
2. Married Student Quarters			
a. Double Living Unit	15	4 units	784
b. Two Children Family Unit	2	5 units	980

III. Communal Functions

A. Communal Lodge	1	100	
1. Dining Space	1	30	360-400
B. Kitchen Area	1	3-4	180-300
1. Receiving Area	1	----	150-200
2. Dry Storage	1	----	300
3. Frozen Food Storage	1	----	200
4. Meat Preparation	1	1-2	100
5. Vegetable Preparation	1	1-2	100
6. Bakery	1	1-2	200
7. Cooking Area	1	2-3	
8. Dishwashing Area	1	2-3	200-300
9. Sanitation Area	1	1-2	300-400
10. Kitchen Office	1	1	50
C. Children Center	1	15	
D. Laundry Area	1	variable	250-300

IV. Service Functions

A. Control Facilities	4		
1. General Office	1	3	400-500
2. Managers Office	1	1	200-300
3. Receptionist Area	1	1	350-100
4. Lobby Area	1		300-500
B. Maintenance Facilities			
1. Service Garage & Workshop	1	4 vehicles	800-1000
2. Farm Equipment storage	1		400-600
3. Cleaning Facilities			30-45
4. Fire Control	1-2	pump	
5. Gasoline Storage	1	500 gal. tank	50-100
C. Mechanical Facilities			
1. Heating Plant			
2. Water Distribution			
3. Sewer System			
D. Utilities			
1. Communications			
2. Power	1 aux unit		100

V. Open Space Functions

A. Parking	15-20 cars		
B. Plaza Area	1	100	20,000-22,500
C. Recreation Area	variable possibilities		
D. Quiet Areas	small		
E. Field and Garden Areas			$\frac{1}{4}$ acre or 10,000
F. Outdoor Theater	possibility		each

B. Functional Discussion

Introduction

The discussion of functions must reflect the purpose of an intensional community and school. The comprehensive plan must function toward this intensional goal. The community itself, reflecting a simplified view of living processes, functions as an educator and cultural manifestation. Thus it is a rational approach toward the new environment required for the new aware being. To simplify the community functions a spatial layout of the community can be generalized into

five major interrelated categories: Academic Functions, Residential Functions, Communal Functions, Service Functions and Open Area Functions.

These discussions will be reinforced with flow diagrams and a schematic layout of site development provided as graphic aids.

I. Academic Functions

As the focus of this community is upon education, this area becomes directly related to the communal functions. In relation to time, the school is not seen to be merely a physical entity comprised of a set of spaces, rather it is viewed as a group of people or community of interacting interrelated disciplines. Study and research are viewed as spanning any departmental boundaries. Although the plan must relate the student with community, it should not overemphasize this idea to such an extent as to create conflict with the student's growing desire for independence. This area is not simply utilized as a nine to five proposition, but is open at any-time.

A. Library

This area is the focus of the academic function, and as such holds a central position within the community. As it will probably not be used by the entire community at one time, it should at least accommodate the school's capacity of fifty persons (faculty and students). The number of books will number at least 1100-1200 volumes covering the arts

(literary masterpieces) and also the ecological sciences. Magazine space should also be provided. Equipment will include tables for research and study with approximately 150-200 feet required for shelving. Total area required is approximately 1100-1300 sq. feet. The library atmosphere, through the use of natural lighting, will create an inviting space to stimulate the active pursuit of knowledge. The possibility of a surrounding view, for purpose of eye relief would be considered desirable.

1. Reading Areas

These areas need not be a separate room, but would require some degree of isolation within the library. They will constitute a small private space requiring a minimum of furniture (desk and chair). Area required is approximately 30-40 sq. feet for each one. They should be located so as to stimulate the act of reading in a relaxed atmosphere.

B. Creative Arts and Crafts Areas

These areas must reflect a meditative and creative atmosphere. They should possibly utilize the panoramic view of the natural surroundings, to emphasize man's integrated relationship with his natural environment. Each studio will provide an area of approximately 100 sq. feet for an instructor. This area need not be an enclosed space, but must provide for a work desk, files and bookshelves. This would satisfy the need for an instructor's office by creating a space more integrated with student endeavors, thus stimulating an intimate

relationship between the two.

1. Painting Studio and Printmaking

These areas are adjacent to each other, separated by possibly a change in level. They will require a relatively high ceiling height (10-12') and will be skylighted to the north for natural light. Both areas will share a common clean-up area and general storage. Their maximum capacity will be twenty students each which requires at least 800-900 sq. feet for each area. Access to the outside and possibly a roof top area will be considered. Two small ventilated spray booths approximately 64 sq. feet, will be provided in the painting studio. Both areas will constitute a certain expression of vastness, but they will also be flexible enough to create intimate individual work areas. The printmaking lab must provide for a large table area, and extra material storage and shelving. The print lab will contain a dark room of approximately 300-400 sq. feet and will also provide 100 sq. feet for audio visual aid storage.

2. Crafts and Weaving Studio

This area will be used more by a few women in the community. It will be relatively small with a maximum capacity of ten people requiring an area of approximately 400-500 sq. feet. Looms, tables, and storage and shelving areas will be provided.

3. Ceramics Studio

The function of this studio is to design and fashion

hand-made pottery. Its capacity will be fifteen students and one instructor. This area is adjacent to the sculpture studio and will therefore share a common clean-up area, including two slop sinks, and a general storage room of approximately 200 sq. feet, for raw materials (clay and plaster).

This area will need vehicular access to a loading dock. A ceramics lab must provide space for wet day storage, wedging tables, ten wheels and stools, work tables, tuckboards and drying shelves, which necessitates approximately 600-700 sq. feet of space. Adequate storage must be emphasized in that the function of this area involves equipment that is permanent or not easily moved.

a. Kiln Rooms

This separate area provides space for drying and firing ceramic ware. Equipment includes shelving, heavy-duty electric kiln and access to the possibility of an outdoor kiln area. Area required is approximately 300-400 sq. feet.

b. Glazing Area

This part of a ceramics lab must provide space for the mixing and application of glaze to ceramic ware. Equipment will include compressors for spraying glazes, storage for glazes, three glaze mixers, a work table and a small spray booth. Area required is approximately 200 sq. feet.

4. Sculpture Studio

This lab will function in the design and construction of sculpture in various media. Its maximum capacity is t

twenty students and one instructor. Equipment needed is work tables, arc welders, acetylene welders, hand tool storage, and a minimum of power tools (circle saw, sander and lathe). This area shares the clean-up and general storage with the ceramics lab. It should also have access to outside for some welding. Area required is approximately 800 sq. feet.

5. Design Lab

This is used for architectural design and planning. It has a maximum capacity of twenty students and one instructor. Space must be provided for drafting tables, sinks, general storage, throw tables which would require approximately 800-900 sq. feet. This studio must reflect a feeling of a place where one likes to be and things happen. This space must be such as to allow the imagination to soar in a creative manner not separating work from enjoyment or play. Tables will be placed with individual space flexibility around the periphery of the room leaving a large possibly skylighted central area. Ceiling height is relatively high at approximately 12-15 feet. Level changes may also be utilized to emphasize the matter of individual space to create an exciting but not dominating volume. Roof areas could also be utilized for relaxation as a lounge area is desirable in this lab.

C. Exhibition Area

This space will function for the presentation of community fashioned arts and crafts. This area could also be utilized for traveling exhibits and or a permanent collec-

tion. Its location would be adjacent to the entrance lobby and as such, takes on certain aspects of the control function. This location is desirable in that visitors, may become aware of what the community is all about and may possibly make a purchase. Equipment will include moveable panels, display cases and stands. The area would be relatively open in its demand for flexibility and would require approximately 500-1000 sq. feet of space.

D. Class Room Area

Class size will be held to a maximum of twelve to fifteen students. It is thought that this is optimum for "sufficient weight of thoughts, objections and questions to oppose and activate the teacher." There will be a minimum of two classrooms for thirty-three students. Both classrooms and seminar rooms should be fairly insulated from the flow of leisure traffic. Illumination is a major aspect giving way to the consideration of natural light at a southeast or east orientation. Ceiling height would be approximately 8 feet with a required 330-400 sq. feet for each room.

E. Seminar Rooms

Two seminar rooms will be provided for discussions and visiting speakers. These areas must be relatively compact, as the matter of intimacy in discussion is essential. A round expandable table is desirable as is the possibility of access to food service. Where men break bread the intellectual venture may flourish in a peaceful atmosphere. The maxi-

mum capacity in each room will be twenty-five persons--any lecture or discussion requiring a larger area will utilize the Lodge area. Space requirements would then be approximately 450-550 sq. feet. These areas may also be designed to open into or have access to intimate outside spaces or squares off the main plaza.

F. Science Laboratories

Labs will facilitate an emphasis on ecological studies with a capacity of 15-20 students in each.

1. Physics and Chemistry Lab

These labs will share a common storage area and require approximately 500 sq. feet of space in each.

2. Biology Laboratory

This space demands approximately 500-700 sq. feet. It will have its own equipment storage room and be provided with five tables for work. Ceiling height is approximately ten feet. This lab will have access to a small greenhouse so that students can experiment with plant life. This area will contain shelves for plant cultivation and must be ventilated with controlled heat and light. Storage for hand tools and a small sink area would be desirable. The greenhouse will occupy approximately 600-800 sq. feet.

II. Residential Functions

The design and planning of living quarters is of a simple non-materialistic nature. It would be desirable to design so as to allow the occupants a certain amount of free-

dom or flexibility in the control of their personal spaces. Variations in natural light intensity will be investigated, and an aesthetic view will be a major consideration concerning location on the site. Student housing will be grouped together and be separate from faculty housing. It will not be of major importance to provide separate quarters for visitors, as they will be expected to double up with either the faculty or the students during their stay within the community. This idea is thought to be more intimate, friendly and therefore desirable. For economic reasons I have tried to develop a unitized molecular system of construction on which to base the design of these facilities. This unit will be approximately 14x14 feet or 196 sq. feet.

A. Faculty Living Quarters

Although the lodge would be the first building constructed, the faculty living units would be the first segment of community development, as they will house the initiating core groups. They will be located in relation to a general area on the periphery of the site, but will be placed so as to create a feeling of occupying an individual area. This housing could possibly be separated by 3/4 acre or so, in which individual family growing areas could exist.

1. Single Living Unit

These seven units will be relatively small, as they exist for the unmarried faculty members. These units will not be equipped with a complete kitchen area, as their meals

will be taken at the Lodge dining area. Nevertheless, a small cooking or hot plate area and sink would be desirable. Facilities provided would be of the following...

- a) Living space b) Toilet and bath area c) Work area
- d) Bed room area e) Storage area

2. Double Living Unit

These eight units will accomodate couples with no children and those with one child. They will include a kitchen area. The following additional facilities are provided....

- a) Living space, b) Toilet and bath area c) Work area
- d) Bedroom area e) Kitchen and dining space f) Storage area.

3. Two Children Family Units

These two units will provide approximately the same areas as the double living units, with the added provision of extra sleeping quarters and storage.

B. Student Living Complex

This facility will not be of the traditional dormatory type. The placement of these units will occupy a more rigid or specific area in relation to the site and community. The students with families will be grouped and apartt from the single students. Both groups will however, share and work a common garden area.

1. Single Student Quarters

In deviating from dormatory type plans, four single rooms will be grouped around a common living area sharing a common bathroom and hot plate area. For their major meals,

single students will be expected to eat in the communal Lodge. Individual areas include space for sleeping, storage and a work area.

2. Married Student Quarters

This facility will provide for married couple with and without children. Each family will occupy their own specific space, but these areas will be grouped into a single complex providing the following spaces.

a) Double Living Unit

These units will provide for couples without children and those with one child. Facilities included are...living space, toilet and bath area, work area, bedroom area and storage, and small kitchen space.

b) Two Children Family Units

These facilities will provide approximately the same space as the double living units with additional space provided for sleeping and storage.

III. Communal Functions

These facilities are the epitome of the community's purpose and direction. They contain spaces to be shared by all; the school and other occupants. As such they must be centrally located within the community, reflecting a certain inviting, comfortable relaxed atmosphere.

A. Communal Lodge

This facility will be the first erected on the site, from which all others will grow. As such, it commands a

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feeling of eminate importance and must reflect a communal feeling. This common area, shared by all, must therefore, be centrally located. Here is where all arguments and disputes are hashed out, and major decisions are made. This is the area where the seeds of community growth are nurtured. This will probably be the largest space, but at the same time, it must reflect a feeling of intimacy, in which verbal interchange is encouraged. The Lodge will be built to accommodate 100 persons, and will also be utilized for visiting lectures, film presentation and will include a small raised area for a stage. Storage for chairs and projection equipment must be considered. The possibility of a freestanding fireplace is desirable, as it would enhance the inviting atmosphere of the Lodge. Storage for fire wood would then be necessary. Lighting both artificial and natural would be utilized in creating this inviting atmosphere. Part of this Lodge will serve as dining space for those whose quarters are not provided with kitchen facilities. The dining space, for thirty persons will require approximately 360-400 sq. feet. This will be the minimum number of people being served, whereas the entire lodge could be utilized for larger numbers such as banquets. The flexible nature of the communal lodge will compensate for the diversity of functions that could be contained. Storage will be provided for extra tables and chairs.

B. Kitchen Area

This facility utilized for food preparation and storage will be located adjacent to the Lodge. It must provide food service for approximately thirty persons, requiring 180-300 sq. feet. Buffet style of serving is thought to be the most efficient means. General storage for trays, utensils, and traffic aisles must be provided. The kitchen will facilitate the following functions both adjacent to and within.

1) Receiving Area or loading docks will require approximately 150-200 sq. feet. Vehicular access must be provided. Larger doors required to accomodate crates etc.

2) Dry Storage This area has direct access to the kitchen and must accomodate both large quantities of food purchased in town and food grown at the community. It will require an area of approximately 300 sq. feet. Moisture and vermine problems must be considered in its design and location.

3) Frozen Food Storage This area is located adjacent to the dry food storage, requiring a capacity of 200 sq. feet. Hooks must be provided for the hanging of wild game.

4) Meat Preparation This area necessitates a separate enclosed area, but not specifically a room. It must have direct access to the frozen food locker and provide for meat cutting utensils. Approximate area required is 100 sq. feet.

5) Vegetable Preparation This area is also separate from the cooking area but does not require a room. Approximate area required is 100 sq. feet.

6) Bakery This area will accomodate ovens, tables and storage of utensils which require approximately 200 sq. feet. The bakery will not only serve the community, but also provide the potential of a limited commercial endeavor by producing macrobiotic bread for organic food sales. A separate ventilated area would be desirable in this instance.

7) Cooking Area must be centrally located within the kitchen and points of distribution or serving. This area must also be ventilated.

8) Dishwashing Area This function requires a separate room, well lighted and well ventilated. It must accomodate two large industrial sinks and provide for storage cars with trays. Approximate area required is 200-300 sq. feet.

9) Sanitation Area This area will serve to wash large cans and provide storage for kitchen cleaning apparatus. Slop sinks must be provided. Vehicular access to a garbage disposal (incinerator) is required. Approximate area needed is 300-400 sq. feet.

10) Kitchen Office This will be a small area about 50 sq. feet within the kitchen where menus will be planned, supplies ordered and cooking is supervised. A desk and shelving must be provided for, but a separate room is necessary.

C. Children Center

This area is similar to the idea of a day-care center. It will accomodate the fifteen children of the community or at least the children under school age. One or two mothers

will supervise on a rotating basis. A grammar school is provided less than a mile from the site, but the idea of educating all children at the community is anticipated in future plans. This will be primarily an outside function, but during the colder months, will be contained in the lodge.

D. Laundry Center

Laundry facilities will be provided to serve groups of people in both student and faculty living areas.

IV. Service Functions

These facilities will provide the essential requirements in service to the community operations.

A. Control Facilities

These areas serve as a point of orientation to the community. They should be the first experienced by visitors or new students. They include the administration of both the school and community economic control.

1) General Office This area will house the school registrar and the community's general business. Two secretaries in assisting the manager will occupy this office. Equipment must include at least two desks, adequate file cabinets, copy machines and typewriters. Approximate required size is 400-500 sq. feet.

2) Manager's Office This office will carry out the administration of community business. It is located adjacent to the General Office and will provide for files, desk and two or three extra chairs. Approximate area required is 200-300 sq. feet.

Receptionist Area This area will occupy a portion of the Lobby and serves as an information center. It will be an open area requiring a desk and chair in approximately 50-100 sq. feet. It will provide seating for at least eight persons and also provide a map of the entire complex for visitor orientation.

B. Maintenance Facilities

These areas serve in cooperative service to the general maintenance of the community.

1) Service Garage and Workshop This area will handle the mechanical repair and automotive servicing for the community and therefore, require vehicular access. Space for two tractors and two pick-up trucks will be provided for. Approximate area is 1000 sq. feet.

2) Farm Equipment Storage This area will house all the miscellaneous tools utilized by the community. It will require approximately 400-500 sq. feet.

3) Cleaning Facilities Janitor closets provided with mops, storage and slop sinks will be provided in all necessary locations throughout the community; approximate area of 30-45 sq. feet will be needed for each.

4) Fire Control A small pump station along side the river could provide the necessary water in time of emergency, or water could be pumped to a 150,000 gallon water tank located on high ground. At any rate, it really would not pay to depend on the local volunteer Gallatin Gateway Fire Dept. as

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they have limited equipment and are located about eight miles away.

5) Gasoline Storage A gravity feed tank of approximately 500 gallons would be desirable for the operation of farm equipment. It would be located close to the Maintenance Garage, but not so close as to present a fire hazard.

C. Mechanical Facilities

1. Heating Plant The exact nature of heat supply has not been yet decided upon. A central steam heating system for the entire community has been considered. This type of system would probably be economical, in that it would require less maintenance, and save space within the living units. If chosen, the plant would be located apart from the community and will contain boiler space and mechanical outlets. Air conditioning is considered unnecessary in this area.

2. Water Distribution Public water lines are not accessible to the site. The river and accompanying high water table may indicate the feasibility of drilling wells. Other farm dwellers in the area are usually supplied from pure underground sources, confirming the feasibility of such in our case.

3. Sewer System Sewage lines are also not available in this area. Septic tanks are the most common method of sewage disposal. Although a septic tank may be the more immediate economic solution, I will propose a gravity drainage of sew-

age toward the river where a small purification plant would receive it and discharge the sewage in an acceptable state. The discharge would be regulated as to the stream's ability to absorb any pollutants, allowing no alteration to aquatic flora and fauna.

D. Utilities

1. Communications Telephone lines run adjacent to the site along the county road, rendering no problems. These lines will run in the least obtrusive manner possible, which may necessitate their being layed underground.

2. Power Lines Electricity is available to the Canyon area and would present no problems, although an auxillary power generator unit, running off the stream's power would be desirable in a complex oriented in a self-sufficient manner. Power lines would also be laid underground.

V. Open Space Functions

These facilities include areas that are not housed or enclosed by a structure.

A. Parking Cars will be discouraged and be used only at a working minimum in the community. Walking will be encouraged, to further a direct encounter with one's environment. Students will not bring their own cars and faculty members will own vehicles in a cooperative manner. Ten cars will exist for the community operation, two trucks and two tractors. Individual transportation to town will be arranged by the individual...if one gets too hard up he will hitchhike.

As such, parking is a limited function, although provisions for visitors must be considered. Parking space requirements must accomodate a total of 15-20 vehicles.

B. Plaza Area An open plaza or square, centrally located will supplement the function of the Lodge out of doors. This area will also be a place for people to meet and converse. Traffic flow will probably be heavy in this area, as it is the manifestation of a sense of community. The area of the plaza is not fixed yet, as it depends upon the placement of other facilities. Desirable size for this size community would be 20,000-22,500 sq. feet.

C. Recreation Area This open area will not be designated for any one type of organized sport, and could be facilitated by simply allowing a relatively level grassy mall on the periphery of the community to be undeveloped. There are no specific space requirements. Recreation is found in natural areas; hiking and packing into the mountains will probably be the more frequent source of recreation. The whold idea of recreation as separate from work is not fostered in this community.

D. Quiet Area Smaller areas, off the mainstream of activity will be provided for quiet reflective thought. It would be desirable to locate the meditative nooks among the trees in such a way that furthers a communion with nature.

E. Field and Garden Areas Organic gardening is a major concern of the community effort. The location of these areas

are mentioned in the discussion of Residential Functions. The Yearbook of Agriculture 1965, recommends that $\frac{1}{4}$ acre or approximately 10,000 sq. feet provides adequate space for a vegetable garden, producing enough to supply average family needs during the growing season. These gardens cannot be the main source of food, although they will favorably supplement the food necessities. The final decision regarding the size of these gardens will, of course, depend upon amount of space level enough to be workable and the number of persons working the land.

F. Outdoor Theater The provision for a small outdoor theater will be considered in possibly making use of a natural depression on a slope of 10°-20°. This function, if possible, will be located on the periphery of the community.

C. Design and Construction Discussion (related to Ecology)

1. Construction materials must be considered as to their origins and their implication of their use to the environment and of the demand their utilization places on the supply of such.
2. Design to reduce total energy consumption. Cognizance of the use of effective sunlight, wind, heat, rain, temperature to their advantage must be made. Mere control of such by technological means will be discouraged.
3. Attempt to limit the use of water consumption to minimum. Will investigate reasonable means to recycle power, water, air, waste and building materials.

4. All building (structures) will utilize the same materials, sharing the same structural concepts and spatial organization in a sensitive respect for the natural terrain and surroundings. Although materials will depend on construction methods, the shapes and colors utilized in the design should attempt to be indigenous with the natural environment. Trees, rocks, and mountains should be reflected in a harmonious design solution that embraces the surrounding area.
5. Garbage will be examined before disposal in order to compost the waste and recycle the nutrients.
6. Design to emphasize a sense of belonging or community.

D. Summary

It has been my intension that the building of this school and community would be part of the educational experience and as such, that its construction would be essentially of an unsophisticated, uncomplicated manner. Naturally, the extent of construction in this situation would depend largely on available money at the time of construction. Student-Faculty labor would help alleviate the money problem, but the total complex would still have to be considered in the light of priorities. As such, my program has intended to elucidate these priorities, and also propose possibilities for a complete well rounded community.

As this academic community would be greatly involved in the arts and sciences, as as it would be built by the occupants, I feel the actual design of the structures would

also be part of their effort. As an architect, I would resign my role to that of a technical consultant, as planning and design would be a cooperative effort. In reality it would be difficult to present a comprehensive master plan that would contain the flexibility and responsiveness to new educational innovations that portend today's rapidly changing conditions. Only in light of my thesis requirements can I offer my personal design solution. This renders my solution as highly theoretical as I am not actually involved in this cooperative effort. As such, I become both client and architect, which introduces an emotional involvement in rational decisions.

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