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HERMETIC ALCHEMY AS THE PATTERN FOR SCHOOLING  
SEEN BY IVAN ILLICH IN THE WORKS OF JOHN  
AMOS COMENIUS.

The Ohio State University, Ph.D., 1973  
Education, adult

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HERMETIC ALCHEMY AS THE PATTERN FOR SCHOOLING

SEEN BY IVAN ILLICH

IN THE WORKS OF JOHN AMOS COMENIUS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for  
the Degree of Doctor of Philosophy in the Graduate  
School of the Ohio State University

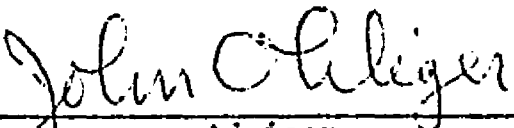
By

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\* \* \* \* \*

The Ohio State University  
1973

Approved By

  
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## CHAPTER I

### A. INTRODUCTION

#### 1. The Crisis in Education

There are many critics of the public and private schools today, among whom stands Ivan Illich. Illich is not only a critic and a reformer, but in a deeper sense, he is a social revolutionary. Attacking schools is the means of attacking the institutionalization of a social ideology which sees schooling as a worldwide system of dehumanizing institutionalization.

The critics of schooling such as Postman and Weingartner, authors of The Soft Revolution (41) and Charles Silberman, who wrote Crisis in the Classroom (40) serve an important function in evaluation, but the concern here is not with the failure of the classroom functions, but with the basis upon which the whole educational process is built. Being brought into question is the *raison d'être* for the process of schooling, which, at the present time, aside from the military complex, is the greatest single consumer of national wealth, and the greatest single industry in the nation.

There are in this nation, as well as other nations, stated purposes for schooling. Some are highly idealistically stated; others, perhaps, more realistic. In general, it seems clear that the primary purpose of schools in this country and most countries is fundamentally economic and vocational. Students are guided, sorted and placed in certain lanes, prepared and certified for a place and a

role in their particular society. Throughout the world schooling serves to socialize, to train the labor force and to meet the demands of a primarily technological economy. Other purposes are stated and implied, but it would seem that these are the essential functions that the schooling process fulfills.

## 2. The Need to Reevaluate the System

We are concerned with more than a critique of the schools. The question is whether schools as we know them will survive and if so, in what form? In the spring of 1972 "virtually all the nation's urban schools are in sad financial shape." (1-42) The fourth largest school system in the nation, greater Detroit, was close to bankruptcy, with 290,000 pupils and a \$272 million budget projected to run \$101 million in the red, next year, after a \$38 million deficit this year. There is here the question of survival of the Detroit system, illustrating pressures being exerted in every major urban school system in this country.

Because of the crisis in education, because of the questions of survival across the nation of public education, because the whole institution is being called into question, it is important that the basis of schooling be re-examined. If the present system is to be defended, there must be a clearer concept of the purposes of the institutional process through which we channel the resources both of money and people. Change for itself is not enough and seldom justified, but change is taking place in schooling and, in order to intelligently direct that change, it becomes necessary for us to focus on those fundamental issues and questions that today are

being raised, in the classrooms, at the school board meetings, at the ballot box and in discussion and debates in many levels of society. Is the fundamental anomie just the unwillingness of citizens to be taxed further to support schooling or is there a loss of faith in a system?

### 3. Alternatives of Reevaluation

If we are committed to living in a modern industrial society as we know it in the United States, and if public universal schooling is indispensable to that society, then schooling needs the support that can come from reevaluation. If schooling is for the elite of any society and if there is no way the poor can win at the game of schooling; if there is an inordinate amount of human resources used to support schooling and if there are better ways to learn, then all these need examination also. This concern is not limited to the United States of America but includes all industrial nations which support their own school systems.

#### B. IVAN ILLICH RAISED QUESTION OF MONOPOLY OF SCHOOLS

Ivan Illich became known when he raised the question of the monopoly of schools and suggested schools should not survive in their present form. In a series of articles and his book Deschooling Society (43) he drew great attention to himself as evidenced by Ohliger's monograph "The Visible Dissenters". (23) Illich's position was that the worthwhile purposes of education can only be achieved in society in which schooling is dis-established.

#### 1. Question of Influence of Alchemy on John Amos Comenius

Since the publication of his book, Illich has raised a

series of questions of the value of the concept of education itself.. This was done in a particularly significant and fascinating way by introducing the historical question of the influence of alchemy upon John Amos Comenius, one of the fathers of modern educational philosophy. It is the concept of education we will be examining in this dissertation, not Illich's earlier criticism of schools which assumed the value of "education".

John Amos Comenius was born in 1592 during the upheaval of the Reformation and the fullness of the Renaissance. The rise of technology was just beginning during that time and supplied a need for some pattern of education that could be applied to all men cheaply and en masse. There were patterns of scholastic learning that prevailed during the Middle Ages and there was a new pattern emerging from the humanism of Martin Luther's co-worker, Philip Melancthon. But the pattern that became dominant is the institution we know today; children placed in classes according to age, using the native or vulgar language of their own land, surrounded by as many devices and pictures as possible so as to appeal to the senses. These are the principles first set forth in the seventeenth century by John Amos Comenius in his Magna Didactica.

## 2. Bloch said Comenius was an Alchemist

Since the Spring of 1971, after a late 1970 visit to Europe and conversations with Dr. Ernst Bloch, the great German philosopher (Das Prinzip Hoffnung) (42) Ivan Illich became interested in the relationship between education, alchemy and Comenius. Bloch suggested that the pattern for modern schooling came from alchemy

via Comenius. Schooling is the secular grace that processes men to take their place in modern society. As a social critic, Illich has made broad statements concerning the historical roots of universal education. These assertions seem to reflect some of the current upheaval around public schools. He questions the value of the concept of education in the light of his studies of Comenius, who he says, was influenced by alchemy.

### 3. Illich Questions Education Patterned after Alchemy

By examining the question as he raises it, i.e., whether Comenius, and therefore our modern educational process, was influenced and patterned after alchemy, we can explore the most recent criticism by Ivan Illich which now goes beyond an attack on schools as an institution to the philosophical heart of our system of learning built on a belief in the value of "education". Such an exploration could lay the groundwork for the study of many of the critical issues confronting modern schooling. In so doing, it is important to note that we are dealing with one aspect of Illich and not directly with the whole range of criticisms raised in his most well known work, Deschooling Society (43) which, we repeat, accepts "education" as a worthwhile concept.

### C. METHOD & APPROACH OF DISSERTATION

First a word about method. The question of human consciousness fascinated the writer over a number of years particularly the question of how to raise man's consciousness to achieve what has been called cosmic consciousness. When one is looking for a particular kind of relationship it is amazing how he sees evi-

dences of this in many dimensions of life. Beginning from a background of education, which is a study of one of the primary activities of man, it was found that by examining the works of Ivan Illich it was possible to approach this question of consciousness through the statements made by Illich about Comenius and particularly about hermetic alchemy. The alchemists seek to bring about change or transmutation which in other contexts could be called the raising of consciousness.

The actual thought process in arriving at the particular conclusions of this dissertation lie in three dimensions. The first phase was the gathering of materials and the immersion in the subject and questions raised by Illich as they focused on John Amos Comenius and hermetic alchemy. The description of this is given elsewhere in this chapter. Following the gathering of evidence is the sorting of relationships. This process has continued, not only through the initial portions of the data gathering and analysis of the problem, but through the whole process of writing. There has been continual flow of new relationships and new input of data from seemingly extraneous sources. The third step is the correlation of data placing it in a responsible form, drawing of conclusions and implications.

These three steps or stages as outlined above are not linear but apparently concurrent for as data was gathered, relationships were discerned and through such an holistic approach intuitive leaps were sometimes taken for which adequate evidence was available only with further research and study. There is



built an association of images which gives validity to a particular hypothesis.

The relationships that were sought as evidence, depended at times upon the validity of primary and secondary sources as well as timing, togetherness, personal experiences, deduction, the appeal to authority and induction. Although there are a large number of primary sources used both for the alchemical and Comenian sections, it would be expected that there were certain difficulties in translation. Many of the old alchemical texts have never been translated or published. Where secondary sources are used, corroboration from more than one was generally sought and often the attempt was made to investigate the basis upon which they made statements or drew conclusions. Final judgments and conclusions were left in doubt if the general pattern and corroboration of materials did not fit into a clearly logical pattern.

The question of cause and effect is very important in this study. The classical syllogism (50-21) developed by Aristotle which provides a means of testing deductively the validity of an argument is not relied upon in this dissertation. In a number of instances where this could be applied there is no corroborative evidence of togetherness or collaboration of secondary sources to indicate a direct causal relationship. For example: alchemy was a major study of scholars in the Middle Ages (major premise); Comenius was a scholar in the Middle Ages (minor premise); therefore, Comenius studied alchemy (conclusion). The writer did not

consider as conclusive proof that Comenius was an alchemist, only corroborative or associated evidence.

In historical research there is the formulating of particular hypotheses (50-191) and in this particular study those hypotheses are provided by the writings of Ivan Illich and his assertions concerning Comenius and hermetic alchemy. Thus the approach of this dissertation will be relatively simple. Where Illich uses any two of the three words, education, alchemy and (the Moravian Bishop John Amos) Comenius, they will be examined.

Sources from Illich will be confined to those written following his visit with Dr. Ernst Bloch in the year 1970, after which Illich began his study of alchemy and its relation with Comenius.

The statements from his writings and speeches, illustrated in Chapter II fall into four separate categories:

1. Statements which concern the historical parallel between alchemy and education.
2. Statements concerning the place of John Amos Comenius in the development of education.
3. Statements concerning the influence of alchemy on John Amos Comenius and his educational theories.
4. Statements concerning the relationship of alchemy to education as we know it today.

The statements in these four categories will then become the basis for historical analysis to find the degree to which we find Illich's statements to be valid. This analysis will not

attempt to be exhaustive either through expert knowledge of Comenius or alchemy, both of which are vast fields, but only in regard to what is necessary to show the context of the materials in the light of the statements made by Illich. The dissertation will only generalize beyond the statements as needed to develop the context in which to explore their implications.

#### D. RESEARCH FOR THE DISSERTATION

For this purpose the writer has explored the materials in the Library of Congress catalogue which totals 375 items; contacted and visited the Moravian Archives and the Archivist, the Reverend Vernon Nelson in Bethlehem, Pennsylvania; collected a series of books concerning alchemy as referred to by Illich and C. G. Jung; spoken to five professors of history concerning the historical method as it relates to this particular problem; written to Dr. Ernst Bloch in Tübingen, Germany and received an answer from his wife; written Ivan Illich and received suggestions and references; written the Rosicrucians at Mount Ecclesia, Oceanside, California and received information concerning the history of the society which has some relation to alchemy; and compiled copies of the writings and speeches of Illich, beginning in 1971, which deal with Comenius and alchemy.

#### E. CONTENT OF THE FOLLOWING CHAPTERS

Chapter II will show the specific statements of Illich dealing with alchemy, Comenius and education. An attempt will be made to give some feeling of the writing and social criticism of Ivan Illich necessary for the understanding of the problem.

Chapter III will project the background needed for an understanding and perspective of the questions raised. Something of the life and work of Comenius and his influence upon education today as seen through modern educators will be presented. According to Illich, alchemy influenced Comenius and it is necessary to have some understanding of alchemy as a background of this study. It will then be upon this understanding of Comenius and alchemy the dissertation will proceed, not being exhaustive but presenting enough material to establish the context of the problem.

In Ch. IV-VII there will be the examination of the statements from Illich's writings and speeches in Chapter II. A presentation of the evidence and the conclusions from historical research will provide a critical evaluation of Illich's assertions concerning education.

The last chapter, Ch. VIII will present the summary, conclusions and implications of this study. Here will be personal views and directions for further study and/or action.

## CHAPTER II

### STATEMENTS BY ILLICH ON ALCHEMY, JOHN AMOS COMENIUS AND EDUCATION

#### A. MATERIALS OF ILLICH ON ALCHEMY, COMENIUS AND EDUCATION

In 1970 Ivan Illich visited Dr. Ernst Bloch who suggested the alchemic influence upon John Amos Comenius. In Illich's words, "Bloch called to my attention that John Amos Comenius was an alchemist." (26)

Bloch, a German Marxist philosopher, born at Ludwigshafen in 1885, wrote his major work, Das Prinzip Hoffnung while in the United States before World War II. Following the war he went to East Germany. From 1948 until his retirement in 1957 he was professor at the University of Leipzig. In 1957 his works were officially condemned and in 1961 he asked for political asylum during a visit to the Federal Republic of Germany (West Germany). He is now a visiting professor at the University of Tübingen.

Illich's encounter with Bloch lead him to the further study of alchemy and Comenius. Illich says that he sees a pattern taken from alchemy by the great Moravian Bishop Comenius and applied to schooling. This pattern, he claims, became the major design of schooling as it subsequently evolved in the modern technological society.

Following is the full text of material used by Illich to address various and diverse audiences on this topic. It is the text of a speech given in Lima, Peru, July 18, 1971, at a consultation of the World Council of Churches on "The World Education Crisis and the Church." With only a few minor changes in wording, but not content, it was subsequently printed in Religious Education, November-December 1971 under the title, "Education as an Idol". The substance of this

material was also the 1971 Bishop George A. Miller Lecture on Inter-American Affairs at Scarritt College for Christian Workers, Nashville, Tennessee, and an article in The Christian Century December 15, 1971, called "Education: A Consumer Commodity and a Pseudo-Religion".

Excerpts from two other speeches are also included because of the material relating to Comenius and Alchemy. They will not be included in their entirety but only that material dealing with the problem of this dissertation. One is a speech given on the campus of the Ohio State University, March 4, 1972, and the other taken from a speech recorded by Thesis Theological Cassettes Volume 2, Number 10. This also came from the Miller Lecture given at Scarritt College and is entered because this portion is not included in The Christian Century article.

In the article in The Saturday Review (51) called "The Alternative to Schooling", Illich also wrote about education, alchemy and Comenius. This article duplicates material already included.

Following the above quotations by Illich will be presented excerpted statements which contain any two of the three words, Alchemy, Comenius and Education. This chapter will also attempt to raise some of the questions and implications of these statements, the validity of which will be explored in succeeding chapters.

The quoted material just below will give the flavor, the feeling and the breadth of Illich's thinking. The thrust of his social message will become evident as well as the power of the social revolution for which he is calling.

Another purpose for including this material is to give the

broad context of his statements concerning alchemy, education and John Amos Comenius.

### EDUCATION AS AN IDOL

All men need food and shelter. Other needs are less catholic. Only a century ago, a baptismal certificate was a first necessity for living in a Spanish colony. Today the offer of baptism can be rejected, you can live without one without shame while education now seems a first and universal necessity. If the world survives, this need also will soon vanish.

About one third of all people alive today preach the need for education. They admit that some people can survive without it, as others survive without shelter, but they pity those who are deprived of either. I believe that most of you can be counted among these new evangelists.

All power on earth is moving into the hands of educated people. Education serves the dominant minority as a justification for the privilege they hold and claim. When challenged, the educated respond like the steward who, unable to dig, and ashamed to beg, staked his future on the value of his certificates.

At the end of the Middle Ages, people put their trust in certificates which guaranteed indulgence. In our age of waning enlightenment, people put their trust in certification stating that they possess something they call 'education'.

### I

Education has come to mean the inverse of the living process of learning from an environment which is human; an environment in which most men have access most of the time to all facts and tools which indeed shape their lives. It has come to mean something which can be acquired only by departing from everyday reality to consume a special commodity and to accumulate abstract knowledge about life.

Imperceptibly all countries, east and west, have adopted a system of knowledge-capitalism. Wealth is redefined in terms of hours of instruction purchased with public funds and poverty is explained and measured by the failure of a man to consume. In such a society the poor are those who lag behind others in education to reacquire a world view from the perspective of the poor.

Historically, faith in education grew in conjunction with alchemy. Education is the Alchemist's elixir in contemporary form. It is the mystical stone whose mere touch can refine the base elements of the world. It is the procedure by which ordinary metals are forced through successive stages until they emerge as pure gold.

Bishop John Amos Comenius is rightfully regarded as a founder of modern education. A man of his time, he was conversant with alchemy and applied the concept and language of the Great Art to

the refinement and enlightenment of men. He bestowed pedagogical meaning on the chemical vocabulary of progress, process and enlightenment. Today, faith in education animates a new world religion. The religious nature of education is barely perceived because belief in it is ecumenical. The alchemist's dream that education can transform men to fit into a world created by man through the magic of the technocrat has become universal, unquestionable and, beyond that, is now considered traditional. Marxists and capitalists, the leaders of poor countries and of super-powers, rabbis, atheists and priests share this belief. Their fundamental dogma is that a process called "education" can increase the value of a human being, that it results in the creation of human capital and that it will lead all men to a better life.

The most generous people of our age give their lives for the education of the poor. Inevitably educators can count on the support of the powerful, just as the Spanish missionaries had the support of the Crown. It is the educator, after all, who convicts the poor of incompetence. In all nations, the educated use the same ritual to seduce or compel others to accept their faith. This ritual is called schooling. All countries which belong to the UN, demand from all their citizens a minimum of 20 hours of weekly attendance during a period of at least five years. Never has an established church been so demanding. The liturgy of schooling has everywhere the same traits. Children are grouped by age. They must attend services in a sacred precinct reserved for this purpose which is called "class"; they must perform tasks which produce education because they are determined by an ordained minister called a certified teacher; and they must progress in the grace society bestows upon them by moving from grade to grade.

I take no issue with our teachers. They are among the most dedicated, generous and kind people. In sheer human qualities, they compare favourably with any previous group of professional servants of religion. They render more diverse services than any priests before them. There is nothing which some teacher is not believed competent to teach. But what we call "education" today is not the exchange which goes on between pupil and teacher. It is rather the bureaucratically-minted currency the institution grants its clients under the seal of the professional teacher.

The ritual of schooling contains a powerful hidden curriculum. This hidden curriculum does not depend on the teacher's intent, nor does it vary with the subject matter taught; whether communism, reading, sex, history or rhetoric. The first thing the child learns from the hidden curriculum of schooling is an age-old adage of faith corrupted by inquisition, -- "extra scholam nulla est salus" -- outside this rite, no salvation. By his mere presence in school the pupil subscribes to the value of learning from a teacher and to the value of learning about the world. This means that he unlearns to take everybody for a potential model and that he becomes incompetent at learning every-



thing from everyday life. In school the child learns to distinguish between a world which is real and into which he will one day enter, and a world which is sacred and in which he now learns. From progressive promotion in school the child learns the value of unending consumption and the desirability of yearly obsolescent grades. From school he learns that his own growing up is socially worthwhile only because it is a result of his consumption of a commodity called education.

For generations we have tried to make the world a better place by providing more and more schooling. So far this endeavor has failed. What we have learned instead is the forcing all children to climb an open-ended ladder cannot enhance quality but must favor the individual who starts out earlier, healthier or better prepared. We have learned that enforced instruction deadens for most people the will for independent learning. Finally, we have learned that knowledge, treated as a commodity, delivered in packages and accorded the status of private property must always be scarce.

## II

School is suddenly losing its political, economic and pedagogical legitimacy. School is suddenly being recognized as a ritual which is necessary to make the contradictions of our society tolerable, as a process of socialization into conformity with the demands of a consumer society. School supports our society's egalitarian myth while establishing its rigorous structure of 16 levels of dropout. The push-out is blamed through life for his underconsumption of pedagogical treatment.

This breakdown of schools is a hopeful sign. But it does not yet mean that those who criticize school have abandoned the Alchemist's dream. From the history of the church we know that liturgical reform alone is no guarantee of theological renewal. The breakdown of school could lead to the search for new "educational" devices. The school shall indeed be dis-established as all other churches have been dis-established. But this dethronement could lead to an apotheosis of education for progress in which the last state would be worse than the first.

It could lead to an enormous effort to achieve outside the structure of the school what so obviously has failed inside that structure, an effort to find more effective and more universal ways of packaging "learning for life", and marketing it through other systems. But the net result would be the same, - we would still accept the notion that persons must be "educated" to live by acquiring information about every aspect of the world before being allowed to face it. Such an attempt to transform the entire world into a global schoolhouse could lead to a world run by a party of all-knowing teachers. Unless the dis-establishment of school leads to a society in which education is likewise replaced by an environment in which men have unrestricted access to

the nature of things and the use of tools, the transfer of education from school to other institutions of a consumer society will inevitably lead to more teaching about a more alienated world.

At present schools limit the teacher's competence to the classroom. They prevent him from claiming man's world life as his domain. The demise of school will remove this restriction and give a semblance of legitimacy to the life-long pedagogical invasion of everybody's privacy. It will open the way for a scramble for "knowledge" on a free market, which would lead us toward the paradox of a vulgar, albeit seemingly egalitarian, meritocracy. Unless the concept of knowledge is transformed, the dis-establishment of school will lead to a wedding between a growing meritocratic system that separates learning from certification and a society committed to provide pedagogical therapy for each man until he is ripe for the gilded age. The global schoolhouse would be distinguishable in name only from a global madhouse or a global jail. Soloviev already predicted 80 years ago that the Anti-christ would be a teacher.

We often forget that the word "education" is of recent coinage. It was unknown before the reformation. Education of children is first mentioned in French in a document of 1498. This was the year when Erasmus settled in Oxford, when Savonarola was burnt at the stake in Florence and when Durer etched his Apocalypse, which speaks to us powerfully about the sense of doom hanging over the end of the Middle Ages. In the English language, the word "education" first appeared in 1530. This was the year when Henry VIII divorced Catherine of Aragon and when the Lutheran Church separated from Rome at the Diet of Augsburg. In Spanish lands another century passed before the word and idea of education acquired some currency. In 1632, Lope de Vega still refers to "education" as a novelty. That year, you will remember, the University of San Marcos, in Lima, celebrated its sixtieth anniversary. Learning centers did exist before the term "education" entered common parlance. You "read" the classics or the law, you were not educated for life.

As Christians, we must bear the responsibility our churches have had in the promotion of all kinds of capitalism but especially the promotion of the knowledge-capitalism I have just described. The religion of universal and compulsory education turns out to be a corruption of the Reformation. It is our task to understand this and to point it out. Gutenberg invented a technology that could make books available to everyone. But instead of using it for this end, the book has been transformed into a professional tool, available only to the initiated at the new church. Luther made the Bible available, but he also invented a method of mass-teaching: the catechism, a programmed course of questions and answers. The Catholic Church launched the counter-reformation by freezing its doctrine into a catechism of its own. The Jesuits secularized the idea and created the Ratio Studiorum for their colleges. Paradoxically, this Ratio

became the curriculum in which the elites of the Enlightenment were formed. (Voltaire and his colleagues were their pupils.) And, finally, today, all nation-states produce their elites for those for whom the good life is reserved - by making them consume education, while the same consumption in smaller doses serves to enlighten the poor about their predestined inferiority.

Let me sum up my argument: the reformers tried to spread the mystery of God's revelation about the kingdom to come. Educators now make the coming of the Earthly Kingdom depend on universal consumption of their institutionalized ministrations. The myth of universal education, the ritual of compulsory schooling and a professional structure erected for the progress of the technocrat, reinforce one another. Once this has been recognized, any further complicity of Christian Churches in worship of the idol of progress cannot be tolerated. Every organized Christian community must now choose among three possible policies. You can stick with schools. You can tear down schools and stick with the pseudo-religion of education. Or, you can feel called to be radical and prophetic.

1. If a church sticks with schools, its policy makers will be concerned about how to increase their number, how to improve their quality and how to provide more doles for the benefit of the unschooled, such as remedial education, radio schools, technical training and the like.

Farsighted men who find themselves within a church which embarks on this policy should be mainly concerned with the increasing frustration of their educational workers.

2. A church can also choose to recognize the breakdown of schools, yet remain committed to the myth of general education as production of a consumer commodity. Such a church will argue for dis-establishment of the schools; for more equal distribution of educational resources; for protection of the unschooled against discrimination on the job or in society. All these guarantees are needed and a church which endorses them will certainly be welcomed in the company of other progressive movements.

But a church which makes this choice - a church which recognizes the inevitable breakdown of school but does not recognize the pseudo-religious character of "education" - such a church will inevitably become the accomplice of a consumer-society of the future. De-schooled educational devices are merely new methods of packaging and marketing instruction about the world in a more efficient way; new forms of pre-packaged accumulation about life which must fit the shape designed and engineered by professionals, new ways of channelling to people the intangible possessions they need to conform to the demands of a consumer society. If your church does not go beyond the demand that schools be dis-established, you will become the accomplices of the Pharaoh who snares new slaves into a world which, through technocratic progress, grows impersonal, opaque and polluted.

3. You have a third choice. You can read the scriptures, return to the purest tradition of the Church and announce the

coming of the Kingdom which is not of this Earth: the Kingdom whose mystery we are privileged to know. This choice each one of us must make if he wants to follow Jesus, and he must make it even though the Church in which he is rooted has incorporated the "progress of people" into its venerable tongue.

In the name of God we must denounce the idolatry of progress and the polluting escalation of production. We must expose the pseudo-theology of education as preparation for a life of frustrating consumption. We must remind men that God has created a good world, and has given us the power to know and cherish it without the need of an intermediary. We know - it is the experience of each of us - that man grows up and learns in the measure in which he is engaged in personal, intimate - always surprising - intercourse with others in a meaningful environment, whereas he shrinks and shrivels when he is serviced by officials. Consequently, we must refuse to cooperate in any attempt to create a man-made environment in which the life of all persons would depend on their having been clients of a service organization.

It takes courage to name the price of a clean and transparent world; to state at what cost technology could be put at the direct service of the majority of the world's people, so that each person would be able to heal himself, to house himself, to move easily around his world and to learn what he wants to know. It takes courage to put technology in the hands of all by snatching it from the hands of the technocrat who prides himself on providing for ever fewer persons, ever more costly medicine, education, housing or transportation - all understood as commodities whose production secrets are the private lore of experts.

A world which renounces the pageant of unrestrained technocracy is a world of radical limits on consumption arrived at by agreement among a vast majority and ultimately in the interest of all. It makes no sense to propose a minimum income unless you face the need for a maximum one. Nobody can ever get enough who does not know what is enough. It makes no sense to advocate minimum levels of medicine, access to tools and transport, unless you affirm the need for maximum levels of treatment, bigness and speed.

Such an anti-technocratic consensus easily translates into the need for voluntary poverty as it was preached by the Lord. Self-chosen poverty, powerlessness and non-violence are at the heart of the Christian message. Because they are among its most tender elements, they are also among the most easily corrupted, ridiculed and neglected. If you preach the unaltered Gospel and announce the blessedness of the poor, the rich laugh at you and the would-be rich sneer. But as never before, the Christian message is also the most rational policy in a world increasingly devoted to widening the gap between rich and poor.

In the liberation of the world from the idols of progress, development, efficiency, Gross National Product and Gross National Education, the Third World has a crucial responsibility. Its masses are not yet totally addicted and dependent on con-

sumption of service. Most people still heal, house and teach one another, and could do it better if they had slightly better tools. The Third World could lead the rest in the search for an environment which would be both modern and humane. Now, two worlds face each other: the Babel of Russia and the Egypt of the United States. Both are prisoners of their common idols. A third world covers the rest of the globe. It is the world of the Desert.

Even within the empires, the wasteland of slums now spreads. Egypt and Babel are impotent to save themselves. They can be saved from the tyranny of their idols only by the people who worship their nameless and living God in the desert, by those who have renounced the fleshpots of Egypt.

But by no means are all those who wander in the desert members of the People of God. Some dance around the golden calf; they establish outposts of the Empires in the middle of the wilderness. Others rebel against God's prophet, appoint their own leaders and return into the slavery which their fathers left when they despoiled the Egyptians. They regress to an alliance with Egypt. Still others cannot endure the desert. They break away from God's people, move to the East and, ultimately, like the Jews, they anoint their own king and become serfs like the other peoples of the Earth. It is time to make known what we have come to know. It is time to announce that the liberation of the rich and would-be rich depends on the People of God, and those whom Dom Helder has called the Abrahamic minorities, among whom Christians seem to be an exception. Liberation can come only from those who choose the desert because they have been set free. (25)

Excerpt from:

Ivan Illich, "Deschooling: Critique of an Institution"

Thesis Theological Cassettes Volume 2, Number 10 (26)

. . . When I dedicated myself to the study of (of all things) alchemy. The reason I began to study alchemy was because Professor Ernst Bloch, the great philosopher, called to my attention that Bishop John Amos Comenius was an alchemist. Now in none of the biographies of Comenius could I find information on this, but as I began to study and do more research, it turned out that Comenius in fact had started a Rosicrucian Alchemic Lodge in London in 1642 while he was there. Called by the British Parliament to establish a public school system throughout England, he was deeply concerned with alchemy at the time he wrote his Magna Didactica, his great didactics or the great art of teaching everybody everything, (and if you continue to read on) cheaper, better and faster, by standardizing it and having one man produce effects in hundreds of children, which, otherwise, could not be achieved by less competent men, especially with less method, trying to do the

same. As I continued to study alchemy, it turned out that several of the great theoreticians of the necessity of an educational process in the seventeenth century, were not only deeply involved in Hermetic alchemy, but that Comenius was the spiritual son, the pupil of a man, little known at this moment, Wolfgang Ratke, who openly claimed that education was an alchemic process applied to human beings. In fact, he drove together children (and Comenius helped him in this) on a village square. He employed people whom he called "Schollags", lay teaching assistants, whom he equipped with sticks, to keep the children in line and in the square. Had them repeat aloud pages of Torencius by reading and repeating them 25 times and beating everybody who did not repeat them properly and then showing off his product as people who have acquired the Latin tongue.

This is just a little illustration of the extraordinary things you find when you study hermetic alchemy which defines itself as the art of those who know how to take, gather the base elements of society, putting them into classes, classing them properly, putting them into stills, putting them to the question by placing them above the fire and thereby compelling them to rise from grade to grade on each grade adding the proper subject matter, until they become completely enlightened into gold.

The analysis of the history of the principle words which we use even today in education within the school process indicate that practically all the words process, program, subject matter, class enlightenment itself, were technical terminology of the great art during the late fourteenth and fifteenth century.

Now it is important that we remember that the school system, which in a very industrial mode, transforms personal growth into the result of consumption of the commodity, must be seen as complementary to the concept which we have developed to define what human beings have to consume in order to grow, namely education. And the word education, the very concept that there can be something in common with the knowledge of making shoes, writing and history, is a post-reformation I am speaking of schooling as an introduction to a society living of institutionalized values. I am convinced that at this very moment, during this year and the next year and the year afterwards, the legitimacy of the school will be thoroughly undermined. It is quite evident that school cannot produce equality, because if you base equality on arbitrary competition on climbing an open-ended ladder, by definition only the few who make it over the last rounds get privilege, money and status. It is quite evident that the school system has become economically unfeasible if you want to keep it an open-ended system. No country is rich enough to provide the schooling for which it can create the demand by putting people through the lower levels. It is quite evident that the school system, as long as we make education depend upon the school system, discriminates against many more people, damages many more people than it benefits, because first of all, most people anyway drop out of school before they get to the sixteenth grade which really counts. (26)

Excerpt from unpublished speech by Ivan Illich, given at Ohio State University, March 4, 1972.

. . . If you'll write that thesis (on the alchemic origins of education) properly and with imagination, you'll make a major contribution to clear thinking, to clarification of concepts of the world because most of the vocabulary used in schools of education has an alchemic origin; class, promotion, graduation, selection, enlightenment, liberating of the spirit, the base elements of society, gathering according to capacity, limited ability for input of subject matter. You'll find all these words used exclusively in a special field called alchemy in the fifteenth and sixteenth century.

The Alchemists took the base elements of the world, pushed them together into appropriate classes, after successive processes with appropriate subject matter, thereby liberating the spirits God had placed into the elements ('what nature has begun, man can perform and fulfill') so as to enlighten the base elements of society and transform into pure gold, (which was mystical gold) which was reduced for this purpose a process called the alkahest which later on was called curriculum.

Discussion of John Amos Comenius Moravian Bishop of which any of you having to do with education know, who in England, worked as an alchemist and who wrote his big book about the great art which is exactly the art of alchemy, The Magna Didactica, The Great Didactic, the art of teaching everybody everything by making it faster, cheaper, and better, the industrial method of producing a long visible commodity of which people stand in need because they are more stupid . . . developed in the sixteenth century.

Here we come to the point about which I'm most worried, with the breakdown of the legitimacy of schooling, of the process which I described before on different levels. We are faced by a very major option, the option either to try to produce education cheaper, faster, better and for more people or we have to move into a very serious critical analysis of the basic assumption on which we live, namely that people need "education".

Now when 5-6 years ago I began to speak about the possibility that the great liberal ideal school might at closer analysis structurally be destructive, if you want to make it available for everybody I ran into very major difficulties. I had to overcome great personal obstacles to say this, to say we must question how seriously in Middle Ages people born in original sin and needed a ritual to be liberated from original sin and incorporated into the Christian

community. Then during the century during Reformation people killed each other off. You know they figured that if man was born totally corrupt he could obtain justification by the proper rituals.

At the end, when the Reformation was over, they ceased to worry about justification but one thing they agreed upon, that people were born stupid and were not considered citizens until they had consumed enough education.

With the breakdown of school we can move into the direction of developing new tools by which teachers let loose from the classroom (schools restrict teachers to the classroom) pursue us every moment on the street in order to provide us more and better education mobilizing the entire nation to educate each other. Or we come to the other alternative and question the very need for education in the sense in which we have gotten used to imagine the need for education in the last 120 years. Now this leads us to a much deeper level of social analysis and it is on this that I would like to report today . . . . (from here he goes into the discussion of the need for upper limits) (27)

#### B. FOUR CATEGORIES OF STATEMENTS BY IVAN ILLICH CONCERNING EDUCATION, ALCHEMY AND JOHN AMOS COMENIUS AND THEIR IMPLICATIONS

##### 1. Statements which concern the historical parallel between alchemy and education.

The first section will concern the growth and development of the concept of education and its assumed (by Illich) relation to alchemy, that is the historical and alchemic origins of education.

Historically, faith in education grew in conjunction with alchemy. (25)

As I continued to study alchemy, it turned out that several of the great theoreticians of the necessity of an educational process in the seventeenth century, were not only deeply involved in hermetic alchemy, but that Comenius was the spiritual son, the pupil of a man, little known at this moment, Wolfgang Ratke, who openly claimed that education was an alchemic process that applied to human beings. (26)

The analysis of the history of the principle words which we use even today in education within the school process indicate that practically all the words, process, program, subject matter, class, enlightenment itself, were technical terminology of the Great Art (alchemy) during the late fourteenth and fifteenth century. (26)



If you will write that thesis (on the alchemic origins of education) properly and with imagination you will make a major contribution to clear thinking, to clarification of the concepts of the world because most of the vocabulary used in schools of education has an alchemic origin; class, promotion, graduation, selection, enlightenment, liberating of the spirit, the base elements of society, gathering according to capacity, limited ability for input of subject matter. You will find all these words used exclusively in a special field called alchemy in the fifteenth and sixteenth centuries. (27)

#### IMPLICATIONS OF THE FIRST CATEGORY OF STATEMENTS

The first series of statements raises the question of the origin of the concept of education in its root meanings and early usage. In another speech Ivan Illich has said that the question of whether there is anything in common between making shoes, studying Latin and solving mathematical equations, is a problem of recent origin, i.e., that schooling as we know it is a recent development. It is commonplace for us to assume that education, especially in the schools as we know them today, has always been in its present form; teacher with a classroom of pupils being graded according to age, learning one subject at a time, etc.

This first group of statements questions this assumption. Is education really a post-reformation concept? If so, the pattern as we know it today goes back only about three hundred and fifty years rather than being the universal pattern which traces its lineage into antiquity.

Though it is not always clear from Illich's statements precisely what type of connection he is trying to make between alchemy and education, it is certainly one fair interpretation that he is positing historical causation.

Words such as class, promotion, graduation, selection, enlightenment, liberation of the spirit, base elements of society, limited ability for input of subject matter, are not ordinarily thought of in the context of chemical processes. So thoroughly has the transfer been made, if we accept Illich's assumption, that no connection is ordinarily made. Logically if some of the words and concepts are the same in alchemy and in education and this can be shown, the assumption then would be that there is a causal relation.

We will look at these words Ivan Illich asserts came into the educational vocabulary from alchemy in Category IV.

Wolfgang Ratke was an educational theoritition of the seventeenth century and if he were involved as Illich asserts in Hermetic Alchemy, he certainly would have had an influence upon Comenius who knew and admired, according to his own testimony, the writings of Ratke. If indeed Comenius was a spiritual son, the pupil of Ratke, it should be easy enough to find a direct correlation between the theoretical work of both of these men. And if Ratke was indeed a hermetic alchemist the influence upon Comenius should be quite evident.

We have here the implication, if there is this relation between Comenius and Ratke the alchemist, that education as we know it in its modern form grew in conjunction with alchemy and was directly influenced by it. Indeed, education then could be understood as the alchemist's elixir or philosopher's stone under guise of modern education. As the alchemist dreamed of transforming the base elements into the pure gold

of enlightenment, so would education be the means by which the baser elements and the alchemist himself could be adopted to the great enlightenment. The implications are then that education would be the means to fit a man to live in a world that's created by the new technology.

## 2. THE INFLUENCE OF JOHN AMOS COMENIUS ON THE DEVELOPMENT OF EDUCATION

Bishop John Amos Comenius is rightfully regarded as the founder of modern education. (25)

### IMPLICATIONS OF CATEGORY 2

The question of the place of John Amos Comenius as the architect of modern education is the second of the statements made by Illich which form a logical construct for his reasoning.

That Comenius has made a great contribution to modern education is very important at this point. We must ask whether Comenius is rightfully "The Founder of Modern Education" (25). Is it through Comenius as Illich claims, that a pattern from alchemy has entered the present schooling process? If he is the father of modern education and brought into it a pattern from some primitive form of chemistry, does this contribute to the crisis in public education?

Why does Illich speak of John Amos Comenius as the founder of modern education? Is it because of his contributions, or because of his method, or because of his philosophy of education or his concern for the enlightenment of men? Are implications that Comenius was seeking to demean the student, or rather to help him fulfill his God given potentialities? If we can believe that pansophy was the ideal which led him

to continually find better ways to educate, what influence did this have on Comenius' educational philosophy?

### 3. STATEMENTS CONCERNING THE INFLUENCE OF ALCHEMY ON JOHN AMOS COMENIUS AND HIS EDUCATIONAL THEORIES

The reason I began to study alchemy was because Professor Ernst Bloch, the great philosopher, called to my attention that Bishop John Amos Comenius was an alchemist. (26)

Called by the British Parliament to establish a public school system throughout England, he (Comenius) was deeply concerned with alchemy at the time he wrote his Magna Didactica, his Great Didactic, so the great art of teaching everybody everything, (and if you continue to read on) cheaper, better and faster, by standardizing it and having one man produce effects in hundreds of children, which otherwise could not be achieved by a less competent man, especially with less method, trying to do the same. (26)

Now in none of the biographies of Comenius could I find information on this, but as I began to study and do more research it turned out that Comenius in fact had started a Rosicrucian Alchemic Lodge in London in 1642 while he was there. (26)

Comenius has started a Rosicrucian Alchemic Lodge in London in 1642 while he was there called by the British Parliament to establish a public school system throughout England, that he was deeply concerned with alchemy at the time he wrote his Magna Didactica, his Great Didactic or the art of teaching everybody everything, cheaper and faster, by standardizing it and by having one man produce effects in hundreds of children which otherwise would be of higher quality than could be achieved by having a less competent man with less method trying to do the same. (26)

He (Comenius) bestowed pedagogical meaning on the chemical vocabulary of progress, process, and enlightenment. Today, faith in education animates a new world religion. The religious nature of education is barely perceived because belief in it is ecumenical. (25)

As I continue to study alchemy it turned out that several great theoreticians of the necessity of the educational process of the seventeenth century not only deeply involved in hermetic alchemy but that Comenius was the spiritual son, the pupil, the man little known at that moment, Wolfgang Ratke who openly claimed that education was an alchemic process applied to human beings. (26)

Discussion of John Amos Comenius, Moravian Bishop of which any of you who have to do with education know, who in England worked as

an alchemist and who wrote his great book about the Great Art which is exactly the art of alchemy, the Magna Didactica, the Great Didactic, the art of teaching everybody everything by making it faster, cheaper and better. The industrial method of producing a visible commodity. (27)

A man of his time, he (Comenius) was conversant with alchemy and applied the concept in language of the Great Art to the refinement and enlightenment of men. (25)

### IMPLICATIONS OF CATEGORY 3

In this series of statements Illich is asserting that Comenius not only was an alchemist but that he adapted alchemical patterns in his educational theories. Why in standard biographies is no mention made of Comenius' alchemical background? If he was an alchemist we have the question of the source of his alchemic knowledge. Were many of Comenius' associates alchemists? Do Comenius' writings show the influence of alchemy in vocabulary and concept?

Was Comenius concerned with the "refinement and enlightenment of men" and is this in harmony with his ideals as well as the kind of life he led? What was the central motivating force of this man's life?

Besides advocating pedagogical reforms, he devoted his life to the ideal of peace - in church, in state, and ultimately in the world. Not only was he an early prophet of Christian ecumenicity; he was much more besides. He wished to unite the warring Christian factions whose strife was wreaking an unprecedented havoc upon Europe of the Thirty Years' War period. But in his aspiration he soared high above and far beyond the European boundaries and his own time. He wished to unify humankind on principles of an integrated universal culture based upon a religious foundation. This was his "pansophy," a vast, encyclopedic scheme comprising universal knowledge, on which he worked zealously and untiringly to the end of his busy and fruitful life. (7-10)

If pansophy was the guiding concept of Comenius' life how did it relate to alchemy? Here we must turn to a secret society.

The Rosicrucian order traces its lineage to the quasi-historical founder, Christian Rosenkreuz.

In the thirteenth century a high spiritual teacher, having the symbolical name Christian Rosenkreuz - Christian: Rose: Cross - appeared in Europe to commence that work. He founded the mysterious Order of Rosicrucians with the object of throwing occult light upon the misunderstood Christian Religion and to explain the mystery of Life and Being from the scientific standpoint in harmony with Religion. (8-518)

From the present writings of the Rosicrucians we find:

The Rosicrucians in purpose are highly idealistic and semi-secret teaching alchemy, astrology and various hermetic arts. The Order of Rosicrucians is not merely a secret society; it is one of the Mystery Schools, and the Brothers are Hieropants of the Lesser Mysteries, Custodians of the Sacred Teachings and a spiritual Power more potent in the life of the Western World than any of the visible Governments, though they may not interfere with humanity so as to deprive them of their free will. (8-520)

Illich is asserting that John Amos Comenius was not only a Rosicrucian but that he started a Rosicrucian Lodge in London in 1642, where he traveled at the invitation of Samuel Hartlib. Was Comenius called to London by the English Parliament to reform the public school system in England?

If Comenius were in London were the men he associated with of like ideals, interests and concerns? Were they Rosicrucians? Was Comenius in London in 1642, associating with Rosicrucians and did he start a Rosicrucian Lodge? The other implication is that Comenius, if he were a Rosicrucian, would have Rosicrucian views of alchemy. How did these views affect his educational reforms?

When we consider the subject of alchemy itself the volume of literature available is not insignificant.

More than a hundred thousand books and manuscripts on alchemy are known to exist. This vast literature, to which the finest minds have contributed and which solemnly affirms its attachment to facts and practical experiments, has never been systematically explored. The current intellectual climate, Catholic in the past, rationalist today, has always maintained in regard to these texts an attitude of ignorance or scorn. A hundred thousand books and manuscripts perhaps contain some of the secrets of energy and matter. (10-66)

Hermetic alchemy derives its name from Hermes Trimegistes, a quasi-historical or even mythical Egyptian, who taught the principles of transmutation or transformation. Some say this applied to metals and some to the human personality. The theory of alchemy, though arcane, is very simple; its basis indeed may be comprehended in that statement of Arnold di Villanova, in his Speculum:

"That there abides in nature a certain pure matter, which being discovered and brought by art to perfection, converts to itself proportionally all imperfect bodies that it touches." (9-72)

Mary Atwood continues:

And this would seem to be the true ground of metalline transmutation, and of every other; namely, the homogeneity of the radical substance of things; and on the alleged fact that metals, minerals, and all diversified natures, being of the same created first principles, may be reduced into their common basis or mercurial first matter, the whole Hermetic doctrine appears to hinge and to proceed. (9-72)

Why did not Comenius openly state he was an alchemist and a Rosicrucian? Perhaps there was a conflict between the Moravian Church and the Rosicrucians or a theological tension between the Moravians and alchemical concepts? Such are some of the implications of this series of statements by Illich.

#### 4. STATEMENTS CONCERNING THE RELATIONSHIP OF ALCHEMY TO EDUCATION AS WE KNOW EDUCATION TODAY.

Education is the alchemist's elixir in contemporary form. It is the mystical stone whose mere touch can refine the base elements of the world. It is the procedure by which ordinary metals are forced through successive stages until they emerge as pure gold. (25)

This is just a little illustration of the extraordinary things you find when you study hermetic alchemy which defines itself as the art of those who know how to take, gather the base elements of society, putting them into classes, classing (schooling) them properly, putting them into stills, putting them to the question by placing them above the fire and thereby compelling them to rise from grade to grade on each grade adding the proper subject matter, until they become completely enlightened into gold. (26)

This breakdown of schools is a hopeful sign. But it does not yet mean that those who criticize school have abandoned the Alchemist's dream. From the history of the church we know that liturgical reform alone is no guarantee of theological renewal. The breakdown of school could lead to the search for new 'educational' devices. The school shall indeed be dis-established as all other churches have been dis-established. But this dethronement could lead to an apotheosis of education for progress in which the last state would be worse than the first. (25)

If you'll write that thesis (on the alchemic origins of education) properly and with imagination, you'll make a major contribution to clear thinking, to clarification of concepts of the world because most of the vocabulary used in schools of education has an alchemic origin; class, promotion, graduation, selection, enlightenment, liberating of the spirit, the base elements of society, gathering according to capacity, limited ability for input of subject matter. You'll find all these words used exclusively in a special field called alchemy in the fifteenth and sixteenth century. (27)

#### IMPLICATIONS OF CATEGORY 4

The questions that are raised by this fourth series of statements concern the present relationship between alchemy and chemistry and their implications for the modern school system. The manipulative description given by Illich of the educational process whereby from class to class, from grade to grade, the pupil is raised and refined until enlightened,



raises the question of man's freedom. May one manipulate a person for ends which he did not choose for himself? To what extent has education become a means by which the technological society has been able to regenerate itself? To what extent has education the procreational organ of society?

There is the assumption that education is really a new religion. The implication of such an assertion with its assumption that man can be manipulated or even that man should be manipulated is debasing and dehumanizing. Instead of the worship of God, man worships his machines. God becomes the technocrat and the machine becomes the salvation of society and education becomes the means by which men are sacrificed to the ends of the machine. Until we have the machine as the object of worship the *deux ex machina* (god the machine).

Illich asserts that words such as class, graduation, enlightenment are of alchemic origin. These words which are common to the educational vocabulary today, if they were taken directly from alchemic usage would indicate the direct relation between the two disciplines and would be a means of showing that Comenius had a direct influence upon alchemy.

## CONCLUSIONS OF CHAPTER II

Chapter II has been a direct examination of materials of Ivan Illich since the summer of 1971 and related to alchemy, Comenius and education. In this chapter we have looked at the complete text of his article in Religious Education entitled "Education as an Idol." We have also looked at excerpts from "Deschooling: Critique of an Institution" and an unpublished speech given March 4, 1972 at Ohio State University.

Four groups of statements were then outlined, examined and viewed in the light in some of the implications. They are:

1. The historical parallel between alchemy and education
2. Comenius and the development of education
3. The influences of alchemy on Comenius
4. Education and alchemy today

The statements of Illich dealing with Comenius, alchemy and education were then placed in one of the four respective categories. In subsequent chapters, using the historical method, the assertions of Illich will be closely examined.

## CHAPTER III

### JOHN AMOS COMENIUS AND ALCHEMY

To be able to proceed with the main thrust of this thesis it becomes necessary to provide brief background material on Comenius and the field of alchemy. Little is known today about Comenius apart from those particular publications dealing with the subject of the history and philosophy of education or the history of the Moravians. Such narrow fields are confined to the scholars who investigate more closely the details of such subjects. Likewise with the study of alchemy. This word itself is familiar enough but the stereotypes it conjurs up run all the way from the precursor of modern chemistry, on one hand, to the esoteric wisdom of the ancients on the other; both incidentally, being partial truths.

This chapter is an attempt to provide material and descriptions, upon which later to project the questions of the relation of Comenius to the field of alchemy and their combined relation and effect upon education as we know it today in the form of public schooling. Ivan Illich, school critic and social reformer is using this question to project concepts for the renewal of society.

#### A. ALCHEMY

##### 1. Introduction to Alchemy: Definitions and Obscure Origins

Despite what some may believe, alchemy did not rise from the workings of demented minds beginning sometime during the Middle Ages.

The volume of alchemical writings even before the advent of printing exceeds one hundred thousand extant manuscripts: (10-66) and alchemy is not only the workings of men of the past. Pauwels and Bergier writing in the early 1960's report:

We know several alchemists in France, and two in the United States. There are some in England, in Germany and in Italy. E. J. Holmyard says he met one in Morocco. Three have written to us from Prague. The scientific press in the U.S.S.R. appears to be taking a great interest in alchemy, and is undertaking historical researches. (10-82)

The subject of alchemy does not easily yield to simple explanations or definitions. Carl Jung, the noted Swiss physician and father of Analytical Psychology, began his studies of alchemy in order to better understand the workings of the unconscious mind. He collected many manuscripts in the course of his studies which profoundly affected his understanding of the human psyche. Aniela Jaffe, reporting on Jung's romance with alchemy, writes:

The results of his researches not only led to differentiations of theory within psychology itself but also afforded a deeper understanding of the problems that arise in practical psycho-therapy. As a doctor, Jung was daily confronted with the still-unresolved problem of assimilating the "darkness" and "evil" in human nature, which had a perfectly natural place in alchemy and was expressed in the symbolism of the dragon, unicorn, serpent, nigredo, quaternity, etc. He became passionately interested in this question, because for him it was not only a religious and moral problem but the eminently practical one of assimilating the "shadow" - the inferior side of the personality. His observations on the religious aspect of evil start from the ancient numerical dilemma that runs through alchemy. (4-66)

There is no single definition of alchemy. Rather there are various points of view, differing and shaded meanings of the concepts used by the pseudo-scientists of the Middle Ages and those who would be psychic manipulators. Pauwels and Bergier describe this differ-

ently and propose to give the secret of alchemy:

You ask me to summarize for you in four minutes four thousand years of philosophy and the efforts of a lifetime. Furthermore, you ask me to translate into ordinary language, concepts for which such a language is not intended. All the same, I can tell you this much: you are aware that in the official science of today the role of the observer becomes more and more important . . . the secret of alchemy is this: there is a way of manipulating matter and energy so as to produce what modern scientists call "a field of force". This field acts on the observer and puts him in a privileged position vis-a-vis the Universe. From this position he has access to the realities which are ordinarily hidden from us by time and space matter and energy. This is what we call "The Great Work". (10-78)

Let it be understood that alchemy deals with transmutation and that transmutation is not confined to the changing of base metals such as lead, into gold and silver. Alchemy deals with the changes that take place all about us but more especially in the alchemist himself. Mary Atwood gives a summary:

Simply stated, Hermetism, or its synonym Alchemy, was in its primary intention and office the philosophic and exact sentence of the regeneration of the human soul from its present sense-immersed state into the perfection and nobility of that divine condition in which it was originally created. Secondly and incidentally, as will presently appear, it carried with it a knowledge of the way in which the life-essence of things belonging to the subhuman kingdoms - the metallic genera in particular - can, correspondingly, be intensified and raised to a nobler form than that in which it exists in its present natural state. (9-26)

How difficult to draw a line between alchemy, philosophy and theology. Certainly in the worldview of the Middle Ages they were intimately related. Atwood describes the theological "fall" of man and its possible transmutation:

The science (Alchemy) postulates the premiss, which unless granted at the outset of inquiry into it renders its further consideration superfluous, that somehow, somewhere, and for reasons into which we need not now inquire, the human soul has sustained

what is called by theology a "fall"; a declension from Supernature into this world of Nature, a cutting-off - not total, but nearly so - from its original environment, allegiance and root of being; an arrest of the development it would have experienced but for its lapse into an alien state and plan of existence. It promises that reversion to and re-attainment of its original state are alike feasible and desirable. It assumes, moreover, that despite the soul's fall there lingers in it, although in a condition of atrophy and enchantment, a residual germ of that divine principle which once wholly actuated it; a germ capable of being so stimulated into activity as to raise the personal consciousness even to the point of unity and identity with the Universal Mind and, through the healing efficacy of that principle's transmuting potencies, to effect such an organic change in the psychical, and even the physical, parts of our present frail and imperfect nature as will bring them into a divinised condition. Briefly, it implied that man's present fallen self, his natural consciousness and organic constitution, can be metamorphosed, reversed, turned as it were inside out and outside in; that divine principle which is now animating him, and exercising in him a usurped self-willed control, becoming repressed and put back into subordinacy and hiddenness. (9-26)

The "residual germ of that divine principle" in every man is what the alchemists call the "prima matera", the primordial matter that can be purified and changed, raised into something pure and enlightened, whether it be of gold or of the expanded conscience of man. It is very difficult to realize that for the medieval mind there was no separation between body and spirit, matter and mind. Because they were interrelated, it was not possible to separate them or study one without the other. Man was a whole until the time of Descartes.

It was Rene Descartes (1596-1650), the French geometrician and philosopher who developed a method, hitherto unknown, of applying human reason to metaphysical matters. The essence of this method, known as Cartesianism, is expressed in his statement: "To attain truth, it is necessary to empty the mind of all the opinions

which it has received and to reconstruct afresh, and from the foundations, one's system of knowledge".<sup>37</sup>

The view that spatial extension is the distinguishing characteristic of matter was first given philosophic expression by Descartes. From his time onwards, matter was regarded as mass and extension. The result of this was that men sought to understand all spatial, and finally all sensibly perceived qualities in a purely quantitative way. (3-59)

If matter and spirit can be separated as suggested by Descartes, they can be studied separately, manipulated separately and used separately. Thus, it no longer was necessary to consider the theological implications of moral issues when studying matter, an implication that has greatly simplified the study of the physical universe. In a sense, the western civilization has objectified matter and considered the world of the psyche as unreal while the eastern civilization considers the physical world unreal (illusion) and the psyche as the ultimate reality.

Alchemy spoke to this dualism of matter and spirit or psyche. Its transmutations were the changing of both body and spirit or mind and matter as some understood it. There is a sense in which alchemy invites an integration of those who would see only the physical universe as primary. For those who would emphasize the psyche to the exclusion of the physical in the study of alchemy, there are elements of transformation in both the physical and the psychical.

Jaffe describes how the alchemist experienced this relatedness of the physical and psychical.

Matter, for the alchemists, was still a mystery. It is a psychological rule that the unconscious is constellated whenever a person is confronted with something unknown. New psychic contents

rise up in the form of images and get mixed with the unknown object, seeming to make it come alive and intelligible. This was what happened to the alchemists. What they experienced as properties of matter was in reality the content of their own unconscious, and the psychic experiences they had while working in their laboratories appeared to them as the peculiar transformations of chemical substances. Although, as Jung says, the adept's preoccupation with matter may be regarded as a "serious effort to elicit the secrets of chemical transformation, it was at the same time - and often in over-whelming degree - the reflection of a parallel psychic process." (4-57)

There is no one conception of alchemy or end which the alchemists are seeking to accomplish. Reading in the field indicates it would seem that there are almost as many definitions as there are writers themselves. This is, in part, true because of the convert purposes of the alchemists who seek to hide under the guise of symbolism the meaning of the manipulations. If rightly understood, behind their cryptology stands the word, "Transmutation", which sums up the meaning of the alchemists' art.

All too often, alchemy is thought of as belonging exclusively to the medieval ages whereas it has its roots in antiquity. John Read describes the difficulty in researching the origins of alchemy:

From the evidence available, it is impracticable to assign the origin of alchemy to a definite place or time. Quite apart from ultimate origins, however, there is no doubt that the incipient art was influenced during the Alexandrian Age (4th century B.C. to 7th century A.D.) by the application of Greek philosophy to the technique of the Egyptian and other ancient cultures. (2-8)

Read quoting an earlier source tells of the influence of alchemy upon ancient Greece.

Hopkins stressed the influence upon alchemy of four fundamental beliefs which were also widely held in ancient Greece.



These were, in his words:

1. Hylozoism: all Nature is like man, alive and sensitive.
2. That the great universe of sun and stars, the "macrocosm", is guided by the same laws which obtain on the earth, (and for) the "microcosm" (of man's body).
3. Astrology: the stars influence and foretell the course of events on this earth.
4. Animism: any event apparently spontaneous is really due to some personality - fairy, wood spirit, hobgoblin, etc. (2-11)

Alchemy exerted a powerful influence on medieval thinking because of its ancient origins especially those from Greece. For example, the alchemist theory of the four elements entered into the philosophy of Plato and Aristotle and through their writings into the thinking of the Middle Ages. Many other alchemical ideas were drawn from the same source as, for example, the idea of matter playing the role of a passive recipient upon which qualities may be imposed, thus giving rise to metals and other 'forms' of matter, is derived from Plato's Timeaus. Then there is the concept that metals pass through a cycle of growth, culminating in the perfection of gold, and that in these changes art can assist Nature. This belief is clearly related to Aristotle's dictum that Nature strives towards perfection, and even to the earlier pronouncement of Plato that nothing exists which is not good. (2-11)

Thus Alchemy existed from the very earliest times. The ideas of the alchemist can be traced then back to Greece and in the same way to Egypt and by other scholars, to ancient China. There are certainly other roots, hints, origins of alchemy about which we do not know. Nicolas de Valois in the fifteenth century deduced from the fact that manuscripts have been found dating from earliest times, that

transmutations and secret techniques from the liberation of energy were known to men before the invention of writing. (10-69)

Thus alchemy encompasses a multitude of conceptions and definitions. Its origins are ancient, but lost in that antiquity. There is no concensus as to its purpose aside from the art of transmutation and there is great diversity of understanding of that.

Consider now the two divergent concepts of alchemy, first the transmutation of physical matter and then the transmutation of the alchemist himself.

## 2. The Possibility of Making Gold?

### a. Mechanistic or physical view

Many have sought a process for turning lead to gold. Alchemy is understood to be the forerunner of modern chemistry. The medieval alchemist, obsessed with getting something for nothing, of turning lead into gold, mixed so many concoctions that they finally began to observe the difference between various substances, give them names, observe their behavior and from this rough beginning, grew modern chemistry.

So that there will be no confusion about making gold, let it be said that alchemists were very serious in their quest.

One idea, however, was transmitted with an all too liberal accuracy: this was the seed of this idea, germinating in the credulous medieval mind, expanded into an arborescent growth beneath whose shade 'the armies of powerful Sultans might repose'. In the heyday of gold-making, during the sixteenth century, Paris, Prague, and other European cities contained numerous alchemical workshops and dens in which this strange craft was prosecuted with feverish vigour. The ancient houses of the gold-makers are still to be seen at Prague in the Zlata Ulicka, or Golden Alley. (2-22)

The lust for gold, as evidenced in gold rushes of other times, lures men like the tune of the Pied Piper, leading they know not where, but follow they must. And did they find their gold? Madam Blatvsky asks:

How shall we dispose of the historical anecdotes of men who actually made gold and gave it away, and of those who testify of having seen them do it? (11-503)

Having asked the questions, she then produces an impressive list of persons, some well known to history for their accomplishments, who presumably have made gold.

Libavius, Geberus, Arnoldus, Thomas Aquinas, Bernardus Comes, Joannes, Penotus, Quercetanus Gerber, the Arabian father of European alchemy, Eugenius Philalethes, Baptista Porta, Rubeus, Dornesius, Vogelius, Irenaeus Philaletha Cosmopolita, and many medieval alchemists and Hermetic philosophers assert the fact. Must we believe them all visionaries and lunatics, these otherwise great and learned scholars? Francesco Picus, in his work *De Auro*, gives eighteen instances of gold being produced in his presence by artificial means. (11-503)

It is not possible for those who study alchemy to pass off the making of gold as the lustful imaginings of a few medieval fools. The immensity of the involvement of scholars, throughout not only Europe during the medieval period, but back to antiquity and into the present time if we are to give credence to Pauwels and Bergier. If for no other reason than the great abundance of material available, the inquiring mind would be forced to explore further into this seeming pseudo-myth that has attracted men from time immemorial.

Consider some of the contributions of alchemy directly related to chemistry.

Albert le Grand (1193-1280) succeeded in producing potassium lye, and was the first to describe the chemical composition of cinnabar, white-lead and minium.

Raymond Lull (1234-1315) prepared bicarbonate of potassium.

Theophrastes Paracelsus (1493-1541) was the first to describe zinc hitherto unknown. He also introduced the use in medicine of chemical compounds.

Giambattista della Porta (1541-1615) produced tin monoxide.

Johann-Baptiste Van Helmont (1577-1644) recognized the existence of gases.

Basil Valentin (whose real identity is still unknown) discovered in the seventeenth century, sulphuric acid and chlorohydric acid.

Johan Rudolf Glauber (1604-1668) discovered sodium sulphate.

Brandt (d.1692) discovered phosphorus.

Johann Friedrich Boettcher (1682-1719) was the first European to make porcelain.

Blaise Vigenere (1523-1596) discovered benzoic acid. (10-67 & 68)

No one denies that alchemy, as commonly understood, has made a contribution to modern chemistry. But as we study alchemic texts and begin to understand some of the symbolism they are using, it becomes clear that alchemy is more and more concerned with the transmutations of the alchemist himself. This we will deal with when we come to Hermetic alchemy, which is the definition Illich is using when he refers to the alchemic process that influenced Comenius.

John Read clearly states that there is more than one direction of the "Great Work", as it was called.

. . . it is not then from alchemy, as often stated, that modern chemistry derives, but actually from the erratic work of the Puffers. As this extract indicates, a distinction is often drawn in alchemical writings between an esoteric alchemy whose hidden secrets were revealed only to chosen adepts, and an exoteric pseudo-alchemy, which is depicted as the uninstructed craft of mercenary gold-seekers, or 'puffers'. (2-2)

There were those, the Puffers, as they were called, the early chemists, who sought to physically metamorphisize lead into gold. But as Read describes it, the Puffers were the outsiders of a rather elect fraternity of the alchemical elite; it consisted of what we might call today esoteric psychomanipulators. These were of the philosophical and mystical people who understood the concept of transmutation to take place in the alchemist himself rather than in the inert matter of the metals. As Read notes:

More credit attaches to the thought and work of contemporaneous alchemists of the philosophical and mystical types. By some writers on alchemy these are depicted indeed as the 'true adepts', to whom practical alchemy was a branch of a comprehensive philosophical system. According to this view, the experimental attempts of the adepts to transmute metals were carried out with the aim of adducing a material proof of their system: on the one hand were ranged the sheep, the elect fraternity of alchemical cognoscenti; on the other stood the goats, the world-minded seekers after gold, those alchemical 'outsiders' sometimes disdainfully known as 'souffleurs', or 'puffers'. That there were various types of alchemists is clear; but sometimes the distinctions obtaining between them have been defined too rigidly. (2-23)

b. Psychological transmutations and the Hermetic philosophers

Alchemists were both the Puffers on one hand and the Hermeticists on the other. Between there was a whole spectrum of natural philosophers and pseudo-chemists, all concerned with transmutation, and invariably using cryptosymbolism to veil the real and intended meaning of their writings to such an extent that today many alchemical writings are still obscure. The Puffers made the contribution of considering matter separate from spirit. This concept, as described previously, was first suggested by Descartes, and became the basis for being able to manipulate matter, a necessary prerequisite for the development of modern science.

The Hermetic alchemists on the other hand were closer to what we would consider the psychologist of today. Certainly this accounts for the great attraction of C. G. Jung to the study of alchemy. They were concerned with the psychological transformations, for the raising of the human life into the nobler, the higher, the more god-like.

The difference between the Puffers and the Hermeticists was very blurred and indistinct as Mary Atwood explains:

. It was from such an internal intimacy, and central searching of the mystery, that the Paracelsian Crolius tells us he came to know that the same light and mineral vapour, which produces gold within the bowels of earth is also in man, and that the same is the generating spirit of all creatures. And Albertus Magnus, in his book of Minerals, after asserting that gold may be found everywhere, in the final analysis of every natural thing, concludes by showing that the highest mineral virtue nevertheless resides in man. (9-151)

This "generating spirit", as Mary Atwood calls it, is understood by the alchemist as being present in all matter. In other writings, it is called the "materia prima", the prime matter, the essential essence of all matter, the ultimate distillation, related to the ideal of each substance and person. There is a mystical or spiritual quality of the prima materia which transforms the alchemist himself. As Pauwels and Bergier explain:

For the alchemist, it must never be forgotten that power over matter and energy is only a secondary reality. The real aim of the alchemist's activities, which are perhaps the remains of a very old science belonging to a civilization long extinct, is the transformation of the alchemist himself, his accession to a higher state of consciousness. The material results are only a pledge of the final result, which is spiritual. Everything is oriented towards the transmutation of man himself, towards his deification, his fusion with the divine energy, the fixed centre from which all material energies emanate. (10-73)

This prima materia is found in all substances and was under-

stood as the key to transmutations. All substances are seen subject to what is called theologically "the Fall" and may be thought of as the original corruption, pollution and to a certain extent, disintegration of the original, pure, holy substances including the souls of the alchemists themselves. Burckhardt writes:

According to the alchemists, the base metals cannot be transmuted into silver or gold without first being reduced to their materia prima. If the base metals are regarded as being analogous to one-sided and imperfectly 'coagulated' states of the soul, then the materia prima, to which they must be reduced, is none other than their underlying 'fundamental substance', that is to say, the soul in its original state, as yet unconditioned by impressions and passions, and 'uncongealed' into any definite form . . . if the form of a base 'metal' was a kind of 'coagulation', and thus a fetter, the form of a noble 'metal' is a true symbol, and as such an immediate link with its own prototype in God. (3-97)

The alchemist does not speak of his work as union with God as do the mystics. Rather he is seeking to regain the original 'nobility' of human nature and its purified state. This is the 'theomorphism' or God-form of Adam which was lost, or displaced or rendered ineffective by the Fall. Spiritually speaking, the transmutation of lead into gold is the regaining of the original nobility of human nature, the Adamic qualities lost and to be regained, becoming the new man, the new creature, differing from others in some complete and perfect way so that comparison with other men is no longer possible. It is the awakening of this new life that is described by Pauwels and Bergier:

The manipulation of fire and certain other substances therefore makes possible not only the transmutation of metals, but the transformation of the experimenter himself. The latter, under the influence of forces emitted by the crucible (that is to say, radiations emitted by nuclei undergoing changes in structure) en-

ters himself into a new state. Mutations take place within him. His life is prolonged, his intelligence and his powers of perception are raised to a higher level. The existence of such persons is one of the foundations of the Rosicrucian tradition.

The alchemist passes to another stage of being, attains a higher degree of consciousness. He alone is 'awakened', and to him it seems that all other men are still asleep. He escapes from the rest of humanity - disappears, like Mallory on Everest, having had his moment of truth. (10-88)

The key to the transformation of matter to its *materia prima* is that object of wonder, of ultimate value itself and the center of the work of the alchemist, i.e., the Philosopher's Stone, a pinch of which, mixed with lead transforms it into its *materia prima*, which is gold. It is the Philosopher's Stone that transforms man from the baser to the higher, lofty, spiritual dimensions known to the mystic as the union with God, to the philosopher and the psychologist of today as expanded consciousness.

This is none other than the inward consciousness of the individual body. It is its 'soul-form'. From this 'metal' the alchemist must extract the 'metallic soul' and the 'metallic spirit'. The chaotic and 'opaque' bodily consciousness, encumbered with passions and habits, is 'base' metal. In it, soul and spirit seem suffocated, darkened, mixed with earth. On the other hand, 'illuminated' bodily consciousness ('noble' metal), is itself a spiritual mode of existence. The soul must first be extracted from base metal, the alchemists say. The remaining body is to be reunited with it. When the body is thus 'dissolved' in the soul, so that both constitute a pure material, the Spirit acts on the soul and confers on it an incorruptible form. (3-87)

There is a fundamental difference between alchemy and mysticism expressed in what the alchemists called the "chemical marriage", the union symbol of sulphur and quicksilver, the sun and the moon, the king and the queen. This symbol is central to alchemy.

For the mystic, the soul, fallen from its original Adamic state, is to be reunited to God. For the alchemist, the soul alien-



ated from God, and turned towards the world, is to be reunited to God, by discovering His all-illuminating presence within the seeker himself, and he regains his integral nature only when the two powers, whose discord has rendered him impotent, are again reconciled with one another.

Thus the alchemist seeks to regain the integral nature of man, the chemical marriage of the opposites which is expressed by the symbol of the masculine-feminine androgyne. This is the prerequisite and the fruit of the union with God. Reconciling within himself the opposing natures bringing about the chemical marriage of the male and female principles, transmutes man to a higher nobility to which the alchemic process is dedicated.

What is the nature of the transmutation with which the alchemist works? Are they changes of mad men? Many alchemic writings would seem to be the babblings of the demented, rambling, incoherent, the works of the unbalanced mind. Maybe so.

We have also noticed in the literature of the alchemists a great many texts that bear the stamp of madness . . . after careful consideration, it seemed reasonable to classify these texts as the work of 'madmen', placing them apart from the other technical and philosophical ones. It also seemed to us that there might be a practical, simple and satisfactory explanation for the madness afflicting some of these practitioners and adepts. The alchemists often used mercury in their experiments; its fumes are toxic, and chronic poisoning induces delirium. Theoretically, the receptacles they employed were hermetically sealed, but not every adept may have known the secret of this method of sealing, and in this way more than one of these 'chemist-philosopher' may have succumbed to madness. (10-68)

Perhaps we can attribute the madness of the alchemist to the delirium of poisoning but there is another explanation that at least must be given as much consideration. There was good reason for their

seeming madness and the symbolism of secrecy.

On looking through the proofs of the report my friend remembered this passage in Albert le Grand's De Alchima: 'Should you have the misfortune of working for kings and princes, they will never cease asking you: 'How is the Great Work progressing? When, at last, are we going to see something worthwhile?'. And, in their impatience, they will call you good-for-nothing and rascal, and make all sorts of trouble for you. And if you are unsuccessful, you will feel the full force of their displeasure. If, on the other hand, you succeed, they will keep you prisoner in perpetual captivity with the intention of making you work for their advantage.' (10-80)

Yet neither the delerium of poisoning nor the fear of confinement exhaust the possible reasons for the obscurity of the alchemic writings. If there were groups of alchemists who together formed associations and who kept to themselves, or at least kept their knowledge to themselves, there were other secret societies, bands of like-minded people who came together for mutual protection, for mutual stimulation, encouragement and fellowship, not unlike the groups out of which grew the medieval universities. In such societies, secrecy was necessary for mutual protection. Entrance was by initiation. Only to those of the inner group, the elite, the adept, the fraternity, would the secrets be revealed. So there must have been at one time initiation into alchemy, initiation that would give the key to many of the alchemic texts, those available to the association into which the initiation occurred. Such might be the atmosphere in which Comenius, Hartlib and Dury founded "an alchemic lodge in London in 1642" as asserted by Illich.

Burckhardt speaks of initiation into alchemy and of the importance of the master-pupil relationship.

Like every sacred art in the true sense of the term (that is,

like every 'method' which can lead to the realization of higher states of consciousness) alchemy depends on the initiation: the permission to undertake the work most normally obtained from a master, and only in the rarest instances, when the chain from man to man has been broken, may it happen that the spiritual influence leaps miraculously over the gap. In the conversation between King Khalid and Morienus it is said concerning this: 'The foundation of this art is that whoever wishes to pass it on must himself have received the teaching from a master . . . it is also necessary that the master should often have practised it in front of his pupil.' (3-32)

Many secret societies arose during the lifetime of Comenius partly because of the terrible devastation of the Thirty Years' War, partly because of the related utopian hopes, plans, dreams and writings which influenced the alchemists in their secrecy and their initiation conceptions. Remnants of the covert programs are seen today on college campuses in fraternity and sorority secret initiations as well as the lodges of the Freemasons, Rosicrucians, and others, all tracing their beginnings at least into, if not through, this period of great utopian dreams.

The alchemists then were concerned with transmutations of the base material whether it be man or the world around him and that represented by the metals especially; from that base material "materia cruda" would be extracted the "materia prima", the essence, the soul substance, which, in itself, in the metal, would be the highest form of metal, i.e., gold, and if this were in the alchemist himself, the "materia prima" is the gold of enlightenment or the "mystic union with God" as expressed by the mystics.

Let us consider the principles of the Hermetic alchemists while turning our attention to their work. It is to the Hermetic alchemists that Ivan Illich referred when he spoke of the influence of

alchemy upon education.

Hermetic alchemy is concerned with transmutations of the soul and on this fact the alchemists are unanimous. (3-23) The Hermetists, as they are called, understand that there is a principle of nature which in, and of, itself has transmuting or curative powers. This principle is called the "magisterium" and is contained in its essence in the concept of the "Philosopher's Stone" which in and of itself can transmute, can change the lower into the higher, the baser into the enlightened.

The highest meaning of alchemy is the knowledge that all is contained in all, and its magisterium is none other than the realization of this truth on the plane of the soul. This realization is effected by means of the creation of the 'elixir', which unites in itself all the powers of the soul, and thus acts as a transmuting 'ferment' on the psychic world, and in an indirect fashion, on the outward world also. (3-75)

This transmutation is based upon certain principles and their application to the baser matter of the human psyche. John Read gives verbatim the "Precepts of Hermes" that by tradition, were engraved on an Emerald Table found in his tomb and which profoundly influenced medieval alchemists. These thirteen precepts, like much of the alchemic writings, are veiled, ambiguous and subject to various interpretations, yet are the essence of Hermetic wisdom.

1. I speak not fictitious things, but that which is certain and true.
2. What is below is like that which is above, and what is above is like that which is below, to accomplish the miracles of one thing.
3. And as all things were produced by the one word of one Being, so all things were produced from this one thing by adaptation.
4. Its father is the sun, its mother the moon; the wind carries it in its belly, its nurse is the earth.
5. It is the father of perfection throughout the world.

6. The power is vigorous if it be changed into earth.
7. Separate the earth from the fire, the subtile from the gross, acting prudently and with judgment.
8. Ascend with the greatest sagacity from the earth to heaven, and then again descend to the earth, and unite together the powers of things superior and things inferior. Thus, you will obtain the glory of the whole world, and obscurity will fly far away from you.
9. This has more fortitude than fortitude itself; because it conquers every subtle thing and can penetrate every solid.
10. This was the world formed.
11. Hence proceed wonders, which are here established.
12. Therefore, I am called Hermes Trismegistos, having three parts of the philosophy of the whold world.
13. That which I had to say concerning the operation of the sun is completed. (2-54)

Summarized in language more understandable if none-the-less ambiguous are the "Seven Hermetic Principles" given in The Kybalion.

1. The Principle of Mentalism: "The All is Mind: The Universe is Mental". (12-26)
2. The Principle of Correspondence. "As Above, So Below; As Below, So Above". (12-28)
3. The Principle of Vibration. "Nothing Rests; Everything Moves; Everything Vibrates". (12-30)
4. The Principle of Polarity. "Everything is Dual; Everything has Poles: Everything has Its Pair of Opposites; Like and Unlike are the Same; Opposites are Identical in Nature, but Different in Degree; Extremes Meet; All Truths are but Half-Truths; All Paradoxes may be Reconciled". (12-32)
5. The Principle of Rhythm. "Everything Flows, Out and In; Everything has its Tides; All Things Rise and Fall; The Pendulum-swing Manifests in Everything; The Measure of the Swing to the Right is the Measure of the Swing to the Left; Rhythm Compensates". (12-35)
6. The Principle of Cause and Effect. "Every Cause has its Effect; Every Effect has its Cause; Everything Happens According to Law; Change is but a Name for Law Not Recognized; There are Many Planes of Causation but Nothing Escapes the Law". (12-38)
7. The Principle of Gender. "Gender is in Everything; Everything has its Masculine and Feminine Principles; Gender Manifests on all Planes". (12-39)

"Mind (as well as metals and elements) may be transmuted, from state to state; degree to degree; condition to condition, pole to pole; vibration to vibration. True Hermetic Transmutation is a Mental Art." (12-43)

Transmutation is defined in The Kybalion as a changing of the mind, the direction of thought and in so doing, bringing about a change in self and the world about self.

"To change your mood or mental state - change your vibration."  
(12-214)

One may change his mental vibrations by an effort of Will, in the direction of deliberately fixing the Attention upon a more desirable state. Will directs attention and Attention changes the Vibrations.

"To destroy an undesirable rate of mental vibration, put into operation the Principle of Polarity and concentrate upon the opposite by changing its polarity."

This is one of the most important of the Hermetic Formulas.  
(12-215)

Although The Kybalion is not specifically a religious writing, it is very difficult to separate the philosophical from the religious concepts of Hermetic alchemy. In that it deals with the psyche of man (the word 'psyche' is the Greek word for soul) it becomes evident that a line separating them can hardly be drawn. The Hermetic philosophers hold a worldview that not only allows for the supernatural, but would be empty without it. The mystical union with God of the religionist and the transmutation of the alchemist to the nobler elements of life are overlapping if not equivalent. Burckhardt agrees with this analysis.

At this point it seems opportune to state categorically that there can be no 'freethinking' alchemy hostile to the Church, for the first prerequisite of every spiritual art is that it should recognize everything that the human condition, in its pre-eminence and in its precariousness, needs by way of means of salvation. That there was also a pre-Christian alchemy in no wise proves the contrary; at all times alchemy was an organic part of a comprehensive tradition which, in some manner, embraced all aspects of human existence. To the extent, however, that Christianity revealed truths which had been hidden to pre-Christian antiquity, these had to be taken into account by alchemy on pain of suicide. It is thus a major error to believe that alchemy or Hermetism by

itself could possibly be a self-sufficient religion, or even a secret paganism. (3-20)

Indeed as alchemy attempts to describe the hidden qualities and transformations of matter, it contains such a wealth of religious ideas and illusions and images that it takes on the form of a religious movement. Alchemy deals with the psyche, the dark and mysterious region of inner experience and light. It is from this region of the mind that our religious symbols are generated, that the known dimensions of human consciousness reach out to touch the unknown, the areas of consciousness only now being explored in this century with the advent of modern psychiatry. By what means men can approach the deeper regions of the mind, the regions from which come the alchemical projections is still one of the great mysteries.

To briefly summarize the main ideas outlined concerning alchemy:

Alchemy is concerned with the transmutation of matter and the human psyche. The concern is with the changes that occur in refining the "materia cruda" into the "materia prima". That higher essence is refined through a process of placing the matter into some sort of process whereby it is raised from a lower to a higher. These transmutations are considered to be possible with the physical matter changing lead into gold. This was done by the 'puffers'. The changing of the human psyche is the study of Hermetic philosophy and concerns the transformation of the alchemist himself. In this sense, Hermeticism is more than the remnant of an ancient science but the process studied by psychiatrists today of which Carl G. Jung was an

outstanding example.

Pauwels and Bergier give their conclusions as follows:

1. Alchemy, in our view, could be one of the most important relics of a science, a technology and a philosophy belonging to a civilization that has disappeared.
2. Nor do we believe that the alchemists developed their techniques by blind gropings, or through the insignificant tinkering of ignorant amateurs, or the fantastic dreams of fanatics, to arrive at what we can only call the disintegration of the atom. Rather we are tempted to believe that alchemy contains the fragments of a science that has been lost, fragments that, in the absence of their context, we find it difficult to understand or to make use of.
3. Finally, we believe that the alchemist, on concluding his operations with matter, feels, as the legend relates, a kind of transmutation taking place within himself. The things that happen in his crucible are also happening in his mind or in his soul. His condition changes.

All the traditional texts stress this phenomenon and evoke the moment when the 'Great Work' is accomplished and the alchemist becomes an 'awakened man'. It would seem that these old texts describe in this way the final stage of all real knowledge of the laws of matter and energy. Including technical knowledge. (10-65)

Ivan Illich, as seen in Chapter II has made a number of statements linking John Amos Comenius to the study of Hermetic alchemy. It is now necessary to survey the life and works of this father of modern education in order that we may be able to view his life against the background of alchemy. From this perspective it will be possible to judge whether he was influenced by alchemy but what is more important for this study, it may be possible to discern the effect that this has upon schooling today.

## B. JOHN AMOS COMENIUS

### 1. Biography of John Amos Comenius

#### a. Early life and education

John Amos Comenius was born March 28, 1592, in what is now Czechoslovakia. There were three girls and himself in the family of



Martin and Anna Komensky, of the Village of Komna in southeast Moravia. A few miles away was the town of Uhersky Brod, where the father was a respected member of the Unity of Brethern. His father, a miller in moderate circumstances, gave him the ordinary elementary and grammar school education of the time. There followed three years at the University of Herborn in Nassau and at Heidleberg University.

At the age of twelve, John Comenius lost his father, mother and two sisters probably from pestilence of the time. As an orphan, he lived under the charge of an improvident aunt. To his teachers of the time, he expresses little gratitude and it has often been said that their incompetence made him a school reformer.

It is now about 20 years since I was first touched with this desire for searching out some means of easing of those difficulties, that are usual in the study of learning, and if by the occasion of my own unhappiness, which, alas, deprived me of the most part of my youth. For losing both my parents, while I was yet a child, I began through the neglect of my guardians, but at 16 years of age, to taste of the lack of tongue. (16-6)

At the University of Herborn he came under the influence of J. H. Alsted, a man of great learning and later the author of a remarkable encyclopedia, Encyclaeia Scientiarum Omnium. Returning to Moravia he taught two years in a Moravian school and in 1628, was ordained pastor of the Moravian community in Fulneck.

There he married and within a year was comfortably settled and became a father, had a library and reasonable expectation of useful service. That was also the year of the outbreak of the Thirty Year's War, which made Europe an uneasy residence for Evangelical School Reformers. When the Spanish plundered Fulneck, the Moravian Brethern fled from Bohemia and Moravia and Comenius was forced to

migrate to Lissa in Poland. Because of his interest in education he became assistant master of a gymnasium or grammar school and was appointed head master in 1636.

b. The first period of constructive work - The Great Didactic

During these twelve years in Lissa, Comenius wrote his first text books including his best seller, The Janua Linguarum, and The Great Didactic, which was first published in Latin in 1657. It was during this period that he conceived the notion of pansophia or universal wisdom as an educational aim.

c. His visit to England

In 1641, Comenius was invited by Samuel Hartlib to visit England. Hartlib was a German living in London, who had a circle of friends which included Evelyn, Milton, Boyle and other learned men such as Bishop Wilkins. Wilkins was later involved in the formation of the Royal Society. Hartlib and his friends ~~thought~~ that Comenius would be the right man to found an institution of higher learning along the lines suggested by Bacon in his New Atlantis. Comenius visited England in 1642.

Either because the times were not propitious or because Comenius was quite unsuited for such a task, the pansophical university did not materialize in England and he realized that it would be necessary for him to leave.

d. Second period of productive work as Bishop of the Moravian Church

While in England, Comenius received an invitation from Laurence de Greer, a wealthy Amsterdam merchant who resided in Sweden.

He contracted to write school books for Swedish schools and for this uncongenial task retired to a small Prussian city of Elbing in the hope that his work for the Swedes would persuade them to make possible the return of the Bohemian Brethern to Moravia.

It was during this time that Comenius became Bishop of the Moravian Brethern and had to return to Lissa where many were still in exile. There were many difficulties and in the following year, with the peace of Wesphalia, religious toleration that was granted the Protestants in general was not extended to the Moravian Brethern who were thus unable to return to their homes.

e. The third period of teaching and writing

By now Comenius, nearly sixty years old, was invited by Count Rakoczy to settle in Hungary for the purpose of organizing a Pansophic School at Saros-Patik where many Moravians had taken refuge. For the next four years he taught and produced school books that were printed on a press supplied by the Count. One of these became the most celebrated school book of its time, The Orbin Pictus, or World in Pictures. This book was produced in Nuremberg so that the illustrations might be adequately printed.

f. Declining years in Amsterdam

In 1654, Comenius returned to Lissa where he was needed by the Moravian Church. But now came difficult times. A former magistrate and friend had become a Catholic and Lissa was no longer safe for Protestants. Comenius fled for his life and lost all of his library including his manuscript writings on his Pansophy.

Again, after wanderings and much suffering, he was rescued by

the de Greer family who provided for his declining years in Amsterdam. Under their auspices a complete edition of his works, The Opera Didactica Omnia was published in 1657. Comenius, in these last days, had the leisure and peace to devote himself to his Pansophia. He died November 13, 1673, and was buried at the French Reformed Church at Naarden on the Zuyder Zee. Only the figure "8" was placed on his tomb and the tomb site was forgotten until 1932. Born in obscurity, John Amos Comenius died in oblivion.

g. Biographers generally agree about his greatness

It is difficult to find a biographer critical of John Amos Comenius. The years perhaps have mellowed the critical concern they might have had with the faults of his character. Comenius was a man of his times and the worldview from which he developed his educational theories was restricted by the knowledge of the sixteenth century. Dobinson gives a good summary of the views held of Comenius by others who followed him.

Only the greatest saw the greatness of Comenius - and, thus, Leibnitz predicted a splendid future flourishing of Comenius' ideas, Goethe mentioned Comenius with warm emotion, Herder, in his celebrated "Philosophy of the History of Humanity", wrote of him with enthusiasm, and Michelet called Comenius "the genius of light, the powerful inventor, the Galileo of pedagogy". (14-43)

That Comenius was the 'father of modern education', that his writings contributed to the thinking and moulding of schooling as we know it today, that Comenius formulated those principles whereby 'all men could be taught all things, faster, better' as he states in the title of his Magna Didactica, educational historians will not deny. There were many contrary facets in his character and some would dis-

miss him as a muddle-headed fanatic, as a man whose outlook was not for our day but essentially medieval. Some others would argue that Comenius, though a heroic figure, was essentially a pathetic failure without significance or relevance for the twentieth century. They would rank him as a simple man without any meanness or personal ambition, but neither as a great thinker or reformer.

Such a judgment of Comenius would be more than inadequate. Certainly his vision of a pansophic college where universal learning would be available, was highly idealistic, nay unrealistic for our age as well as his own. He had certain blind spots, but the utopian dream was the dream of his age, born of the devastation of the terrible Thirty Years' War.

John Amos Comenius certainly was a practical visionary; he put his visions into concrete form. In the classrooms in Lissa, in Saros-Patik, in other schools modeled after his works, his dreams took shape. And if they failed in some respects, we can learn more from his failures than from the successes of many a lesser man.

His approach to teaching was continued by Rousseau, where his frequent references to the child's nature and his desire to return to the state of nature, although aimed against a feudal social system, was an expression of a revolutionary ethos of confidence in life born freely when people were not restrained.

h. How biographers do not agree concerning John Amos Comenius

There are specific areas where the historians and biographers of Comenius do not agree concerning his contributions. Dobinson sees Comenius as a man of his time who leaves a stamp of greatness on that

time and ours.

His was the fate of a miserable exile, and his ideal of a democratic humanism reached into the future, beyond the limitations of the newly emerging capitalist system. It was a utopian ideal, but Comenius felt the needs of the popular masses deeply enough to overcome both the narrow elitist view of the humanist school, and restriction to manual skills of the vocational training for the so-called lower classes. He defended the right of each man to gain full knowledge about the world besides versatility in practical affairs.

Comenius cherished the hope that the reform of education would bring about a reform of the world. From this viewpoint, he described education as 'the common good of all people'. (14-34)

Berhard Mehl on the other hand, would say that Comenius' contribution was less of the teacher and more of the educational administrator. The patterns that were developed by Comenius answered a need of the industrialization taking place with the industrial revolution for the mass production by men who had enough training to be able to operate the machines of technology. Comenius professed to teach all men all things, faster and easier and, thus, fulfill the demands of rising industry. That this had to do more with the organization of the classroom and the school process than the methods of teaching the student, is the point made by Mehl.

Comenius, in spite of his voluminous production of material and educational theories, was almost without any influence on subsequent educational theorists and planners. The reformers of education who followed Comenius were, themselves, failures in the business of classroom management and school administration. In spite of Comenius' romantic and mystic leanings to pansophism and universal religion, he could not be granted the gift of originality. He represented that wing of educational endeavor which concerned itself with programs and materials, translating the ideational insights of those who refashioned underlying theories into institutional procedures. Thus, he becomes the prototypical theoretician of headmasters and administrators. (17-178)

i. Comenius and obscurity

It seems strange, if Comenius made such an outstanding contribution to pedagogy, that he was to remain in obscurity during the succeeding centuries. Boyd explains the reasons:

It was a great misfortune for succeeding centuries that in spite of a combination of philosophical insight and practical wisdom, almost unique in the literature of education, the greater part of the didactic works of Comenius passed into almost complete oblivion with the death of their author. Schoolboys went on using the Orbis Pictus and the Janua for several generations, but the great principles they illustrated were forgotten by educators till they were rediscovered independently in the Nineteenth Century by Forebel . . . but probably a deeper reason is that his work was done in unsettled times in connection with a dying Church, and that it was never possible for him to create any permanent educational institutions capable of transmitting his principles and methods to later times. (18-252)

This view of Comenius' obscurity is born out by another educational historian, G. P. Graves.

However, for nearly two centuries Comenius had but little direct effect upon the schools, except for his language methods and his texts. The Janua was translated into a dozen European, and at least three Asiatic, languages; the Orbis Pictus proved even more popular. . . but until about half a century ago, the work of Comenius as a whole had purely an historical interest, and was known almost solely through the Orbis Pictus. The great reformer was viewed as a fanatic, especially as the pansophic ideal turned out to be of only ephemeral interest. (21-49)

Even Matthew Spinka, the biographer of Comenius noted that the great reformer and educator was unknown following his death.

But, strange to say, interest in his various reformatory plans seems to have waned after his death. August Hermann Francke appears not to have known the Great Didactic of Comenius, and the entire Eighteenth Century neglected the ideals for which he had striven, despite Leibnitz and Herder, who recognized the true worth of the great Moravian. (19-152)

It was not until the Nineteenth Century that there was a revival of interest in Comenius. With the discovery of a number of manuscripts in 1935 that previously were unknown, the works of Comen-

ius became the center of renewed interest and enthusiasm.

#### j. John Amos Comenius' contributions

In a day of narrow provincialism, Comenius advocated universal society and a universal religion which would cut across the provincialism of religious and state boundaries. Looking at his writings on education, Jean Piaget sees his greatest contribution as the development of a theory of teaching.

But, by a paradox which is extremely instructive from the standpoint of the history of science, this meta-physician with his dreams of a complete knowledge of all things contributed, when he wrote his Great Didactic and his specialized treatises, to the creation of a science of education and a theory of teaching, considered as independent disciplines. This may probably be said to be his main claim to glory, without, as we have seen, underrating his social and international action.

What accounts for the paradox and explains, in general, why Comenius is still so up to date despite his antiquated metaphysical apparatus, is the fact that, in all the matters he took up, he was able to give an extremely practical significance to the key concepts of his philosophy. His two central ideas were, no doubt, that of nature as a creator of forms and that of the parallelism between the activity of man and the activity of nature. (15-30)

Comenius is known as the "father of modern pedagogical theory and practice", who advocated free and universal opportunity for education of all members and classes and both sexes; he used the vernacular in teaching, correlating thought with things; he dramatized the subject-matter of instruction; he taught the development of character, rather than merely the mind of the pupil.

The claim to greatness does not stop with his pedagogical contributions. Comenius devoted his life to the ideal of peace in a world of peace including the Church, the State and ultimately, the world. Not only was he an early prophet of Christian ecumenicity,



Comenius wished to unite the warring Christian factions whose strife was wreaking an unprecedented havoc upon Europe and, particularly, upon his beloved Moravia. Yet his ideal of peace went beyond the boundaries of Europe of his own time. He wished no less than the unity of mankind on principles of an integrated, universal culture based upon a religious foundation. That is what he meant by "pansophy", the ideal of universal knowledge toward which he worked most of the adult days of his life.

## 2. The Worldview of John Amos Comenius

### a. Natural physics

The natural physics is what we mean today by natural philosophy. The worldview of Comenius was for the most part, the worldview of the Middle Ages, a page taken from the works of Aristotle. But Comenius was a Christian and the Unity of the Brethren certainly had been influenced by John Hus. One of the central teachings of the Hussites, as well as other Protestant Reformers, is the centrality of Scripture in understanding the world. Thus, it is that Comenius would base his philosophy upon the foundations of sense, reason and Scripture. From these three basic assumptions, or sources of certainty he constructed his worldview.

Comenius was a man of his age in his use of deductive logic rather than the inductive form. In the peripatetic philosophy of the Aristotelians, he claimed to see many defective parts, many errors unprofitable for Christians and he, therefore, abandoned that worldview.

His purpose was the reformation and perfection of philosophy

based on sense, reason and Scripture in order that a man with his own sense and reason might discern the truth. Thus, Comenius arrived at the concept that nature is the great teacher. From her comes the patterns and precepts by which we may unlock the secrets of the world.

Nature would give up her secrets if man searched nature herself. The methods of deductive reasoning, the way of the peripatetic philosophers was to be abandoned and nature herself was to become man's teacher.

#### b. Pansophical

Pansophy or universal wisdom, is the totality of human wisdom so expressed as to be able to meet the requirements of the present and the future ages. Pansophy consisted also of a method to be followed to reduce all human knowledge to certain fundamental principles, beyond the compass of which no part of human knowledge can reach. Such first principles are God, the world, and common sense. The purpose of pansophy is to be able to direct all the activities of men to good and noble ends.

The quest for pansophy, although not confined to Comenius alone, was the story of his life. Comenius was a man driven by the belief that he was blazing a trail for mankind. It seems that the idea was born out of the tragedy of his childhood loss of both his parents and the suffering from the neglect of his guardians so he 'could pit others especially those in his own nation'. Comenius did not use the word pansophy until he came across it in the title of a book by Peter Pauremberg (1585-1639), Professor at Rostock, in 1663.

Although the scope and concepts of pansophy seem fantastic to

the mind trained in the Twentieth Century, ideal of knowledge specialization, for a person of the Middle Ages, the ideal of knowing everything was indeed a chimera worth following.

In the Lexicon (Lexicon Reale Pansophicaum) he gives a definition of pansophy which agrees with the more detailed description in the Gateway of Things (Janua Rerum) and the Diatyposis or Plan. Pansophy is a 'universal science' because it is based on truths so clear to common sense that they can hardly be contradicted. It is an attempt to find the few simple classes, structures and laws to which every single thing must be connected. Each thing has an essence which puts it into a general class, a mode of being which is the general idea which makes it operate as it does, and a purpose or principle of being which determines its possibilities. Knowledge is concerned with things (real being), ideas (mental being) and words (verbal being). Things can be divided into three general classes - substance, accident and defect. Substance is what the thing is wholly in itself (e.g., a man). Accident is what owes its existence to something else (e.g., health). Defect is something which takes away from another thing its essence (e.g., sickness). Although knowledge comes from within the mind, it has to derive its stimulus from things and Comenius seems, at times, to suggest that the essence of things is material entity since 'the Hermetical Physicians have by Chymistry extracted qualities out of natural bodies and have extracted the very essence' but, generally, his point of view is that 'everything is made in accordance with its idea by which it is able to be what it is'.  
(6-134)

### 3. John Amos Comenius and his Educational System

If the pansophical concept of universal knowledge was the ideal of Comenius, it also was the foundation upon which he built his educational system. There were to be seven parts of the temple of Christian Pansophy:

The threshold of the temple of wisdom

The gate of the temple of wisdom

The court of the temple of wisdom

The middle court of the temple of wisdom

The innermost court of the temple of wisdom

The last and most sacred part of the temple of wisdom called the Holy of Holies

The fountain of living waters of the temple of wisdom

The title page of The Reformation of Schools is most instructive as to the purpose of the Pansophical Temple as Comenius envisioned it: "The Great Didactick showing the universal means to teach all men all things. The drift of this our didactick shall be to discover a way whereby teachers may teach less and learners may learn more. Schools may have less noise, tediousness and fruitless toil, but more ease, delight, and real profit. The Christian state less darkness, confusion and discentions, but more light, order, peace and tranquillity." (16-1)

But if pansophia was the ideological foundation of Comenius' educational system, in practical application there was a major philosophical contradiction. In his system he sought to combine both mystical and sensationalist strains of thought he adopted from the Italian thinkers. The mystical strain leads to the view that the spiritual reality of the universe is within the grasp of the soul. The word education has, within its context, this idea. It comes from the Latin word "educare" meaning "to lead forth" or from within. In this context, one is lead to believe that the universe is within the grasp of the soul from its very birth and it only awaits experience to reveal itself in its true character. Keatringe describes it as follows:

Philosophers have called man a Microcosm or Epitome of the Universe, since he inwardly comprehends all the elements that are spread far and wide through the Macrocosm, or world at large; a statement the truth of which is shown elsewhere. The mind,

therefore, of a man who enters this world is very justly compared to a seed or to a kernel in which the plant or tree really does exist, although its image cannot actually be seen. This is evident; since the seed, if placed in the ground, puts forth roots beneath it and shoots above it, and these, later on, by their innate force, spread into branches and leaves, are covered with foliage, and adorned with flowers and fruit. It is not necessary, therefore, that anything be brought to a man from without, but only that which he possesses, rolled up within himself, be unfolded and disclosed, and that stress be laid on each separate element. Thus Pythagoras used to say that it was so natural for a man to be possessed of all knowledge, that a boy of seven years old, if prudently questioned on all the problems of philosophy, ought to be able to give a correct answer to each interrogation; since the light of Reason is a sufficient standard and measure of all things. (20-26)

Boyd speaks of Comenius' educational theory in the context of theology, the theory of knowledge from within is the same.

Following its mysticism he thought of the soul of man and the visible universe as a twofold manifestation of deity, and consequently in most intimate relations with one another. Man, made in the image of God, comprehends the whole created world in himself: he is the microcosm of the universe. From which it follows that learning is a process of development from within, and not the acquisition of knowledge from without. The soul needs no urging or compulsion in its growth. By its very nature as an "expression" of the Divine Being it reaches out after a knowledge of the world, just as it yearns for the virtue and the piety which bring it to a knowledge of self and a knowledge of God. (18-26)

The sensationalist strains, i.e., that we can know on the basis of our senses and reason, implies that the soul begins with the material and gradually ascends to the spiritual. The dichotomy simply stated is that the direction of the developing soul cannot be both from within itself and from the world outside itself. The educational corollary is that knowledge is either given from outside the pupil by teacher, experience, senses or as in the concept of 'educare' it is already the possession of the psyche and needs only to be opened, tapped, found or brought into consciousness.

In the application of these diverse principles to educational practice, Comenius largely succeeded in evading the contradiction.

To see how the educational principles were applied in actual practice, we see that it was in Lissa that Comenius first began a careful system of grading of the schools and the formulation of a course of study for each successive grade. His guiding principle in this systemization of schoolwork was that each grade should pave the way for the one to follow. Furthermore, the elements of all subjects of study were to be comparatively simple, becoming more complex as the student progressed from grade to grade. Simple as this sounds to us, it should be remembered that these reforms were not only far-reaching, they were revolutionary and from this developed the modern graded system.

At this point it would be well to enumerate the reforms developed by Comenius as given by Will S. Monroe:

- That the purpose of education is to fit men for complete living, in consequence of which its benefits must be extended to all classes of society.
- That education should follow the course and order of nature, and be adapted to the stages of mental development of the child.
- That intellectual progress is conditioned at every step by bodily vigor, and that to attain the best results, physical exercises must accompany and condition mental training.
- That children must first be trained in the mother-tongue, and that all the elementary knowledge should be acquired through that medium.
- That nature study must be made the basis of all primary instruction, so that the child may exercise his senses and be trained to acquire knowledge at first hand!
- That the child must be wisely trained during its earliest years for which purpose mothers must be trained for the high and holy mission of instructing little children, and women generally be given more extended educational opportunities.
- That the school course must be enriched by the addition of such useful studies as geography and history.

- That the subjects of study must be so correlated and coordinated that they may form a common unit of thought.
- That teachers must be specially trained.
- That schools must be more rationally graded and better supervised.
- That languages must be taught as "living organic wholes fitted for the purposes of life, and not as the lifeless tabulations of the grammarians." (5-168)

Now Comenius also enumerated a group of principles, which as he taught, were the basis of thoroughness in teaching and learning.

These principles, through the process of deductive reasoning became the basis on which teachers could build their own classroom processes.

These principles as given by Keatringe are as follows:

First Principle

Nature produces nothing that is useless.

Second Principle

When bodies are being formed, nature omits nothing that is necessary for the production.

Third Principle

Nature does not operate on anything, unless it possesses a foundation or roots.

Fourth Principle

Nature strikes her roots deep.

Fifth Principle

Nature develops everything from its roots and from no other source.

Sixth Principle

The more the uses to which nature applies anything, the more distinct subdivisions that thing will possess.

Seventh Principle

Nature never remains at rest, but advances continually; never begins anything fresh at the expense of work already in hand, but proceeds with what she has begun, and brings it to completion.

Eighth Principle

Nature knits everything together in continuous combination.

Ninth Principle

Nature preserves a due proportion between the roots and the branches, with respect to both quality and quantity.

Tenth Principle

Nature becomes fruitful and strong through constant movement. (20-94)

#### 4. John Amos Comenius and His Educational Methods

The Great Didactic the magnum opus of Comenius proports to be the method in which is presented a generally valid art of teaching everything to everyone, or, reliable and perfect directions for erecting schools in all communities, towns, and villages of any Christian State. In these schools all youth of both sexes, without exception, can be instructed in the sciences, improved in their morals, filled with piety, and in such-wise, be equipped in early years for all that belongs to the life here and beyond. That will be done by a concise, agreeable, and thorough form of instruction which:

derives its reasons from the genuine nature of things,  
 proves its truth by dint of adequate examples taken from the mechanical arts,  
 arranges the sequence of instruction by years, months, days and hours, and finally,  
 shows an easy and safe way for the happy pursuit of all these suggestions. (24-340)

Such is the claim of the title of The Magna Didactica. Continuing Comenius then states the purpose of this great work:

The Beginning and End of our Didactic will be:

To seek and find a method by which the teachers teach less and the learners more, by which the schools have less noise, obstinacy, and frustrated endeavor, but more leisure, pleasantness, and definite progress and by which the Christian State will suffer less under obscurity, confusion, and conflict, and will enjoy a greater amount of light, order, peace and quiet. (24-340)

Such is its purpose and promise.

What was the method by which these magnificent purposes were to be carried out and which, as an historical fact, did revolutionize schooling?

Here are the principles upon which Comenius based his method. They are called "The Principles of Facility in Teaching and in Learning".

If it begin early, before the mind is corrupted.  
 If the mind be duly prepared to receive it.  
 If it proceed from the general to the particular.  
 And from what is easy to what is more difficult.  
 If the pupil be not overburdened by too many subjects.  
 And if progress be slow in every case.



If the intellect be forced to nothing to which its natural bent does not incline it, in accordance with its age and with the right method.

If everything be taught through the medium of the senses. And if the use of everything taught be continually kept in view.

If everything be taught according to one and the same method. (20-74)

Comenius believed that the art of teaching demands both the skillful arrangement of time, of subjects being taught, and of method. The integration of each of these is the didactic method. Further, as understood, this process once set into motion, would become automatic, mechanical, free from fault. It would seem that this very mechanistic view of teaching was his way of popularizing schooling.

As soon as we have succeeded in finding the proper method, it will be no harder to teach school-boys, in any number desired, than with the help of the printing-press to cover a thousand sheets daily with the neatest writing . . . the whole process, too, will be as free from friction as is the movement of a clock whose motive power is supplied by the weights. It will be as pleasant to see education carried out on my plan as to look at an automatic machine of this kind, and the process will be as free from failure as are these mechanical contrivances, when skillfully made.

Let us therefore endeavour, in the name of the Almighty, to organize schools in such a way that in these points they may bear the greatest resemblance to a clock which is put together with the greatest skill, and is cunningly chased with the most delicate tools. (20-50)

In those days when discipline meant only corporal punishment, Comenius advocated other more humane and more effective methods of providing motivation for the learner. Again, his own words are very descriptive:

If, however, some stimulus be found necessary, better means than blows can be found. Sometimes a few severe words or a reprimand before the whole class is very efficacious, while sometimes a little praise bestowed on the others has great effect. "See how well so-and-so attends! See how quickly he sees each point! While you sit there like a stone!" It is often of use to laugh at

the backward ones. "You silly fellow, can't you understand such a simple matter?" Weekly or, at any rate, monthly contests for the first place in class may also be introduced, as we have shown elsewhere. (20-195)

### 5. Summary of the Contributions of Comenius

It is difficult to summarize the breadth of the influence of Comenius. But many elements of modern educational systems were advocated by Comenius. There was the ideal of a free and universal system of education, open to all and compulsory for all; education for both boys and girls; preschool home training which conceptually includes more than our present kindergarten system; instruction in the vernacular; graded subjects adjusted to the psychological development of the pupils; dramatization of the subject, so that school work would be as interesting as possible; close correlation of idea to things as represented by concrete picture; in corporation of history and geography, drawing and manual training, in the curriculum; the fundamental importance of developing the whole personality of the student rather than mere training for a profession or a trade. To this Comenius would add that the purpose of education was to lead men to God and, thus, make men good.

### 6. The Influence of Comenius on the Modern Process of Schooling

Look at the work of Comenius through the writings of several modern educational philosophers, seeing his influence through their judgment.

Jean Piaget sees Comenius as bringing to educational theory the concept of education as not limited to the action of the school-room but part of the totality of man's social life. To be a human

society means to be an educating society "though this idea was not explicitly stated until the Nineteenth Century, Comenius' philosophy gave him a glimpse of it." (15-14) The pansophic ideal 'to teach all things to all men and from all points of view' was as disconcerting as the ideal of an international organization to carry out its aims.

Piaget further sees the genius of Comenius in his ability to find a philosophy based on education, seeing that education is one dimension of nature's formation machinery and so building a process which takes into account that machinery, that process as an essential axis or focus of the processes of nature.

Bernard Mehl is less generous in his praise of Comenius than other educators and biographers. The obscurity of Comenius following his death leads Mehl to conclude that Comenius lacked influence on subsequent educational theorists and planners. His greatest influence was upon the educational administrators rather than upon the teachers in the classroom. "The reformers of education who followed Comenius were themselves failures in the business of classroom management and school administration." (17-178)

Mehl sees in Comenius the tension between the practical reformer and the educational theoretician. This tension is particularly evident when he was hired to write textbooks for the Swedes while living at Elbing. He was warned against wasting time writing philosophical books. "Comenius, the intellectual, had to give way to Comenius, the schoolmaster. When he tried to cheat by using his time to write on pansophism, the authorities threatened to withdraw his

subsidy." (17-179)

Subsequently, history applauded the practical work of Comenius, his textbooks, his school plans, while it was the pansophical writings that were closest to his heart. One of the greatest tragedies of his life was the loss of his pansophical writings when he had to flee Lissa and his house with its library and his writings were burned in 1656.

Robert McClintock sees with Comenius a transfer of the responsibility for education from the learner to the teacher. No longer is the accent, the responsibility upon the learner to study. With Comenius, teaching became important; it is a world of instruction rather than study; there is the cult of the degree rather than the love of learning for its own sake. With Comenius, according to McClintock, there came a boundless faith in the power of the school. To this he says that Comenius was a 'future visionary', nevertheless, the transition has been made, the emphasis now is upon teaching rather than study. The responsibility for education rests not with the pupil but with the teacher; the burden of learning is upon the institution to 'educate' rather than upon the student to be educated, to learn, to participate in his own study. "The psychology of learning is an important topic in educational research, not because it will help students improve their habits of study, but because it enables instructors to devise better strategies of teaching." (22-179)

So there may be some correlation between the statements of Illich concerning universal education having as its purpose the processing of men to take their place in the modern industrial society.

This will be explored further in the next chapter.

## 7. Comenius Venerated by Both the Communist and Capitalist Countries

Sadler writing concerning Comenius and universal education points out that there has been a great interest in the study of Comenius in the Communist countries since 1950. There he is seen as a great radical thinker whose works affirm the possibility of changing human nature by education. He is linked with such social reformers or revolutionaries as John Lilburne the Leveller, John Bellers the Quaker and Robert Owen the Socialist, all of England. The Communists study his educational methodology as an expression of his philosophy and as something completely separate from his religious worldview. (6-34)

Ivan Illich has contended that schooling is a world wide system of the performance of a ritual by which men are graded by their society, in order that they might receive money, prestige and fame. The veneration of the Communists as well as the Capitalist scholars would seem to bear out that there is at least a basis for such a world wide system.

Schooling in this regard is seen as a means by which men can be changed. Perhaps some psychologists would even consider it conditioning. Yet, in both the East and the West, the assumptions are the same, the expected results of man able to take his place in the industrial society, are the same.

## C. SUMMARY OF THE CHAPTER

This chapter has, as its purpose, the presentation of material on alchemy and John Amos Comenius to enable the reader to have a sum-

mary of background material upon which to project the major questions raised by Ivan Illich concerning alchemy and its relation to Comenius and education. These are the questions raised by Illich and presented in Chapter II, as in the four categories: the first concerns the historical parallel between alchemy and education. The second is the question of whether or not John Amos Comenius was an influence on modern education. The third category asks about the relationship between alchemy and education and whether they came about through Comenius. And, finally, there is the question of the relationship between education and alchemy today and its implications for the future.

It is to these questions and categories that we turn in the next chapter.

## CHAPTER IV

### INTRODUCTION

The dissertation to this point has presented questions for discussion to help explore the crisis in education. Materials of Ivan Illich were presented in Chapter II which offer the hypothesis that the pattern of education comes from the work of Comenius through whom the influence of Hermetic alchemy came into the present system. Statements of Illich were divided into four categories dealing with (1) alchemy and its historical parallel, (2) the influence of John Amos Comenius on the development of modern education, (3) the alchemical influence on Comenius and (4) the relation of education to alchemy today. Chapter III presented material of a background nature on John Amos Comenius and alchemy to give the reader an understanding of the concepts, the relationships and the materials used in the argument.

Chapters IV, V, VI, VII bring together the materials of Illich, and the background information of Chapter III. Using Illich's assertions for hypotheses for historical method, it will seek to discern the validity of the assertions made by Illich and explore some of their implications. These next four chapters, each deal with one of the categories given in Chapter II.

From these chapters the reader will see the evidence, discern the reasoning and see the thrust of the arguments used by Illich concerning the influence of alchemy of education.

## CATEGORY 1. The Historical Parallel Between Alchemy and Education

In the first series of statements (see Chapter II) Ivan Illich asserts that education and alchemy grew in conjunction with each other which would be interpreted to mean that they came into being at the same time, relatively parallel with each other and possibly, having some relation to each other. In "Education as an Idol" he says: "The religion of universal and compulsory education turns out to be a corruption of the Reformation, and it is for us to understand this and to point it out." (25)

That alchemy was in full flower during the fifteenth and sixteenth centuries is evident from extant manuscripts, streets named in European cities for alchemic practices and the testimony of the alchemists themselves.

This raises the question of the parallel between the concepts of alchemy and education or in Illich's words, "education is the alchemist's elixir in modern form". The purpose of the elixir (another name for the Philosopher's Stone) was to transform, to change, whether it be the base metals to gold or the alchemist himself. Transmutation is the work of the alchemist. It is the work of the educator.

### I. ALCHEMIC TRANSMUTATIONS

#### A. Alchemy in the Middle Ages

The material in Chapter III is meant to give an introduction and a background of the field of alchemy. At this point the argument will be built upon that material and the question will be explored as



to whether or not there is a direct parallel between alchemic transmutations and the changes taking place through the ministrations of the educational process. This is the question raised by this first series of statements of Ivan Illich.

During the Middle Ages, alchemy was not only a science and a philosophy but a religion. There were many who rebelled against the religious limitations of their day and were able to conceal their philosophic teachings under this allegory of gold-making. In this way they not only preserved their personal liberty but could be looked upon as respected members of the community. When William and Mary jointly ascended the throne of England in 1689, that there were many alchemists in the kingdom at that time was indicated when, during the first year of their reign, they repealed an Act decreed by King Henry IV in which that sovereign had declared the multiplying of metals to be a crime against the crown. Part of the Act reads as follows:

Be it therefore enacted by the Kings and Queens most excellent Majesties, by and with the advice and consent of the Lords spiritual and temple and Commons and this present Parliament assembled, that from hence forth the aforesaid branch, article, or sentence, contained in the said Act, and every word, matter and thing contained in the said branch or sentence, shall be repealed, annuled, revoked, and forever made void, anything in the said Act to the contrary in anywise whatsoever notwithstanding. Provided always, and be it enacted by the authority aforesaid, that all the gold and silver that shall be extracted by the aforesaid art of melting or refining of metals, and otherwise improving and multiplying of them and their ores, as before set forth, be it henceforth employed for no other use or uses whatsoever but by the increase of monies; and that the place hereby appointed for the disposal of shall be their Majesties mint, within the Tower of London, at which place they are to receive the full and true value of their gold and silver, procured, from time to time, according to the assaye and fineness thereof, and so any greater or less

weight, and that none of that metal of gold and silver so refined and procured be permitted to be used or disposed of in any other place or places within their Majesties dominion. (28-149)

By repealing this measure William and Mary further encouraged the study of alchemy.

Alchemy was a major religious and philosophic enterprise of the Middle Ages. Herbert Silberer has this to say:

In agreement with Katsch, Hohler (Herm. Phil., p.6) recalls how, generally, people were occupied in the Sixteenth and Seventeenth Centuries in the whole of western Europe with cabala, theosophy, magic (physics), astrology and alchemy, and, indeed, this held true of higher and lower social strata, scholars, and laymen, ecclesiastic and secular. "The entire learned theology turned on cabala. Medicine was based on theosophy and alchemy, and the latter was supposed to be derived from theosophy and astrology." (29-176)

In an enterprise as broad and significant as this we find a whole spectrum of expressions and meanings as men experimented, wrote, experienced and sought to understand the meanings of their studies. Thus, there are almost as many definitions of alchemy as there are alchemists. Burckhardt writes:

In fact, alchemy may be called the art of the transmutations of the soul. In saying this I am not seeking to deny that alchemists also knew and practised metallurgical procedures such as the purification and alloying of metals; their real work, however, for which all these procedures were merely the outward supports or 'operational' symbols, was the transmutation of the soul. The testimony of the alchemists on this point is unanimous. (3-23)

Another definition given by Mary Atwood is that, "Hermetism, therefore, is the science of the Ether and of its modes and potentialities in the human organism and the subhuman kingdoms." (9-34)

Another point of view which sees alchemy closely related to science is that of Pauwels and Bergier.

The methods of transmutation known to modern science are powerless to arrest energy and radio-activity. They are transmutations of a strictly limited nature whose harmful effects are nevertheless unlimited. If the alchemists are right, there are simple, economical and safe ways of producing transmutations on a large scale. These means would entail the 'dissolution' of matter and its reconstruction in a different state from what it was originally. No discoveries in modern physics would justify a belief that such a thing is possible. And yet for thousands of years the alchemists have been asserting that it is. The fact is, our ignorance of the nature of nuclear forces and of the structure of the nucleus prevents us from saying that anything is absolutely impossible. If the alchemists' transmutation is really possible, it is because the nucleus has properties of which we know nothing. (10-90)

## 2. Two Types of Alchemic Transmutations

Considering all the definitions of alchemy and all the points of views expressed by the different writers, it is possible to categorize alchemy by its two extremes: the one might be called spiritual alchemy and is properly known as Hermetic Alchemy and deals with the transmutation primarily of the alchemist himself. At the opposite extreme is materialistic alchemy and those people who practice the art as it was concerned solely with the transmutation of physical metals to gold were called the Puffers.

### a. Hermetic alchemy

Hermetic alchemy, the branch to which Illich referred when he specifically stated that education has its pattern from alchemy, deals with the transmutations that take place in the human personality or psyche.

Popular ignorance regards Alchemy as the fumbling beginnings of an unenlightened age towards the modern science of inorganic chemistry, and views with contempt the reputed efforts of these by-gone experimenters to produce gold and transpose one metal into another. . . on the other hand, and as this volume will demonstrate, it is undoubtedly true that experimentation towards the metamorphosis of physical metals has been undertaken, and suc-

cessfully, by not a few whose names fall within the genuine Hermetic tradition; and students of alchemical literature have been warranted in finding that the subject of Alchemy discloses two aspects, the simply material and the religious, sometimes in combination, at others separately. (9-56)

One of the great themes of the Hermetic philosophers found in the writings of Comenius is that in nature is found the pattern by which men are able to discern the secrets of their own growth. One visible case is found to give the key to the rhythms of nature and by penetrating into this invisible substratum, the Hermetic philosopher sought to capture a vision of the corporal world as well as the world of the soul. This inductive method of the Hermetic philosophers was in contrast to the deductive logic of the perapetatic philosophers.

#### b. The Puffers

In contrast to the Hermetic philosophers were the Puffers, those alchemists who sought only the riches that would come from turning base metals into gold. For the Hermeticists, the making of gold was accomplished as has been previously stated, but this was not the major purpose of their work.

Transmutation, for the alchemist, is a secondary phenomenon, performed merely as a demonstration. It is difficult to form an opinion as to the reality of these transmutations, although various reports, such as those of Helvetius or van Helmont, for example, are very impressive. It could be argued that the conjurer's art knows no limitations, but is it likely that 4,000 years years of research and 100,000 volumes and manuscripts would have been devoted to an imposture? (10-72)

The Puffers, on the other hand, were concerned solely with the making of gold. As John Read states:

The 'puffer' was jealous of his competitors in the quest for gold; and the true adept considered himself a chosen guardian of the secrets of the 'Divine Art'. To the adept, his work was a religious activity rather than a stepping-stone to 'great dignity

and fame'. Thus, masters of the 'holy art' like Thomas Norton recorded their work only in cautiously worded manuscripts, for which they claimed no credit. (2-92)

Whether we are concerned with Hermetic alchemists or the Puffers, the critical question in this argument is the parallel between education and alchemy. Certainly every alchemist has as his purpose the making of gold, whether this be the gold of enlightenment within the human soul or the gold that can be sold in the marketplace. The pattern of transforming, from lower to the higher, from the gross to the enlightened, was the job of the alchemist. In a similar manner Comenius was responsible for the development of graded classes, while as superintendent of the gymnasium in Lissa in Poland, and the Parallel between purification in alchemy and grading in schooling is most striking. As the alchemist would take the base elements, so would Comenius teach both boys and girls seeking their enlightenment and refinement. Furthermore, there is a resemblance in alchemy and education in the use of nature as the teacher, the giver of the pattern, the basis of the principles from which is derived the process.

#### B. WOLFGANG RATKE

Illich has made the statement that Wolfgang Ratke openly claimed that education is an alchemic process applied to human beings. Further, Ratke was said to be the mento of John Amos Comenius. Wolfgang Ratke was an egocentric and bombastic educational reformer who lived at the same time as Comenius. It was during his student life at Herborn that John Amos Comenius became acquainted with Ratke's plan of instruction, then much discussed at university centers, especially Jena, Giessen and Herborn. Will S. Monroe describes that

for which he is remembered.

Ratke's contribution to education was chiefly in the matter of methodology. His leading principles were: (1) In everything we should follow the order of nature. (2) One thing at a time. (3) There should be frequent repetition. (4) Everything first in the mother-tongue. (5) Everything without compulsion. (6) Nothing should be learned by rote. (7) A definite method (and a uniform method) for all studies. (8) The thing itself should first be studied, and then whatever explains it. (9) Everything must be learned by experience and examination. (5-33)

Ratke was a much better promoter than he was educational reformer and found himself often either in disgrace or in prison because of his inability to carry through his promised educational transformations. His method was long and laborious, described by Robert Quick:

The teacher of the lowest class at Kothen had to talk with the children, and to take pains with their pronunciation. When they knew their letters, the teacher read the book of Genesis through to them, each chapter twice over, requiring the children to follow with eye and finger. Then the teacher began the chapter again, and read about four lines only, which the children read after him. When the book had been worked over in this way, the children were required to read it through without assistance. Reading once secured, the master proceeded to grammar . . .

When they advanced to the study of Latin, they were given a translation of a play of Terence, and worked over it several times before they were shown the Latin. The master then translated the play to them, each half-hour's work twice over. At the next reading, the master translated the first half-hour, and the boys translated the same piece the second. Having thus got through the play, they began again, and only the boys translated. After this there was a course of grammar, which was applied to the Terence, as the grammar of the mother-tongue had been to Genesis. Finally, the pupils were put through a course of exercises, in which they had to turn into Latin sentences imitated from the Terence. (30-37)

Illich asserts that Comenius was "the spiritual son", i.e., the pupil of Ratke and describes how they worked together. They would bring pupils together in the central square of the village and through drill, teach them to speak Latin. No evidence of this has been found. John Edward Sadler has said, "The work of Wolfgang Ratke also influ-

enced Comenius considerably even though it came to him second hand." (6-109) There is evidence given by a number of authors that Comenius wrote to Ratke and received no answer. (31-11)

If Wolfgang Ratke had an influence, i.e., was the "spiritual father" of John Amos Comenius, why did he not answer when Comenius wrote asking about his method? On the other hand there is evidence that Ratke had a secondary influence on Comenius who at Herborn became acquainted with Ratke's plan of education. Additional evidence of Ratke's influence in the parallels between the method of Ratke and Comenius. Whether or not Ratke was openly a Hermetic alchemist, no evidence has been found either in the biographies of Comenius or in the biographical material that was searched dealing with the life of Wolfgang Ratke.

### C. CONCLUSIONS

A. In the exploration of the historical parallels between education and alchemy there is a striking similarity between the alchemical processes, whether the Hermetic alchemists or the Puffers, i.e., those dealing with the soul of the alchemist or those dealing with the actual metals. This closeness between the alchemical process and the educational process Ivan Illich asserts is not a coincidence but by the strategy of Comenius.

B. In this section we dealt with Comenius' statements concerning Wolfgang Ratke and his influence upon Comenius. Lack of evidence indicates that Ratke had no personal relationship with Comenius but did influence the Moravian through his writings which were much discussed as educational reforms while Comenius was at Herborn.

The question of whether Wolfgang Ratke was openly a Hermetic alchemist must remain unanswered. No evidence has been found for this either in his own writings or of the biographical material of Ratke.

C. The evidence indicates that there is a parallel between the alchemical process and the educational process: the placing the base elements ( the uneducated and ignorant) in retorts (in classes), placing them over the fire (the teacher) and raising them to a higher and higher level of refinement (grade) until they graduate (are enlightened) and become pure gold.



## CHAPTER V

### THE INFLUENCE OF JOHN AMOS COMENIUS ON THE DEVELOPMENT OF MODERN EDUCATION Category 2.

#### A. WHY THIS QUESTION IS IMPORTANT TO THE ARGUMENT

By most educators the great influence of Comenius is considered self-evident but this question of the place of John Amos Comenius as one who influenced modern education is critical to Illich's argument. He asserts that alchemy as a pattern of modern education developed through the influence of Comenius. It is the purpose of this particular section to ascertain the influence of Comenius on modern education.

#### B. THE PRINCIPLES WHICH ARE THE BASIS FOR COMENIUS' PHILOSOPHY

In the preface to his Natural Physics we find those principles which are the basis of Comenius' worldview and, subsequently, that from which he derives his educational philosophy. Taking Nature as the teacher, Comenius abandons the leadings of the Aristotelians and bases his philosophy upon (1) common sense, (2) reason and (3) the revelation of the Scriptures. Some might argue with Comenius but he saw no conflict in deriving his philosophy both from Scripture and reason.

For now with those, that have lighted upon a more sound way of philosophy in this age, I saw and refined in it:

I. That the only true, genuine and plain way of philosophy is to fetch all things from sense, reason and Scripture.

II. That the peripatetick philosophy is not only defective in many parts, and in many ways intricate, full of turnings and windings, and partly also erroneous, so that it is not only unprofit-

able for Christians, but also (without correction and perfection hurtful.)

III. That philosophy may be reformed and perfected, by an ironical harmonicall reduction of all things that are and are made, to sense reason and Scripture, which so much evidence and certainty (in all such things as are of most concernment, and have any necessity) that any mortal man seeing may see, and feeling may feel, the truth scattered everywhere.

IV. "The knowledge of nature is to be obtained by searching into nature itself."

V. To search nature, is to contemplate how, and wherefore, everything in nature is done. (39)

Comenius saw nature as the great teacher. As is pointed out by Dobinson this influenced later educators who were instrumental in formulating modern educational theory and practice.

The approach to pedagogy initiated by Comenius has been continued by Rousseau. He also made frequent references to the child's nature. His device of return to the state of nature was aimed against the feudal social system, and it was an expression of a revolutionary ethos of confidence in life born freely when people were not restrained, and of scorn of those who were "well educated".

.....  
The same direction was taken by Pestalozzi and Froebel. In spite of all the important differences between them, they both were seeking the ways to help the development of spontaneous forces of a child and its own activity. (14-45)

A noted modern educator, Piaget in reflecting upon the work of Comenius, sees his contribution as one whereby the formative process of nature is grasped by the educational machinery and integrated into a social educative process.

Education is therefore not limited to the action of school and family but is part and parcel of general social life. Human society is an educative society: though this idea was not explicitly stated until the Nineteenth Century, Comenius' philosophy gave him a glimpse of it. Hence the disconcerting ambition of the 'pan-sophic' conception - 'to teach all things to all men and from all points of view' - and the fundamental union between the educational ideal and the ideal of international organization (15-14)

The great over-arching ideal in the life of Comenius was his

quest for pansophy, universal knowledge. He believed that he was blazing a trail for mankind. As a child he lost his parents and suffered from the neglect of his guardians. Because of this, Comenius found that he had a great pity in his heart for others, especially his own nation.

The word pansophy was not used by Comenius until it was suggested to him by a book by that title by Peter Tauremberg (1585-1639). Comenius' claim to fame lay not only in his educational contributions but living in a time of great war and turmoil, he was a man of peace; in a time of great sectarianism he was one of the few voices crying for Christian ecumenicity.

There was a great tension in Comenius' philosophy. On one hand he saw that spiritual reality is found within the seeker. At the same time and opposed to this, Comenius also saw reality in the material and the seeker ascends to the spiritual. As expressed by Boyd:

Though Comenius was not philosopher enough to know it, the mystical and the sensationalist strains of thought which he had adopted from the Italian thinkers were incompatible. The one led to the view that the spiritual reality of the universe is within the grasp of the soul from the first, and only awaits experience to reveal itself in its true character. The other implied that the soul begins with the material and gradually ascends to the spiritual. But in the application of these diverse principles to educational practice Comenius succeeded to a large extent in evading the contradiction. (18-72)

#### C. WHAT WERE THE CONTRIBUTIONS AND THE METHOD OF COMENIUS' EDUCATIONAL PHILOSOPHY?

Partially because of his own miserable experience in schooling as a child and youth and partially as he was exposed to and thought through the philosophy of other educational reformers, Comen-

ius arrived at certain assumptions about the education. Dobinson expresses it this way:

Comenius' educational system is based on a double assumption: The first is that the form of school organization employed at his time is absurd, unproductive and unjust.

"They are slaughterhouses of the mind, where one spends ten years and sometimes more in being stuffed with information which could be learned in one year."

The second is that man is not responsible for this large-scale mis-use of intelligent minds; it is something which must be attributed to the school structure. (14-52)

Comenius' method was to teach all men all things which was the pansophic vision.

John Amos Comenius throughout his life was constantly torn by the magnificence of his ideals, and the everyday reality of teaching classes, writing textbooks, and raising a family. In A Reformation of Schools, Comenius wrote of his hope and vision.

The constant endeavor of some breaks forth to bring Method of studies to such a perfection, that whatsoever is found worthy of knowledge, may with much less labor, than theretofore, he attained unto. Which, if it shall succeed (as I hope) and that there be an easy way discovered of teaching all men all things, I see not what should hinder us from a thankful acknowledgement, and hardy embracing of that golden age of light and knowledge, which hath been so long fortold, and expected. (16)

The concept of grading was revolutionary at the time. It is from Comenius that we have the principle of placing children together by groups both according to subject and according to age. This principle of grading was at the time revolutionary. It was incorporated at an early time in Comenius' career when he moved to Lissa and there directed his first school.

A noteworthy feature of his work as a reformer at Lissa consisted in a careful grading of the schools, and the formulation of a course of study for the successive grades. The guiding principle in this schematization of schoolwork was that each grade

should pave the way for the one next higher, - the elements of all subjects of study being comparatively simple, these elements should be gradually introduced and elaborated from grade to grade. These reforms were not only far-reaching, they were revolutionary; and they made possible the modern graded school. (16)

A summary of Comenius' educational reforms are listed by Matthew Spinka, one of Comenius' many biographers, who calls him "that incomparable Moravian".

How many elements of modern educational system were advocated by Comenius! He advocated a free and universal system of education, open to all and compulsory for all; education of both sexes; pre-school home training, which went even beyond our kindergarten system; instruction in the native tongue; graded subject matter, adjusted to the psychological development of the pupils, dramatization of the subject, so that school work would as much as possible be play; close correlation of thought with things; incorporation of history and geography, drawing and manual training, in the curriculum; the fundamental importance of developing the whole personality of the pupil rather than mere training for a professional career. And, besides, Comenius himself would add that the highest aim of education is to make men good, but this is something which modern educators have not grasped or have done so only partially. (19)

#### D. SUMMARY AND CONCLUSION

In this particular section we are dealing with the statement of Illich that "Bishop John Amos Comenius is rightfully regarded as the founder of modern education." Illich is certain that the patterns of modern schooling come from the philosophy, the methods, the innovation, the influence of John Amos Comenius. We have seen the list of reforms that were introduced by Comenius and these indeed are impressive. Whether this pattern and method is the "enlightenment of men" is not covered in this Category 2 for that question relates to the relationship of John Amos Comenius to Hermetic alchemy, covered in the next categories.

Likewise we observe the educational lineage from Comenius through Rousseau, Pestalozzi and Froebel - they themselves makers of modern education. From this it would seem that we can agree with Illich concerning the influence of Comenius on the development of our modern educational system. Comenius is indeed "The Father of Modern Pedagogical Theory and Practice".

Bernard Mehl (17) has observed that Comenius has had more influence upon those who administer educational programs than upon the teachers themselves. The theoretical experimentation, the practical undergirding of his experiments with his own textbooks, the theological and philosophical romance with pansophy, all give credence to Mehl's contention that Comenius was more of an educational administrator than teacher. Nevertheless, teacher and/or administrator, he was a great influence on education and has left a mark, a pattern, a design on modern education that will be with us for a long time.

## CHAPTER VI THE QUESTION OF ALCHEMIC INFLUENCE ON JOHN AMOS COMENIUS,

### CATEGORY 3.

Category 1 dealt with the question of the relation of alchemy and education. Category 2 of Chapter V dealt with the question of whether Comenius was an influential educational innovator. This category explores the central argument around which Illich bases his assertion of the influence of alchemy upon schooling today, i.e., that there is an alchemic influence that can be directly evidenced in the educational innovations of Comenius. Herein he asserts, is the direct descendant of the current educational pattern of today's schools.

#### A. ILLICH CLAIMS COMENIUS BIOGRAPHIES NEGLECT HIS ALCHEMIC BACKGROUND

##### 1. Bloch told Illich Comenius was an Alchemist.

It was from a suggestion of Ernst Bloch, the German Marxist philosopher that Illich first heard, according to his statement, that Comenius was an alchemist.

A search of the major biographies of Comenius indicate that there is no direct reference to alchemic influence as asserted by Illich. It would be conjecture to say the biographers were either ignorant of the possibility of Comenius being an alchemist or there was actually no alchemic influence in his life. Let us examine the further evidence before drawing conclusions.

##### 2. What are Evidences of Alchemic Influence?

Assuming there is no direct evidence from primary sources of Comenius being an alchemist, what indirect evidence is there to re-

inforce the assertion made by Illich?

Consider a number of inferences: Burckhardt asserts:

An important adage of the alchemists ran as follows: 'Art is the imitation of nature in her mode of operation.' The model for the alchemical work is nature. Nature comes to the aid of the 'artist' who has mastered her mode of operation, and perfects, in her 'play', what he has begun with labour and effort. The expression 'nature' has here a very precise meaning. It does not simply mean the involuntary 'becoming' of things, but rather a unitary power or cause whose essence may be known by perceiving its all-embracing rhythm - a rhythm which rules both the outward and the inward world. (3-115)

This is the same basis Comenius uses for his educational patterns. Chapter 16 of his Magna Didactica is called "General Postulates of Teaching and Learning" and outlines nine postulates concerning the patterns of Nature as they relate to the teaching process. The implication is clear: there is a parallel, between alchemy and Comenius' educational philosophy.

When considering the influence of alchemy, consider that the magnum opus of Comenius, the Magna Didactica, was called his "great work". It could be a coincidence that the completion of the alchemist's work, the Philosopher's Stone, was called The Great Work.

The practical operations necessary in the preparation of the Philosopher's Stone were usually known as the processes of the Great Work. A less complete series of operations led, it was supposed, to the Simple Magistery, or Little Work: this was regarded as a White Stone which transmuted the base metals only as far as silver. In the Great Work, Grand Magistery, or Work of the Sages, yielding the Red Stone, full perfection was reached in all respects. Nature could not attain this end without Art. (2-130)

Next, it would seem that if Comenius were in fact an alchemist, he would have friends and associates who were also of the same persuasion. And indeed that seems to be the case. From the Reformation of Schools we read Comenius' own words as he describes the men who influ-



But being shortly after the age of 24 called to the service of the Church because that divine function challenged all my endeavours, these cholesticke cares were laid aside until 5 years after, when being by God's permission banished my country with diverse others, and forced by my sustenance to apply myself to the instruction of youth, I gave my mind to the perusal of diverse authors, and lighted upon many, which in this age have made a beginning in reforming the methods of studies, as RATICHIVS, HELVICVS, RHENIVS, RITTERVS, GLAUMIVS, COECILIVS and who indeed should have had the first place, JOANNES VALENTINVS ANDREAE a man of nimble and clear brain, as also COMPANELLA, and the LORD VERULAM, those famous restorers of philosophy: by reading of whom I was raised in good hope, that at last those so many millious spocks would conspire into a flame: yet observing here there some defects, and gaps as it were, I could not contain myself of attempting something that might rest upon an immovable foundation, and which if it could be once found, should not be subject to any ruin. There fore after many workings, and tossings of my thoughts, by reducing everything to the immovable laws, the rules of nature, I lighted upon my DIDACTICA MAGNA, which shows the art of readily and solidly teaching all men all things. (50-47)

Concerning John Valentine Andreae about whom Comenius speaks so highly, there is evidence that the two men knew each other.

The books that seem to have influenced Comenius most, at the time when he was writing The Labyrinth, were some of the works of Johann Valentin Andreae. It is certain that he had studied the writings of this Wurttemberg divine during his stay in Brandeis, and knew him personally. The contact with Andreae is interesting and significant because it forms a link, first with Lutheranism, and second, with the Society of the Rosicrucians. Andreae was certainly a moving spirit behind the Brotherhood of the Rose Cross, and admitted that he had written the original Manifestoes of that order. Comenius shows indebtedness to the Fama Fraternitatis, Roseae Crucis, Peregrini in Patria errores, Civis Christianus and Republicae Christianopolitanae Descriptio - all written by Andreae. (33-29)

Count Lutzow, one of the biographers of Comenius, even says that the Moravian was a pupil of Andreae. (34-22) Indeed Andreae from another educator, John Sadler, is considered very influential in the life of Comenius.

Andreae, John Valentine (1586-1654) one of the most powerful influences on Comenius (cf. Methodus XXIX and Prodomus, Preface). He was born at Herrenberg and received a wide education at Tübingen and during the seven years' traveling in various countries. He settled down to the pastoral life of a Diakonus at Vailingen and became deeply interested in the Order of the Rosicrucians, a somewhat shadowy fellowship of mystical reformers. Between 1614 and 1619 Andreae wrote a number of books dealing with the origin of this Order the most famous of which was the Fama Fraternitatis (1614) which purported to give the life of the founder, Christian Rosenkreutz, who lived from 1378 to 1484. How authentic this account was cannot be proved but Andreae aroused great hopes in the Rosicrucian programme. Comenius devoted a chapter to it in Labyrinth (Ch. XIII) showing the alternation of excitement and disillusion with which it was greeted. Andreae founded a society, the Fruchtbringende Gesellschaft, in 1616, which was designed as a lodge of the Rosicrucian Order and a mixture of alchemy, mysticism and social reform is shown in another book, the Chymical Marriage, published in the same year. Then in 1619 he published his most important work, the Peipublicae Christianopolitanae Descriptio - which made a deep impression on Comenius. In several ways it was an advance on previous utopian literature particularly in relation to education. It combined the best elements of Baconian philosophy with Rosicrucian ideals. (6-304)

There are other alchemists whose names are linked with Comenius. One noteworthy in particular is the Englishman, Robert Fludd.

Fludd, Robert (1574-1637) was a leader of the Rosicrucians in England in the early seventeenth century for whom he wrote an apologia in 1616. It was from him that Comenius derived ideas concerning the physical structure of the universe (cf. Great Didactic, XX.11).

Robert Fludd was born at Milgate in Kent and spent six years on the continent studying medicine before he established himself as a physician in London. According to Fuller he practiced a form of faith-healing and he believed that all science was rooted in revelation. He combined mysticism with alchemy and there is evidence of his interest in Baconian experimental methods (G. Turnbull, Hartlib, Dury and Comenius, p. 128). He was a voluminous writer who made mystical anticipations of empirical discoveries, for instance, of Harvey's theory of the circulation of the blood (Journal of the History of Medicine 1961, 16, pp. 374-393. Alan G. Debus).

It is in Fludd's theory of the Universe as Macrocosm and Microcosm that may be found the source of one of Comenius'

main principles, namely, that 'all things have been harmoniously arranged that the higher can be represented by the lower' (Great Didactic XX.11). For Fludd physics must begin with an alchemical interpretation of the Creation and he assumes three basic principles with light and darkness and water as intermediaries between them. Belief in a 'vital spirit' of the air is found almost everywhere in alchemical literature (cf Isis, March 1964, p. 59. Alan G. Debus, The Paracelsian Aerial Niter) and therefore it is impossible to say how much Comenius was indebted to Fludd and in the Physics it is to Paracelsus that he particularly refers. (6-307)

Other mystics, visionaries, prophets of a millenia who influenced Comenius were Jacob Boehme (6-305), Antoinette Bourignon (6-306), and Nicholas Drabik (6-306).

### 3. Evidence that Comenius was not Influenced by Alchemy

Having surveyed the evidence of alchemical influence on Comenius consider the possibility that there was no influence. There is evidence from the pen of Comenius himself. In his book, The Labyrinth of the World (34) written in 1623 there is a Chapter (XII) called "The Pilgrim Studies Alchemy". The Pilgrim is shown the cellar in which labor a number of alchemists. Their labor to seek the Philosopher's Stone which would not only transmute metals to gold but make the alchemist immortal, both much to be desired. But seemingly due to their inability to work through the processes before them, the alchemists all come to rather disastrous ends with neither gold nor immortality. This rather dismal picture of the fate of the alchemist and the production of the "Lapis Philosophicus" could indicate little faith on the part of the author in either process or the outcomes.

It would also seem strange that George Turnbull who care-

fully studied not only the life of Comenius but of Hartlib and Dury (35) quoting again and again from the personal papers of these men, makes no mention of alchemical influences, activities or aspirations.

## B. COMENIUS IN ENGLAND IN 1642

### 1. Was Comenius Called by Parliament?

Illich asserts that Comenius was called to England in 1642 by Parliament for the purpose of reforming the English school system. Only if it can be shown that Comenius was in England will the evidence concerning the formation of "The Christian Association", a utopian society for the advancement of education, be valid. Biographers agree that Comenius traveled to England in 1642 and there stayed in the company of Samuel Hartlib, the man instrumental in his coming. During the time in England, he was entertained by a number of men of stature in Parliament, men interested in his educational philosophy. There the agreement ends. Whether the call came from Parliament or from friends hopeful for the Parliamentary fulfillment of their plans for educational reform has never been settled with certainty by the scholars of the question. Matthew Spinka in his biography reports concerning the event:

Comenius somehow received the impression that it was an official invitation of the Long Parliament that Hartlib had transmitted to him. Such summons he did not feel free to refuse. Therefore, although with a heavy heart, he left for England, intending to return as soon as possible. (19-74)

This misunderstanding, however, did not dampen the enthusiastic reception Comenius received in England. Though he arrived with very little money and dressed in clothes which were almost rags, he was

warmly received and provided for while there.

That members of the two houses of Parliament were involved in extending the invitation to Comenius seems to be certain from correspondence and the writings of Samuel Hartlib.

There is no proof, however, that the "honorable, pious and learned Assembly" ever found time or "leisure" to examine the proposals of Comenius and Dury and officially to invite them to England. Nevertheless, both reformers were actually invited and came. The call was issued in the spring of 1641 on behalf of a small group of members of the two houses. The group consisted of Bishop John Williams, who was soon to become archbishop of York, of Lord Selden, Lord Brooke, and a few others. According to Comenius' own statement, Hartlib sent him, in July, 1641, three letters, by different routes, urging him to come to England immediately. "Come, come, come: it is for the glory of God: take counsel no longer with flesh and blood!" (19-73)

Comenius himself is the authority for the belief that he received a call from Parliament. After telling of his arrival in London he makes reference to the Parliament. Unfortunately there is no trace of such a call in the Journals, either of the House of Commons or the House of Lords. "Moreover, Comenius nowhere else mentions an invitation from Parliament; indeed, elsewhere he gives other reasons for his journey." (36-30) Turnbull gives an excellent overview of the question:

To sum up then, Comenius was called over to England probably by a group of enthusiasts, to whom he had become known through efforts of Hartlib especially and Dury in spreading knowledge of his schemes by their publications of his works, and in stirring up their friends and acquaintances to aid in the carrying out of these schemes. At their solicitation these men had probably promised to support Comenius in the carrying on of his work in England. Hopes of assistance from the authorities in power ran high owing to many of the men being connected with Parliament and the probability of success was used to induce Comenius to come over; with the same object in view, the possibility of being able to collect money for the

needs of his exiled brethern was also represented to him.  
(36-32)

## 2. Did John Amos Comenius Start a Rosicrucian Lodge in London?

First is the question of whether the Rosicrucians were alchemists. Illich is asserting that Comenius started a Rosicrucian Alchemic Lodge in London in 1642 which raises the question of whether members of that fraternity were in fact also alchemists. John Read in writing concerning Michael Maier has this to say concerning the question:

Maier was an early exponent of the Society of Rosicrucians, or Brethern of the Rosy Cross, an ill-defined body of sectaries who appear to have combined the alchemical code with their peculiar system of mystical philosophy. (2-231)

Max Heindel one of the influential writers for the Rosicrucians during the early part of this century has this to say about the purpose of the Rosicrucians:

The Order of Rosicrucians is not merely a secret society; it is one of the Mystery Schools, and the Brothers are Hieropants of the lesser Mysteries, Custodians of the Sacred Teachings and a spiritual Power more potent in the life of the Western World than any of the visible Governments, though they may not interfere with humanity so as to deprive them of their free will. (8-520)

Heindel further describes the work of the alchemist which sounds similar to the descriptions of the Hermetic alchemist.

The alchemists were deep students of the higher occult science. The popular belief that the object of their study and experimenting was the transmutation of baser metals into gold, was because they chose that symbolic way of describing their true work, which was the transmutation of the lower nature into spirit. It was thus described to lull the suspicions of the priests, without stating a falsehood. The statement that use of the formula for the making of the Philosopher's Stone was and is true. (8-438)

Silberer gives another dimension of the relationship of alchemy and the Rosicrucians.

Rosicrucianism was, however, one of the forms into which alchemy was organized. It is further important that in just those societies of the beginning of the seventeenth century which outsiders called "alchymists" or "rosicrucians", the characteristic emblems of the old lodge appeared, as, for instance, the circle, the cubic stone, the level, the man facing the right, the sphere, the oblong rectangle (symbol of the Lodge) etc. (29-191)

What are the evidences of Rosicrucian influence on Comenius? As has been shown, Comenius was directly influenced by the man who was also responsible for the growth of the Rosicrucians. Because of his writings, John Valentine Andreae had a great influence on the Continent and in England, not the least of those being Comenius.

Silberer quoting Katch goes so far as to say not only that Comenius was influenced by the Rosicrucians but that he belonged to that order.

Joh. Gottl. Buhle, a contemporary of Nicolai, had already assumed that the rosicrucian Michael Maier introduced rosicrucianism into England, and that freemasonry began then especially with the cooperation of the Englishman Robert Fludd (1574-1637). Ferdinand Katsch warmly defended the actual existence of the old Rosicrucian fraternity with arguments, some of which are disputed. He names with certainty a number of people as "true rosicrucians," among them Julianus de Campis, Michael Mair, Robert Fludd, Frisius or Frizius, Comenius (Katch, p. 33). (29-175)

Bloch also contends Comenius was a Rosicrucian and was active in that order.

With this the connection is made in the general reform to the Rosicrucian who, in such a strange manner united superstition with life. Pansophy was the last judgement. At the

end, Comenius the best known disciple of Andreae, shows the intention of the Rosicrucians in his Placia Philadelphia. Just as Andreae, Comenius not only is enthused about Rosicrucianism, but also talks about them ironically and yet shares their superstition-faith. (42-745)

Then there is the testimony from the writings of Comenius. In Chapter XIII of The Labyrinth of the World (34) by Comenius is "The Pilgrim Beholds the Rosicrucians". The chapter, although it ends with the Pilgrim abandoning the hopes of the Rosicrucians, shows intimate familiarity with the teachings and promises of that order. It is interesting that although Andreae with whom Comenius was associated, wrote The Fame and Confession of the Rosy Cross and was instrumental in establishing the order, Comenius attributes the founding to Hugh Alverda.

To make gold, he said, was one of the smallest of their hundred feats, for all Nature was bared and revealed to them; they were able to give to, or take from, each creature whatever shape they chose, according to their pleasure; he further said that they knew the languages of all nations, as well as everything that happened on the whole sphere of the earth, even in the new world, and that they were able to discourse with one another even at a distance of a thousand miles. He said they had the stone, and could by means of it entirely heal all illnesses and confer long life. For Hugh Alverda, their praepositus, was already 562 years old, and his colleagues were not much younger. And though they had hidden themselves for so many hundred years, only working - seven of them - at the amendment of philosophy, yet would they now no longer hide themselves, as they had already brought everything to perfection; and besides this, because they knew that a reformation would shortly befall the whole world; therefore openly showing themselves, they were ready to share their precious secrets with everyone whom they should consider worthy. (34-150)

From this it can be seen that Comenius was familiar with the claims of the Rosicrucians and therefore it might be claimed that



this is contributing evidence toward seeing Comenius as an alchemist.

### C. UTOPIAN SOCIETIES

The significance of utopian societies is related to the ideals of pansophia and the formation of groups to implement those great hopes.

The question of the formation of an alchemic Rosicrucian Lodge while in London assumes that Comenius was a Rosicrucian and that he was in association with persons of like persuasion. Although there is some evidence of his association with Rosicrucians which as Andreae, no mention of the Order of the Rosy Cross is made in the material describing his stay in England from September 21, 1641 to August 1642.

There is evidence that during this time there was a great surge of utopian hope that found expression both on the Continent and in England in the formation of secret societies, brotherhoods, lodges and various other organizations with many ostensible purposes but generally considered religious in purpose by their adherents. Silberer describes this phenomenon as it related to an earlier period of history.

In reference to the symbol and image language, which was comprehensible only to the initiated, we think naturally of the ancient mysteries. The religious societies of the oldest Christians, in the centuries when Christianity belonged in the Roman Empire to the forbidden cults, found a possibility of existence before the law in the form of licensed societies, i.e., as guilds, burial unions, and corporations of all sorts. The primitive Christians were not only forbidden sects that sought and found this recourse. Under the disguise of schools, trade unions, literary societies, and academies, there existed in the jurisdiction of the Roman Empire, and later in-

side of the world church, organizations that before the law were secular societies, but in the minds of the initiated were associations of a religious character. (29-182)

Samuel Hartlib was involved in and had knowledge of such societies some of which had as their objectives, the education of youth, the advancement of peace, the unity of men of goodwill or other hidden purposes.

An esoteric manifestation of this movement was the Fraternity of the Rosicrucians (c. 1614), a chimerical expression of protestant pansophia, which caused much discussion in the Hartlib circle. These societies varied greatly in organization and most were shortlived. . .

Even before his arrival in England, Hartlib was thoroughly acquainted with this movement. In particular he was associated with Antilia, a little-known society, with corresponding members diffused throughout the German-speaking areas of Europe. (37-29)

From this we can discern a relationship between Hartlib and this movement of utopian societies among which would be numbered the Rosicrucians. This name could be considered a generic name under which would be subsumed a number of societies bearing either the parent name or some other name as will be seen presently. There is no evidence of any centralizing organization and the chimerical quality of each group as well as its ephemeral nature would indicate the deep idealistic hope of many men in response to the devastation, brutality and chaos of the time when the Thirty Years' War on the European continent and civil war in Britain left a terrible decimation of the human spirit.

Concerning Hartlib's relation to Antilia, Turnbull writes:

The papers also throw some interesting new light on the society called Antilia to which reference is made from time to

time by Hartlib and his correspondents in letters and other writings. The letters from Johann Fridwald to Hartlib, to which reference has already been made, are particularly important in this connection. In the first letter, written from Königsberg on February 10, 1628, Fridwald says that the news from Pohmer at Thorn about the matter of the Antilia which Hartlib in his letter of December 28, 1627, from Elbing, expected him to have received already, has just come in. It has been decided that the education of children must first be embarked upon and make the foundation of Antilia.

(35-69)

Like other utopian societies, Antilia seems to have had an agonizing death.

The Antilia has not come to the desired realization, partly because of the lack of a suitable patron and a suitable place, partly because of the death of the most important members one after the other, and partly because of hindrances due to the private affairs of the members.

(35-72)

There is a relationship between Andreae and the Antilia.

Andreae, the author of broad influence, sought to found a group known as the "Christian Society" which later was known as the "Christian Union". Referring now to Hartlib and Andreae, both involved in such covenanting societies, there would be expected to be a causal relationship with others with whom they were associated. And this is to be found.

What was the connection between the Antilia referred to in Fridwald's letters and Johann Valentine Andreae's attempt to found a Christian society just before the outbreak in 1618 of the Thirty Year's War? In his early writings, such as the Fama Fraternitatis, which was circulated in manuscript form as early as 1610 and printed in 1614, he had advocated the banding together of a small body of men into a college for the institution of a general reformation in things divine and human. Then in 1620 he published the Christiana Societatis Imago and the Christiani Amoris Dexteræ Porrecta; the course of the war put an end to his attempt to found a society as a result of the latter work, but in 1628 he founded a Christian Union with three others, his friends, at Nuremberg.

(35-73)

We can see even a relationship of influence between Andreae and Hartlib, both in their thinking and in their ideals.

Andreae's ideal of a christian brotherhood as the enlightened advisers of a utopian state was very much the inspiration for Hartlib's first work, Macaria (1641), the term Macaria being applied alike to his intimate associates and there formed English state. He saw Comenius as an appropriate leader for this brotherhood, which he recognized had close similarities with the society envisioned in Bacon's De Augmentis Scientiarum. (37-31)

Macaria, it should be noted, was written at the time Hartlib looked forward to the coming of Comenius, to the reform of the English school system and before the outbreak of civil war in that state.

Hartlib's Description of Macaria was a utopia in which all children, both boys and girls, were taught industrial occupations and agriculture. He proposed a national bureau of vocational guidance and employment, an idea much discussed in his day and again in ours. (38-174)

Finally, Bloch asserts that Comenius was deeply involved in these utopian societies and they were alchemistic in their purposes, Rosicrucian in their intention.

England had alchemistic philanthropic meetings all through the seventeenth and eighteenth centuries. There were secret societies as Antilia and Macaria for the restoration of hermetic medicine and philosophy. There was Collegium Lucis founded by Comenius. All these sects established the Rosicrucian or higher alchemy, and all wanted to leave the course of nature and society to its paradisiac primitive state where social equality and unblemished or gold were one. (42-742)

#### D. THE FORMATION OF "THE CHRISTIAN ASSOCIATION"

Upon the arrival of Comenius in the fall of 1641 he met other associates in the ministry who had returned to England from

exile to promote ecclesiastical reform. Indeed there was a sense that at last there would be a reformation of the church and state and even a sense of the impending coming of the reign of Christ while others predicted the beginning of the millenium. Into this atmosphere came the Moravian, full of hope, assured of the fulfillment of his highest ideals. It would only be natural that Comenius, Hartlib and his associates would form some sort of society in keeping with the times.

### 1. Purposes of the Association

I find among the papers an interesting document which shows that the three men entered into a formal agreement, whereby they agree, in their endeavours to promote (1) ecclesiastical peace, to (2) educate Christian youth and to (3) reform the study of true wisdom, (4) to do nothing without mutual advice and agreement, (5) to assist each other in material as well as in spiritual ways, (6) to warn one another of mistakes in a friendly way and to (7) make this pact known only by common consent and to suitable persons whose motives and intentions are similar to their own. The document, which is headed Foederis fraterni ad mutuam in publico Christianiam bono promovendo aedificationem sancte in conspectu Dei initi tabulae, is dated London, March 3/13, 1642, and is in the writing of Comenius. (35-363)

This pact or covenant agreement united these men of different nations but of common ideas and loyalties.

Identity of purpose was reinforced by agreements in the form of sacred covenants, and increasingly influential means of attachment to religious and political programmes during the puritan revolution. Covenant theology had varying social manifestations. In the hands of Hartlib and his colleagues, it reinforced their sense of sanctification in the mission to propagate a utopian social and religious programme. With this outlook, they operated more as an international spiritual brotherhood than a quasi-political pressure group. Hartlib and Dury's writings were designed to represent this evolving religious association which was called the Collegius Charitatis in 1630 and 'Christian Association' in 1650. At a more

esoteric level they adopted the titles Macaria and Antilia. Under the solemn obligation of their pact - 'haec fraterni Foederis pacta involabilliter in timore nominis ejus servanda inter nos sancisimus' - Hartlib, Dury and Comenius pledged themselves to spare no personal sacrifice for their programme in advancing piety and learning.

Dury. . . While his greatest energies were reserved for ecclesiastical pacification, he saw education as the means to prevent religious discord in succeeding generations. (37-9)

The extent of "The Christian Association" was not insignificant in its influence. The communications networks of today were not present except through such men as Hartlib who through extensive correspondence rendered invaluable assistance to those of his circle. Thus the association with Comenius, Dury and others would have particular significance.

Most patrons and intellectuals were content to accept the peripheral advantages of Hartlib's network of correspondence, such as information about recent publications, inventions, foreign news and so on. A few, seeing the great advantages of co-ordinated activity, formed the nucleus of his 'Christian Association' which was to exert considerable influence during the puritan revolution. Hartlib's first associate, John Dury (1596-1680), was to become an indispensable colleague and lifelong friend. Identity of outlook and similarity of interests has created considerable confusion about the authorship of their writings. Anonymity was almost certainly an intentional guise of their Christian Association, although it was always clear that Hartlib and Dury were themselves its chief agents, Hartlib being the primary organizer and instigator, while Dury drafted the majority of their tracts. As Dury pointed out, he, Hartlib and Comenius, 'though our tasks be different, yet we are all three in a know sharers of one anothers labors, and can hardly be without one anothers helpe and assistance.' (37-8)

## 2. The Relation of Comenius and Hartlib to the Freemasons

The question of the nature of the organization of the Rosicrucians and the extent of their influence touches upon another related question of their influence upon the Freemasons in England.

Silberer indicates as stated above, that the term rosicrucian was a name used by various groups all esoteric in nature.

Rosicrucianism truned into freemasonry for practical reasons. As the most outstanding imposters represented themselves as rosicrucians this name was not conserved. The wrong was prevented, in that the true rosicrucians withdrew as such, and assumed a different dress. (29-175)

This could be inferred concerning the associates of Samuel Hartlib and their Christian Association; their association had the nature of Freemasonry, or Rosicrucianism, of the general utopianism that permeated that time and community.

It will, perhaps, be well at this juncture to make mention of a problem which has recently been much discussed, namely the relations of Hartlib to the Society of Freemasons and to the Royal Society. On this topic a heated controversy, which has unfortunately been sometimes very personal, has been waged between Ludwig Keller and W. Begemann. Keller has put forward the view that Comenius and Hartlib belonged to secret societies, which existed in the early part of the seventeenth century both in England and abroad, and which, owing to fear of persecution, concealed their true aims under the cloak of being societies of learned men, interested in such matters as educational reform, whereas, in reality, they were founded mainly for religious and alchemistical purposes and professed a peculiar form of worship. These societies Keller combines with the old Platonic Catacombs, believing that the same ideal, that of humanity, permeated them all. He declares that there existed in England such a society, under the symbolical name of Antilia or Macaria, with which Hartlib was connected. As a result of the influence exerted by these societies, there sprang up in England the movement of Freemasonry, which, therefore, owes a deep debt of gratitude to Comenius and his friends. (36-36)

#### E. WHAT IS THE RELATION OF PANSOPHIA TO ALCHEMY?

One further link is to be considered and that is the question of whether there is a relationship between the pansophic ideal and alchemy. It would seem, looking at the purposes of pansophy that

they could be seen as similar.

The dynamics of pansophia might be summed up in the words of the mystic, Meister Eckhart: "God with His own nature, His essence, is in the soul, and yet He is not the soul (i.e. He is infinitely more than the soul). The soul sends back a divine reflection to God, so that they are both the same light. The Word or expression of God becomes God." In one sense Comenius sees man as humble and acquiescent but in another sense, fired with ambition to climb Jacob's ladder up to heaven.

The second half of Pansophia is an attempt to indicate the steps of the ladder. 'Man has seen the theatres in which eternal wisdom plays its games' (Ludos) - the Mind of Man himself, the activities of Spiritual Beings, and the world of Nature - but now the initiative lies with men to imitate God in all their economic, industrial and cultural activities. Comenius sees no danger that human ambition will become vaulting - 'Pansophy teaches us that there is nothing in heaven or earth, in the air or water or anywhere else, that was not destined for human use, either directly or indirectly' provided, of course, that everything serves its 'rightful purpose'. Material things must be used 'according to their nature' but, under that condition, men act as creatively as God in making a new world which is only artificial in the sense that it goes beyond the original nature of things. (6-130)

If alchemy seeks to distill the prima materia from all life, organic as well as inorganic, it parallels the pansophic ideal of universal wisdom to which Comenius dedicated himself the lifelong task and which was his greatest sorrow to lose his manuscripts when his library was burned in Lissa after returning to Elbing. There can be seen a certain parallel between the pansophic temple of wisdom in which the learner proceeds from stage to stage and the alchemic process of placing the prima materia in the still and forcing it through fire to rise from stage to stage.

#### F. CONCLUSIONS

What can be concluded from the discussion of the questions of this category? It began with the question of the alchemic influence



on Comenius and whether or not he was in London in 1642. There were definite utopian hopes which manifested themselves in utopian societies at that time. Where Comenius and his friends involved in one of these and if so for what purpose? Did the British Parliament call Comenius to England to reform the schools in 1642? Is there any relation between that great ideal of pansophy held by Comenius and the purposes of alchemy? Finally, from this labyrinth is it possible to conclude that there is some definite alchemic influence in the life and work of John Amos Comenius? To the conclusions of these questions we now turn our attention.

#### 1. The Evidence of Alchemic Influence on John Amos Comenius

Evidence for the alchemic influence on Comenius is seen in the parallel between the "great work" of the alchemist, i.e., making the Philosopher's Stone and the great work of Comenius, his Magna Didactica or his great teachings. This could be a coincidence but it is one more thread in the line of reasoning showing a parallel between the work of Comenius and the language and intent of alchemy.

Another strong reason indicating the relation between Comenius and alchemy is the influence of friends such as John Valentine Andreae and Robert Fludd, both well-known and influential alchemists. Andreae lived on the continent and Fludd in England. Count Lutzow and Sadler both indicate that Comenius was a pupil of Andreae. From the writings of Comenius we have also the testimony of the great influence of Andreae upon his thinking.

Evidence contrary to this conclusion comes first from the hand of Comenius himself wherein the Labyrinth of the World he writes of the alchemist with little or no enthusiasm. He certainly does not indicate any personal involvement in alchemy.

Also from the writings of such biographers as George Turnbull there is no evidence either when he writes concerning Samuel Hartlib or John Amos Comenius of alchemic influence. This is particularly significant in that Turnbull has examined the writings of Hartlib in great detail.

What conclusion can be drawn from this summary of the evidence concerning the alchemic influence on Comenius? Since the Labyrinth of the World was published in 1623, almost 20 years before Comenius went to England it could have reflected his earlier views of alchemy and Rosicrucianism. Perhaps George Turnbull has examined all of the writings of Hartlib but there is no indication that, as a biographer he also has knowledge of the writings of Comenius. Therefore, the evidence indicates that through his friends, through his language and even as a pupil of Andreae and other alchemists, Comenius was influenced by the process and language of alchemy.

## 2. Was Comenius in England in 1642?

According to his biographers there is no question that Comenius traveled to England in 1642 and stayed there in the company of Samuel Hartlib and the group of people he had gathered about him. The evidence is the invitation of Hartlib, his direct communications with Comenius, the text of "The Christian Association"

and Comenius' own biographical accounts of the journey.

### 3. Was Comenius Called by the British Parliament?

Comenius believed that he had received an official invitation from the Parliament to come to England. There is no evidence either in the minutes of the Parliament or elsewhere to indicate that such an invitation was extended. The enthusiasm of the Hartlib circle for Comenius and his educational innovations knew no end and could have been easily misinterpreted. It must be concluded then that Comenius went to England assuming an official invitation. Apparently upon his arrival the lack of an official invitation was more than adequately made up for by the enthusiasm and the warmth, as well as the actual financial provisions for his comfort, made by the circle of friends who enthusiastically gathered around Samuel Hartlib and his plans for educational reform.

### 4. Did Comenius Start A Rosicrucian Alchemic Lodge in London?

The first question necessary to be answered is whether or not Rosicrucians were alchemists. The answer, according to their own testimony, is definitely to the affirmative. Alchemists, such as the Englishman Robert Fludd, was a leader of the Rosicrucians of the early seventeenth century. Michael Maier was an exponent of the Society of the Rosicrucians. Max Heindel of this century gives testimony to the Rosicrucian study and devotion to alchemy and finally Herbert Silberer speaks of Rosicrucianism being one of the original forms of alchemy.

Next is the question of the Rosicrucian influence upon

Comenius. Here we refer again to his relation to Andreae and Robert Fludd. Then there is the quotation of Silberer quoting Buhle where he names a number of Rosicrucians, among whom is Comenius. This would certainly indicate a strong possibility of Comenius being a Rosicrucian. In his Labyrinth of the World referred to earlier concerning alchemy, Comenius writes with high regard concerning the Rosicrucians.

Did Comenius start a Rosicrucian Lodge? To this question it is necessary for us to refer first to the influence of utopian societies upon Samuel Hartlib. Certainly he had knowledge of Antilia and Macaria, the first in England and the other on the continent. There is no question of his being part of "The Christian Association" which was formed between Hartlib, Dury and himself. Is it possible to call The Christian Association a Rosicrucian Lodge? The Christian Association had as its purpose the high ideals of furthering education in England and mutual support between its signers which are seen in the ideals of the Rosicrucians. There is also evidence of the relation between Comenius and Freemasons and also between Rosicrucianism and Freemasonry, therefore coming together are the strains of hermetic alchemy, utopian hopes, educational reformation and mysticism.

There follows the conclusion that the relationship in the structure of an organization grows from the language that it uses. The Christian Association in that it had the same purposes and ideals as Hermetic alchemy, could be also called a Rosicrucian Lodge or

an organization of Freemasons or a utopian society. In every case it would be a society of likeminded men united in a personal, covenanted agreement. This could have been the meaning when Ivan Illich spoke of Comenius starting a Rosicrucian Lodge. He was referring to The Christian Association.

The evidence is inconclusive. This statement by Ivan Illich is one in which it would seem that he has interpreted the facts in both an interesting and creative manner.

##### 5. What is the relation between alchemy and pansophy?

It may be pointed out that the ideals of pansophy, that is of universal wisdom, are very closely related to the ideals of Hermetic alchemy, of the process of enlightening the alchemist himself. In pansophy there was to be built a Temple of Wisdom up whose steps the learner would climb. In hermetic alchemy the individual raises through successive stages. The Temple of Wisdom leads through the process to graduation; the stages of alchemy lead to final enlightenment. Here then is the parallel between the ideals of pansophy and hermetic alchemy. Although never used as subject of his affiliations or the object of his allegiance, Comenius followed the pattern of hermetic alchemy as he built his Temple of Wisdom that all men might grow into the likeness of the Creator through the process of education.

This category has sought to show the evidence of alchemic influence upon John Amos Comenius. There are many points of contact between the events of his life and his writings and the content and

pattern of hermetic alchemy. By inference it is possible to show a direct relation between the life and work of Comenius and hermetic alchemy.

## CHAPTER VII EDUCATION AND ALCHEMY TODAY. CATEGORY 4.

This category deals with those statements of Illich which are concerned with alchemy and education as we know it today. Here we look at the present relationship between them and the implications not for the past from whence they came, but for the future.

### A. EDUCATION AS THE ALCHEMIST'S ELIXIR IN MODERN FORM

Illich likens "education" to the alchemist's "elixir" in modern form. Elixir is one of the many names for the Philosopher's Stone, which is both the end product of the alchemist's explorations and the experiments and the means by which, once the elixir was achieved, the alchemist could advance to his final end, i.e., the transformation of base elements to gold. This could be either the metal gold or the gold of enlightenment. "Because of its elusive nature, this spirit or divine presence in the mystery of matter, was named Mercurius. Other names were filius macrocosmi, salvator, elixir vitae, deus terrenus, and lapis, in so far as the latter was understood to be spirit." (4-63)

Illich asserts that education is this Philosopher's Stone by which men are transmuted from baser to higher forms of life; from ignorance to educated. The Philosopher's Stone of the alchemist becomes the curriculum of the educator. Both, he says, are the means of transmutation. In the alchemic doctrines there is the belief that in anything there are the seeds of everything; in anyone there are the seeds of God; that even in the cobweb there is the essence of the

almighty as well as all His creation. This is little different than the modern scientist saying that matter is made up of electrons and protons. For the alchemist this means that in *materia cruda* are the seeds of the *prima materia*:

Thus, they were lead to imagine that metals and ores grow in the earth, and further, that during the process of growth "a base" or imperfect metal might change slowly into the perfect gold . . . The seed of gold or, *chrysosperm*, was said to be lodged in all metals. The perfect seed would produce gold; imperfect seed would lead to imperfect, or aborted, metals.  
(2-94)

As the seed of gold or *chrysosperm* is in all metals, Illich asserts that through alchemy the corresponding seed in all men can, through some "great work", be brought to its full fruition, the gold of enlightenment. This is the result of the process of education which is seen as the pseudo-magic by which a person is transformed from ignorance to knowledge, from darkness to enlightenment. Curriculum is the marvelous means by which this transformation is made, curriculum being equated to the elixir of Philosopher's Stone of the alchemist, both being the agent through which transformation takes place. Another name for the elixir was the "alkahist" also known as the universal solvent.

"The chemistry of the Middle Ages and the sixteenth century now applied distinctively to the pursuit of the transmutation of baser metals into gold, which (with the search for the alkahist or universal solvent, and the panacea or universal remedy) constituted the chief practical object of early chemistry." (44-209)

It is possible to see here a striking parallel between the



two constructs, that of alchemy and that of education, the processes by which base metals and ignorant children are put through specific activities and processes for the particular purpose of changing them in the specific direction. To say there is a parallel is not to say there is identity. Such parallels taken by themselves are fascinating but can be coincidental. To say they are causative can only be implied, not positively stated at this point.

## B. THE QUESTION OF WHETHER THE VOCABULARY OF EDUCATION IS TAKEN FROM THE VOCABULARY OF ALCHEMY

### 1. The Nine Concepts Given by Illich

In this part we are concerned with the question of the relationship of the vocabulary of alchemy and that of education. Illich has named nine concepts which he claims are alchemical in origin: class, promotion, graduation, selection, enlightenment, liberation of the spirit, base elements of society, gathering according to capacity, and limited ability for input of subject matter. As shown elsewhere in this dissertation, Comenius in Lissa began the process of grading according to age and according to capacity. That the words class, promotion, graduation, selection and gathering according to capacity were used by Comenius would be expected and we can grant Illich that the other words were also used somewhere in the great plethora of Comenius' writings. The question is not whether Comenius used them but whether he derived them from an alchemical influence.

### 2. The Structure of a Subject Influenced By Vocabulary

The structure of any subject, whether it be philosophy, psychology or any other subject including alchemy and education, is taken from and profoundly influenced by the vocabulary used. Vocabulary carries the conceptual constituents and the arrangements of the subject of a particular field. Applied to the question of the relation of education and alchemy it can be seen that the vocabulary of these fields carried the conceptual structure of the subject. If then there is a correspondence of subject matter it gives a direct relation of one field to the other. Thus is the assertion of Illich when he says that the vocabulary of education grew from that of alchemy and entered and effected education through the influence of John Amos Comenius.

### 3. Alternatives as to Whether These Words Came from Alchemy

In considering the question as to whether these nine words or concepts came into education from alchemy via John Amos Comenius, it will be necessary to examine closely the alternatives:

The first alternative is that they were never of alchemic origin or use. In this case, any evidence suggesting these words came from alchemy would obviously be erroneous.

The second alternative is that there is evidence of the use of these words or phrases in the literature of alchemy before the time of Comenius. Such usage would be strange to us today for the obvious use of these concepts is as part of the educational vocabulary. If there is found evidence of their alchemic use before Comenius, then there is the possibility that, through the influence of the

Moravian educator, they became part of the structure and vocabulary of education as Illich asserts.

There is one further possible alternative: that the evidence is inconclusive to show either there was or was not an alchemic influence. If this be the case and there is a parallel in the alchemic and educational processes, this could be considered one more link in the chain of circumstantial evidence but in and of itself, it must remain inconclusive.

The next two sections will deal with these alternatives.

#### 4. Evidence the Nine Words and Concepts Were Used Before Comenius in Education

As we turn to a more critical evaluation of the words and concepts given by Ivan Illich, it is well to ask why is the question of their use before the time of Comenius critical to this argument? It is logical that if these words were used in a common and accepted sense before the time of John Amos Comenius and if that sense in which they were used was within the context of education, then the argument of Ivan Illich is proven false. If on the other hand by the time of Comenius there is no evidence that these words were used in education then Illich's assertion that they entered the structure of education through Comenius from alchemy remains valid. We will now proceed to the examination of as many of these words as possible.

Class - according to the Oxford English Dictionary (44-466) the use of the word class begins with Blunt in 1656 where he says

in his Glossogr., Classe. "In schools (wherein this word is most used) a Form or Lecture restrained to a certain company of scholars." It would seem that the use of the word class in 1656, very close to the time that Comenius visited England, would be evidence of the word's use not only in the context of education, but if it is used during the time of Comenius there would be little or no opportunity for his work to have had that much influence from the continent into England to become a word of common usage in a language that generally was foreign to his own. It would certainly be difficult to believe that the word class came into the English language through Comenius who wrote principally in Latin during his lifetime and as a word of common usage in a context different than the original.

Selection - The first reference for the use of the word selection was in 1646 by Sir T. Browne Pseud. Ep III. XXV. Ed.4. 211. (49-407) "While we single out several dishes and reject others, the selection seems but arbitrary, or upon opinion." Although the word is not used here in the context of education neither is it used in the context of alchemy.

Promotion - was used in 1429, Rolls of Parlt. IV. 344/2 "Ne for promotion or fortheryng of any persone of Office." (48-1456) The word here is used commonly in education even today.

Liberation - This word was used back in the thirteenth and fourteenth centuries long before the time of Comenius and was used in the context of releasing or setting free. (47-239)

Enlightenment - This particular word was used in 1382 by

Wycliff in his translation of the Epistle to the Ephesians 1:18, (45-191) but further and perhaps more important the word enlightenment was used in the translation of the King James Bible in 1611. In Psalm 18:28, 19:8, 97:4 as well as in the New Testament, Eph. 1:18, and Hebrews 6:4.

The concepts used by Illich which are phrases such as "base elements of society" are more difficult to identify as specific concepts in either education or alchemy. Nevertheless, it would seem that the evidence as presented herein would be enough to indicate that these words were used in their commonly accepted sense before John Amos Comenius and therefore did not enter the English language as an educational concept from alchemy.

#### 5. Evidence Of Alchemic Influence On These Words

What is the evidence of alchemic influence on these words and concepts? This is important to the argument because if there can be shown direct relationship between these words as educational concepts and the alchemic process, this will prove Illich's assertion that educational vocabulary (at least these words and concepts) came from alchemy.

Graduation - The Oxford English Dictionary (46-335) lists the word graduated as "in the alchemical sense, meaning to transmute a metal into one of a higher grade". This is an obsolete usage. Samuel Hartlib as a man of broad interests and intellect, writing in 1655 concerning bees and bee culture, wrote "the tincture of the concrete whence it was produced, which then being graduated beyond it's own nature, leaveth its dye ingrain." Certainly, Hartlib

was using this in the context of transmutation i.e., of being changed into a new or higher grade.

The word graduation also is used in an alchemic sense by Norton in his Ord. Alch. V. (44 - Vol G 355) (46-355) when in 1477 he wrote "so manie graduations your wisdome must attaine."

Liberation - The chemical sense of liberation meaning, "to set free from combination" was first used in 1623 by Cockeran in the context of liberate or to free one. (47-239)

From these examples it can be seen that there is the possibility that these words could have entered the English language having had some alchemic background and influence in their etymology.

## 6. Grouping of the Concepts

There is a sense in which the concepts as given by Illich, group themselves into three natural areas which, when seen in this order suggest somewhat a process or at least a relationship between education and alchemy.

Into the first group fall naturally four words as follows: "class", "selection", "limited ability for input of subject matter", and "gathering according to capacity". These four concepts deal with the ordering of materials or students according to measured quantity of capacities. Even the phrase "limited ability for input of subject matter" fits with this group if only by limiting the amounts ordered. "Selection", "gathering" and placing into "classes" have the same general meaning of sorting or ordering.

The second grouping is "promotion", "liberation of the spirit" and "base elements of society". In each of these there is the concept of expulsion, of sending forth from the parent group. The concept that is most difficult, that fits the least is "base elements of society" yet seen in the context of this vocabulary study reflecting either education or alchemy, it can be seen that in either of these subjects there is an element of moral judgment as to what is good and what is bad. The expulsion of the base elements from any group, either of people or in a chemical process is tantamount of casting out base elements, the elements not wanted.

The third and last group consists of the two concepts, "graduation" and "enlightenment". Both have the element of completion, of finish, of conclusion with fulfillment. Graduation is going on to another stage and enlightenment is being filled with light or knowledge by which one continues into the future with confidence.

#### 7. The Parallel Process of Education and Alchemy as Seen in These Words

Although the evidence seems to be scant indeed, that these nine concepts came into the structure and vocabulary of education from alchemy by way of Comenius, an interesting and instructive parallel can be drawn between the processes of alchemy and education as seen in these words and concepts.

If we consider the words class, selection, gathering according to ability and limited ability, we can see here a selection or

an ordering process which is quite evident in the grading system of education. In the alchemic process this selection and ordering was the first step whereby the "materia cruda" was taken and was selected and put through a particular process.

When we take the second series, the word promotion, liberation of the spirit, base elements of society, we find likewise here a commonality between education and alchemy. With promotion and liberation there is the context of separating out that which is productive from that which is non-productive (base elements) so that in the process of promotion and liberation the next step can be taken. In the alchemic process this was part of the purification of the raising from a lower to the next higher and consequently the next purer step in the process on the way to graduation and enlightenment.

The final two words are graduation and enlightenment which are the end product of education and alchemy. The desired end, the direction toward which the process in both cases is directed and the hopeful outcome.

### C. CONCLUSIONS

#### 1. Education as the Alchemists' Elixir in Modern Form

Whether or not education is, as Illich asserts, the elixir of the alchemist, the Philosopher's Stone by which the modern alchemist, i.e., the teacher, is able to transform the materia cruda, i.e., the students, into the gold of enlightenment, there is certainly a striking parallel, but it is very difficult to say that



there is a direct and intentional relationship. The evidence indicates certainly that the two processes are very similar in their design and purpose.

## 2. Is the Vocabulary of Education Taken From the Vocabulary of Alchemy?

From the words and concepts outlined by Illich, there is evidence that they were used before Comenius in an educational context and also that there is some alchemic influence. Certainly the structure of any subject is influenced by its vocabulary and any correspondence would prove the relationship between education and alchemy. But in that these words were used before Comenius in an educational sense or for the sake of the argument, in any context other than alchemy, makes it difficult to agree with Illich that they come from that spiragic study. Other words do show alchemic influence leaving the argument inconclusive.

The general conclusion given to the question of the relation of education to alchemy today is that the evidence is generally inconclusive, and more convictional than factual. It is less substantiated by evidence from the historical data and more so from the convictional stance of an ardent Roman Catholic who sees in the modern education a secular heresy which he calls the dispenser of secular grace. This is the privilege of Ivan Illich as it is the privilege of every man to have his own, well thought-out system of belief.

The difficulty comes when we seek to weigh the beliefs of

different systems and seek to ascertain the relative value of these beliefs. The claims of the various value systems differ, and their merit can only be measured by their results. In that regard a case can be made that the present system of public education supports the greatest social-economic-cultural system man has ever known. On the other hand the case can be also made that the present system is oppressive, malignant and stiltifying. Whether one case or the other, it would seem that the ultimate basis for the decision must be convictional rather than a rational-factual-scientific analysis.

## CHAPTER VIII

### A. SUMMARY OF THE THESIS

#### 1. Main Thrust of the Thesis

We live in a time of increased tolerance to revolution as well as an age of ever increasing change which could lead to cruelly counter-revolutionary results. Social critics are questioning the *raison d'être* of schooling. It is becoming accountable as never before for its expenditure of funds and the production of the educated. At the same time increased pressures brought upon the school system at the ballot box are causing many to question the survival of public education in its present form.

The purpose of this thesis in the light of the increased pressures on public schooling was to examine the question of the value of the concept of education itself. This thesis sought to examine the purposes of the institutional process by which children, youth and adults are educated and to ask whether education is for the purpose of fitting them into a modern industrial, technological society or of releasing the natural processes of fundamental growth within each individual.

This was approached through the writings and speeches of Ivan Illich who suggested that the pattern of education came through the influence of alchemy upon Comenius, hence from Comenius to the formation of the public school system as we know it today. Through this influence Illich contends we have the present system of grading, of placing children in classes and putting them under the rule and

the influence of the teacher, raising them from one level to the next, of placing both boys and girls together in the same classes, of using the mother tongue of the particular country in which the school is being taught and of using pictures and other means to appeal to the direct senses of the students.

## 2. Ivan Illich's Statements Concerning Comenius, Education and Alchemy -

Chapter II contains the writings of Ivan Illich, since his visit with Dr. Ernst Bloch, as these pertain to the influence of alchemy upon Comenius and the effect of Comenius on education today. One complete article, "Education as an Idol" was reproduced in its entirety to give a feeling for the writings of Illich. Two other excerpts from speeches were included because of their direct reference to the question of this dissertation.

## 3. Method for Ascertaining the Truth

Material from Illich was used as hypotheses for historical analysis to find the degree to which his statements are valid. This analysis did not attempt to be exhaustive with regard to Comenius and alchemy, but gave only what was necessary to show the context of Illich's assertions in the light of these fields. This dissertation only generalized beyond the statements needed to develop the context in which it explored their implications.

## 4. Four Categories of Statements -

The second chapter of this dissertation was a grouping of the statements of Illich concerning Comenius, alchemy and education. The four categories are as follows:

Category 1. Statements which concern the historical parallel between alchemy and education.

Category 2. Statements concerning the place of John Amos Comenius in the development of education.

Category 3. Statements concerning the influence of alchemy on John Amos Comenius and his educational theories.

Category 4. Statements concerning the relationship of alchemy to education as we know it today.

#### 5. The Argument -

Chapters IV - VII consisted of the four categories one each for the group of statements which cover a particular question. By examining the statements of Illich from his writings and speeches in the light of evidence and conclusions in historical research, the dissertation presented a critical evaluation of Illich's assertions concerning education. From this was ascertained the validity of Illich's assertions. Chapter VIII considers the implications for education in this time of social change.

#### B. SUMMARY OF CONCLUSIONS

##### 1. Category 1 from Chapter IV

Category 1 dealt with the historical parallel between alchemy and education wherein Illich asserted that education grew out of the Reformation and that it flowered in conjunction with alchemy. This section raised the question of the parallel between the concepts of alchemy and education.

Whether we were talking about hermetic alchemists or the puffers we were dealing with those processes which seek to bring about transmutations. Whether the transmutation of the hermetic alchemists were of the soul of the alchemist or those of the puffer were transmutations of base metals into gold, there is a parallel concept of change through stages of growth. There was also in the educational process, a parallel that goes beyond coincidence, that comes from the strategy of John Amos Comenius, as he brought great international attention to his proposals.

The next section dealt with the relationship between Wolfgang Ratke and John Amos Comenius. Evidence indicated that Comenius read, discussed and was influenced by Ratke's writings; that Comenius wrote to, but received no answer from Ratke; and that Ratke and his work were well known to Comenius.

There was no conclusive evidence for Illich's assertion that Ratke was hermetic alchemist nor that he and Comenius worked closely together in the education of children.

## 2. Category 2 from Chapter V

This series of statements was concerned with the influence of John Amos Comenius on the development of modern education. Biographers and educational historians were unanimous in extolling the influence of Comenius upon the development of modern public education. A list of his reforms is indeed impressive and the educational lineage of Comenius is through the influence of the educational giants Rousseau, Pestalozzi and Froebel.

This particular statement, although somewhat self-evident was crucial to Illich's argument concerning the influence of alchemy transmitted through Comenius.

### 3. Category 3 From Chapter VI

Category 3 asked the question critical to the whole argument: whether or not there was an alchemical influence upon John Amos Comenius and whether or not Comenius actually started a Rosicrucian Alchemical Lodge in London in 1642.

Concerning the question of whether Comenius started a Rosicrucian Alchemical Lodge in London in 1642 evidence indicated a direct relationship between Rosicrucians and alchemists and also that Comenius was associated with a number of influential alchemists, most important of whom was John Valentine Andreae. Although Illich said that Wolfgang Ratke was an alchemist, no evidence of this was found. That Andreae was influential in the Rosicrucian movement was shown by his own writings. Comenius himself, writing in 1623, The Labyrith of the World (34) gave evidence of knowledge of the Rosicrucians and the alchemists.

Concerning the question of whether Comenius founded an alchemic lodge, there was no direct evidence of such a lodge formed by Comenius and his associates. There was, during that time, a great surge or utopian hope which expressed itself in the formation of a number of covenant societies, secret in nature, idealistic in purpose. John Amos Comenius, Samuel Hartlib, and John Dury entered into such a covenant, calling themselves "The Christian Association." Such a society might have some of the

characteristics of Rosicrucianism and alchemy but it was not possible from the evidence at hand, to arrive at this conclusion.

There is a functional parallel between pansophy and alchemy. Although never used as a subject of his affiliations or the object of his allegiance, Comenius followed the pattern of the alchemic processes as he built his Temple of Wisdom calling men to continue to advance through the successive stages of enlightenment.

#### 4. Category 4 from Chapter VII

Category 4 dealt with those statements Illich made concerning the relation between education as we know it today, and hermetic alchemy.

The first conclusion concerned the question of whether education is the elixir of the alchemist in modern form. Here we found a striking parallel between the educational process as a gradual upgrading of the student from lower to higher forms and the alchemic process of placing crude material into a retort, and by continual purification bringing it to enlightenment. There was little factual evidence to show a direct relationship between these two processes. It is rather interpretative in nature.

Concerning the question of whether the vocabulary of education was taken from the vocabulary of alchemy; as with the two previous questions this could not be conclusively proven. It arose from the previous assumption that Comenius was an alchemist who influenced the development of education and in this



way brought into the vocabulary of education these words and concepts that were used previously by alchemists.

The general conclusion concerning the statements of Illich and the relation of hermetic alchemy and education today was that the evidence is inconclusive and more a matter of interpretation than of fact. Evidence indicated that we see here Ivan Illich operating within a particular belief system established on certain assumptions, the main ones being that Comenius was an alchemist and the pattern of education was taken from the pattern of alchemy. Whether the systems of thought are coincidental or that alchemy is related to education a direct chain of connection was impossible to ascertain from the evidence.

##### 5. General Conclusions

There are general conclusions that can be drawn from the above section. First Comenius would have known about alchemy, for this was common knowledge of his day as evidenced by the fact that even streets bore alchemical names. He not only knew about alchemy but he wrote about it and was involved with several influential alchemists whose writings and reputation are known to this day. But it is indefinite whether Comenius consciously tried to apply the pattern of alchemy to education. Comenius did go to England for the purpose of reforming the English schools as evidenced by his correspondence and that of Hartlib as well as the evidence of events while he was in that country. Extant also is the document in Comenius' own writing of his utopian covenant with Hartlib and Dury called the "Christian Association." And

finally we have seen that Comenius had an effect upon later educational reformers.

### C. THE IMPLICATIONS OF THE RELATIONSHIP OF COMENIUS AND ALCHEMY FOR EDUCATION.

#### 1. The Parallel between Hermetic Alchemy and Education

The conclusions as summarized in the preceeding sections tend to indicate the inconclusive nature of the evidence offered to show the relationship of alchemy and education through Comenius. The work required to test whether Illich was being factually correct should not hide from the reader his very important service of bringing educators to see that their basic conceptions have their cultural roots deep in the concepts and events of history. They should see that any genuinely fresh conception of learning would depend on differentiating the unconsciously inherited forms from the forms consciously needed now to give fresh guidance to educational development.

How should the relationship of hermetic alchemy to education be viewed? The thrust is not whether Illich is correct in a cause and effect sense, but whether he is useful in the cause of producing an improved effect upon education today. In his Magna Didactica Comenius described school as a device to 'teach everybody everything'. He outlined the blueprint for the assembly-line production of knowledge, which according to his method, would make education cheaper and better and would make growth into full humanity possible for all. (51-45) From this whether we assume Illich to be correct or not at this point, he is render-

ing an invaluable service in providing the images which launch us into the multitude of possible ramifications for education.

There are various possible implications that may be explored. Consider, as Illich asserts, that education is manipulative and mechanistic as we have received it and conceptualize it from alchemy and Comenius. In this case education would be the consumption of a commodity, as Illich contends, and men are programmed to take their place in a technocratic society.

Another possibility is that hermetic alchemy is not manipulative but is a developmental process. Except for the Puffers, who are specifically concerned with the transmutation of base metals to gold, hermetic philosophers are more concerned with the transformation of the alchemist himself. This point of view is born out by a number of the writers on the subject, who contend that hermetic alchemy is a process, a discipline related to the human psyche and its development.

But the real concern here is not one kind of alchemy versus another but the service rendered by Illich in providing us with the images by which we can think through the questions concerning learning.

Next there is the problem of the meaning of "cause and effect" and how it is to be dealt with in such conceptual questions. When an architect forms a blueprint for the construction of a house and the builders then build it so, is the blueprint a "cause"? When the alchemists form a blueprint for their processing of metals and minds, and Comenius forms a blueprint for education,

and the two blueprints have elements in common, is the former the "cause" of the latter? Is a map a "cause" for a journey taken in accord with its direction? There is little factual evidence to show that Comenius in his time reasoned that because alchemic processes followed such a pattern, education should, in consequence, be seen as parallel.

Now consider the image of the alchemist as used by Illich. It has been basic to his interpretation of education. In his forthcoming book Retooling Society (59) (to be published by Harper & Row March 1973) he expands the image of the alchemist as he speaks about the danger of universal education that could tangle men in a fate worse than the present system. From the second draft he writes:

A kakotopia could maintain the industrial age at the highest endurable level of output. Man would live in a plastic bubble that would protect his survival and make it increasingly worthless. Since man's tolerance would become the most serious limitation to growth, the alchemists' endeavor would be renewed: the attempt to produce a type of man fit for the still. A major function of engineering would become the psychogenetic tooling of man himself as a condition for further growth. People would be confined from birth to death in a worldwide schoolhouse, treated in a worldwide hospital, surrounded by television screens, and the man-made environment would be distinguishable in name only from a worldwide prison.

With this image he is able to point out in an unforgettable way, using the image of the alchemist again, that any utopia is connected to a political system and we should be very careful what kind of system we will tolerate, how much tyranny we will endure, what kind of social ideals we will hold.

Another possible point of view would be that hermetic alchemy did not influence education through Comenius. The authorities pretty well agree that Comenius had a strong influence on the development of education, but if the pattern of his influence was not derived from hermetic alchemy we might ask from what influence did Comenius perceive the pattern which he gave to the world? As a member of the Bohemian Brethren who were followers of John Hus his religious and humanitarian impulses could have derived from this background, training and religion. Being educated in Germany during the height of the Reformation, Comenius could have been influenced by the enthusiasm of the Protestant Reformation. Or perhaps there was no major external influence and Comenius, himself, was such an innovative and gifted thinker that he created this pattern de novo. These are remote possibilities, still we do not find the pattern of the educational process so clearly delineated except in hermetic alchemy. Here we find the prima materia of alchemy and the uneducated pupil being placed in alchemical retorts and educational classes. Both are placed under the fire, alchemical or instructional, and raised from grade to grade or refinement to refinement until the final graduation and culmination in enlightenment.

## 2. The Expansion of Consciousness as Parallel to Alchemy

Hermetic alchemy could be considered parallel to the concept of the expansion of consciousness. By implication there is a pattern not unlike that seen in the parallel of alchemy and education.

For example, expansion of consciousness is illustrated by reference to Women's Liberation, seeking to allow women to sense a greater awareness of their humanity. Another example would be the different consciousness shown in the 1960's by the use of the phrase "Black is Beautiful". Hermetic alchemy and its influence upon education could also be viewed as an expansion of consciousness. According to Comenius, Kyrasek and Polisensky wrote:

There are three main problems facing humanity; the real meaning of knowledge, its use, and the ways to reach it. Real knowledge is knowledge of things, of their secret meaning; it is the "capacity to foresee the future and divine mysteries". Its main use is to help us to live serenely. "The more one helps the well-being of others (although it is impossible to achieve without labor and trouble), the nearer one gets to the divine dignity". Thus human knowledge not only is important for the understanding of the world, but also it enables us to act in it. And these are the fundamental educational principles which Comenius never deserted. (52-80)

Education for Comenius, can be understood as an expansion of consciousness, a growth in awareness, a developmental process in which to be human is to be educated and to take responsibility for your own growth and development.

### 3. Education and the Church

What are the implications of the relationship between hermetic alchemy and education for the Church? Illich asserts that there is a possible parallel between the dis-establishment of the churches and the disenchantment with the schools. His concern is with what will take the place of education.

Illich writes: Arnold Toynbee has pointed out that the decadence of a great culture is usually accompanied by the rise

of a New World Church which extends hope to the domestic proletariat while serving the needs of a new warrior class. School seems eminently suited to be the World Church of our decaying culture. No institution could better veil from its participants the deep discrepancy between social principles and social reality in today's world. Secular, scientific, and death-denying, it is of a piece with the modern mood. Its classical, critical veneer makes it appear pluralist if not antireligious. Its curriculum both defines science and is itself defined by so-called scientific research. (43-43)

Education can become a secular religion. The dividing line between Comenius' contention that to be a man is to be educated and the present secularized religiousity of education is very difficult to find. Comenius would say our humanity is dependent upon the pattern of nature as seen in the process of growth, flowering and fruition. Apart from that process man is not human nor is he following the process designed for him by the Creator himself. For Comenius therefore, there is the necessity of every man to learn, to grow, to become educated. The implication here could be that, education is for the purpose of living in harmony with God and our fellow men, whereas Illich is asserting that education itself is being worshipped, i.e., is a secular religion. It becomes the religion by which technological society is able to feed its needs, processing men for the welfare of society, rather than for the growth and development of men themselves. Could education as Comenius understood it, be for the welfare of men, the means by which man may claim his birth-right as a creature above other creatures of creation? In his words: there is a need for men to worship and to be saved, whether from

his own sin or from spiritual impoverishment of a materialistic society. Is he growing after the pattern as revealed by nature or has education become the means to process men so they become fodder for the maw or an ubiquitous technocratic system? This implication is central to Illich's thrust against education.

The school system today performs the threefold function common to powerful churches throughout history. It is simultaneously the (1) repository of society's myth, the (2) institutionalization of that myth's contradictions, and the (3) locus of the ritual which reproduces and veils the disparities between myth and reality. Today the school system, and especially the university, provides ample opportunity for criticism of the myth and for rebellion against its institutional perversions.  
(43-37)

Here we must ask what is heresy for a Roman Catholic for possibly Illich considers schooling a heresy. Where do we draw the line between heresy for Illich and the function of schools in a secular society? We acknowledge his point of view, his worldview, his religious convictions as a Roman Catholic. We must then agree or disagree with his belief concerning the disestablishment of the churches and the belief that the schools are replacing the churches in their function.

Note that religious teaching within the church could be defined as attendance in a parochial school which makes the church schools seem necessary for religious growth and experience. Indeed the problem is heightened by the fact that beginning in the mid 1960's there has been within the major Protestant denominations a large decrease in attendance and enrollment in their Sunday Church Schools. In churches people seem to inherently be disagreeing and



have refused to equate attendance at a class with religious experience. Therefore, we must come to the conclusion that religious learning in classes is not necessary and it should not be defined as a religious necessity, but only, what Illich would call "attendance at a ritual". The question that faces the churches is how religion is to be transmitted from one generation to the next. But indeed this is the same question confronting each culture which has defined its educational system as its procreative organ for the transmission of its values from one generation to the next.

What Illich has said about public schools applies certainly to church education.

Schools are designed on the assumption that there is a secret to everything in life; that the quality of life depends on knowing that secret; that secrets can be known only in orderly successions; and that only teachers can properly reveal these secrets. An individual with a schooled mind conceives of the world as a pyramid of classified packages accessible only to those who carry the proper tags. New educational institutions would break apart this pyramid.  
(43-76)

We are left at this point with a paradox that both the church and a society need to transmit to the succeeding generations their wisdom and values, yet on the other hand, in so doing it's necessary to limit the freedom and the developmental capacity of each human being to determine his own growth. One further possibility would be the belief that certain qualities are inherent in every man which do not need to be brought out but are already there. A convivial environment is that in which those qualities are allowed to flower within the context of freedom within simple limits.

## D. PERSONAL OBSERVATIONS AND CONCLUSIONS

### 1. Consideration of Some Ideals of Education.

At this point the writer desires to share some personal observations and conclusions concerning education and alchemy that have grown from the months of living with these subjects. Again and again there has been the sharp contrast between manipulative and developmental education.

In this brief and critical analysis of the educational philosophy focused against the background of the work of Ivan Illich, we are concerned with the question of the ultimate values of human society. Wherein does education serve man? Is it to create consumers? Or is it perhaps to transmit dead ideas, values, metaphors to reproduce society in its own image? Is it for the purpose of creating smoothly functioning bureaucrats that take their place in a smoothly functioning bureaucracy? The writer agrees with Postman and Weingartner (53-15) that these are truly subversive aims in that they will undermine our chances of survival as a democratic society. Youth are taught in school that education is worth money, as evidenced by this quote from a textbook used during the 1972-73 school year at Worthington High School in Worthington, Ohio, attended by the writer's three sons.

The money you invest in training and education can increase both your future earning power and your value as a person. Education has an indisputable dollars-and-cents value as the chart on page 512 illustrates. (Picture of one person handing another a high school diploma). (58-512)

Indeed Postman and Weingartner's simile of education as

a high powered car is very appropriate.

One way of representing the present condition of our educational system is as follows: It is as if we are driving a multimillion dollar sports car, screaming, "Faster! Faster!" while peering fixedly into the rearview mirror. It is an awkward way to try to tell where we are, much less where we are going, and it has been sheer dumb luck that we have not smashed ourselves to bits - so far. We have paid almost exclusive attention to the car, equipping it with all sorts of fantastic gadgets and an engine that will propel it at ever increasing speeds, but we seem to have forgotten where we wanted to go in it. Obviously, we are in for a helluva jolt. The question is not whether, but when. (53-13)

By way of contrast when the hermetic philosopher speaks of the transmutation of the alchemist himself, he is describing a psychic change, development, unfolding which has its assumption, that there is within man already, content which can be unfolded, developed, brought to consciousness and made useful in day by day living. The contrast between these two ways of looking at education would seem to be based upon the ideals of each. In the Postman and Weingartner simile, education finds its purpose outside the individual whereas for the alchemist finds his purpose in the individual himself.

It is the writer's opinion that the question of man's unconscious and its relation to the educational enterprise has too often been ignored in educational philosophy. The major educational thrust at present is to transfer knowledge from teacher to pupil, from one generation to the next. By contrast is this description of the contents of the human personality given by Carl G. Jung.

A high regard for the unconscious psyche as a source of knowledge is by no means such a delusion as our Western rational-

ism likes to suppose. We are inclined to assume that, in the last resort, all knowledge comes from without. Yet today we know for certain that the unconscious contains contents which would mean an immeasurable increase of knowledge if they could only be made conscious. Modern investigation of animal instinct, as for example in insects, has brought together a rich fund of empirical findings which show that if man acted as certain insects do he would possess a higher intelligence than at present . . . . Man's unconscious likewise contains all the patterns of life and behaviour inherited from his ancestors, so that every human child, prior to consciousness, is possessed of a potential system of adapted psychic functioning. (54-185)

It is as though man has lived again and again, life after life, and there has been an accumulation of experience, a wealth of understanding, a storehouse of knowledge, which man can make available to him if he will only find the way. This concept stands in strong contrast to education, either as process or as content. To quote Postman and Weingartner again, "what students do in the classroom is what they learn (as Dewey would say), and what they learn to do is the classroom's message (as McLuhan would say)". (53-19) Education is either the process of doing something in the classroom, or learning reading, writing and arithmetic as absorbing content. This is a third alternative: the pupil already has a storehouse of knowledge and the teacher's responsibility is to help him tap these resources already present in him!

Consider for a moment an experiment which is seeking to do just that. The Association for Research and Enlightenment at Virginia Beach was established to protect the material that was given by the psychic Edgar Cayce and make it available through

further research to anyone who is interested. In 1929 this Association considered constructing a university. It was eventually started but survived only a short time until the depression. The charter has been kept alive through the years and the Association for Research and Enlightenment has during the last two years experimented, under the charter of the Atlantic University, with what is known as "The Association of Learning". A brochure describes the purpose of this Association as follows:

The Association of Learning is not a place, it is an educational concept based upon the principle that all we may know or become already exists in the inner self waiting to be awakened and unfolded. This growth is accomplished, first, by desiring to attune ourselves to our spiritual source and then, by applying in our daily lives the insights that come as a result of an increasingly closer alignment with our spiritual nature.

"The Learning Environment" is described in the same brochure as follows:

A small group of people working, sharing, learning and living together.

Daily meditations, personal dream study, exercise, mental stimulation, recreation, social interaction and supportive dietary patterns. A spirit of inquiry and self-discipline. Resources people to share their particular expertise, as well as participate in the total experience.

Coordinators familiar with the Edgar Cayce readings and small group dynamics who will integrate the various facets of the balance life style and the overall program.

Certainly in "The Association of Learning" there is content as evidenced by the resource people who share their particular expertise and there is a process which goes on of living and working together, but the attempt through daily meditations, personal dream study, supportive dietary patterns and other means

to enable participants to tap their own psychic resources is indeed a dimension of education very seldom considered. What actually happens in the words of a participant after two weeks of a four week experience in the Association for Learning is that "the process of growth is equal to half a year in a normal living situation." (56-1)

Edgar Ball in his Master's Thesis, writing of the psychic readings given by Edgar Cayce picks up this theme:

Another concept was brought out in the readings; namely, that each individual already possesses all knowledge but just has to be made aware of it. This reading was given for a student studying international law: "For know, all that the entity may know of law, of God, of international relationships, already exists in the consciousness for the entity to be made aware of same. Then, for this information to become knowledge or understanding there must be the application of self to those sources of material knowledge but with faith and trust in the universal knowledge. (56-61)

The last and very important comment about educational philosophy is the importance of ideals. Edgar Ball in his master's thesis, wrote:

Another reading states the need for ideals in this manner; . . .the education is not to fit the individual to to be Lord and Master but for service - better service; whether in the ministry to the needs of the material man, the mental or the spiritual. (56-75)

Ball summarizes as follows:

After reading all the materials so far in this chapter the reader must consider the ideals of education. First, education at all levels must be for service to one's fellow men; secondly, those who teach must know their subject and be living examples of what they teach; finally, balance, must be the key note of all, especially to those who are specialized. (56-77)

What a contrast between these ideals of education as

service and those which are currently held in our society!  
Education at all levels as service to one's fellow men, in  
contrast to education that a person may make money!

## 2. Personal Observations Concerning Ivan Illich.

As a social critic and sometimes social revolutionary Ivan Illich looks forward to the changes of man's present technological highly organized civilization. No country can provide a sixteen level education program for all its citizens for the price is prohibitive, according to Illich. The writer would suggest that the current changes as violent as they are, will be cosmetic only, as seen by Illich. The nature of social change is evolutionary rather than revolutionary and to one who is impatient because he sees so clearly the faults of the various systems, the evolutionary changes will be far from satisfying. It will require patience.

How difficult it must be for Ivan Illich with his ability to see and analyze questions, discrepancies and see their many and varied ramifications. Such hubris is both winsome and awesome. There was a time when Illich wrote that he wanted to live in mutual education up till the moment of his death. (60) But he no longer holds that, for education now must give way to learning, just as previously schooling gave way, in his thinking, to education. It is this writer's judgement that in order to understand Ivan Illich it is necessary to understand not only his hubris but the strongly held convictional system that he holds as a non-practicing priest within the Roman Catholic Church. Understanding the position from which he emerges can help one critique his analyses of social

systems. A great deal of the attraction of the writer to the works of Illich has been because of corresponding convictional systems.

## E. SUGGESTIONS FOR FURTHER RESEARCH

### 1. Need for New Models in Education

Educational philosophy, as currently constituted, ranges along a spectrum with the far right composed of the traditional content-centered, teacher-oriented, certificate-dominated philosophy. On the far left is education as process, experiential, existential, student-centered. Along the continuum between the two from each extreme range many combinations, variations and counterpoint.

Illich has pointed to the holistic symbols of the alchemist and the pansophical dreams of John Amos Comenius which led the writer to the consideration of a third possible view of education. Imagine each individual as represented, in a simplified diagram, by a cone. The apex of the cone, the top one per cent, represents our consciousness. As we, from our consciousness, look at others, (represented by the apex of other cones in our diagram) we are separate from them. In the diagram, allow the major portion of the cone to represent our deeper mind, the mind that knows how to beautifully balance and control the bodily functions; the mind that can transform bread into flesh, air into life. This mind is the repository of all the memories and the events and all the impressions of this lifetime. In our diagram, imagine the very base of the cone as an integral part and rising directly out of an infinite substratum



upon which rest all of the cones, i.e., all human beings. This base represents the infinite mind, the collective unconscious. Although seemingly separated from other human beings in this model all men are one in this consciousness. What one man knows all men can know. The difficulty is achieving access to this universal mind. Here the alchemist gives us many clues and can be a great help, for he deals in holistic symbols. He speaks of the transmutation of the human psyche which can be thought of as the opening of channels from the consciousness through our deeper mind and into the universal mind. The writer suspects that the reason dreams are so enigmatic is that they are of the same holistic, symbolic material, as are the words of many poets, the expression of other artists and the inspiration of the high creatives, people who in every age have been able to touch and drink of the bliss of the universal mind. For the Hindu it is called, when consciously arrived at, samadhi; for the Christian, it is the guidance of God's Holy Spirit and for all faiths, access is facilitated by relaxed waiting in an atmosphere of faith, knowing that the cup which is held out will be filled to running over. The writer's experience in secluding himself during the process of writing this dissertation was one means in which men sought to open these channels. By excluding many distractions, narrowing the field of awareness, concentrating for an extended period of time on particular material, new associations appear, new intuitions arise, new hunches, guesses, and understandings come to the consciousness. These in turn are checked against corroborative evidence from primary and secondary

sources.

Education can be rightly considered as "educare" in the sense to bring forth, to penetrate to the nakedness of reality, to allow to arise from the deeper mind which is in each person that which is already present in that being. In this context, education then could become, as for the alchemist, the means of manipulating consciously his symbols so that he openly prepares himself for the fulfilling, for the enlightenment, for the promotion. Certainly this educational philosophy would, in no way, exclude the fact so evident that upon the consciousness of each individual from without there impinges both content and process and all their multitudinous relations. But this should never be considered apart from its effect upon the whole individual, who, whether he is aware of it or not, is in touch with the minds of all men, indeed, as roots in the mind of the cosmos. This indeed is an area for further research.

## 2. Growth in Consciousness

In the opening chapter in the discussion of method, the writer spoke of his courtship with the idea of consciousness. The experience of living for an extended period of time alone in the woods with the questions of this dissertation helped give reality to the images of the alchemist as he sought to explain the universe. The personal experience was something like that expressed by Pauwels and Bergier:

I soon became convinced, from what he told me, that there is a close connection between traditional alchemy and avant-garde science . . . . ., suddenly I saw the old past and the

future shaking hands. The alchemists' metaphysics, thousands of years old, had concealed a technique which at last, in the twentieth century, had opened up metaphysical horizons very like those of ancient times . . . . On either side of the bridge, men's immortal souls had kindled the same fires.

In the end I came to believe that in the far distant past men had discovered the secrets of energy and matter. Not only in thought, but by manipulation; not only spiritually but technically. (10-64)

As the writer is involved as a minister in a United Presbyterian Church with particular responsibility in education he has been sensitized to a growing awareness and concern for phenomena which are related to the human consciousness. Carl Jung gives reason for this seeming growth:

The widespread interest in all sorts of psychic phenomena as manifested in the growth of spiritualism astrology, theosophy, and so forth. The world has seen nothing like it since the end of the seventeenth century.

. . . . .  
The passionate interest in these movements arises undoubtedly from psychic energy which can no longer be invested in obsolete forms of religion. For this reason such movements have a truly religious character, even when they pretend to be scientific. It changes nothing when Rudolf Steiner calls his Anthroposophy "spiritual science," or Mrs. Eddy discovers a "Christian Science." These attempts at concealment merely show that religion has grown suspect - almost as suspect as politics and world-reform. (54-206)

One could imagine that Carl Jung and other psychologists are alchemists in modern dress. They seek to raise men's consciousness; they seek to bring about the transmutation of the base elements of the human psyche and raise it to a higher level of beauty and awareness by opening new reservoirs of knowing as well as being. If it is true that it takes just as much energy to imagine a particular physical activity as it does to perform it,

the holistic symbols of the alchemist which speak to the imagination, which mobilize and empower the will, could lead us to an understanding of education as a functional activity unlike anything presently associated with schooling.

Further evidence of the power that resides in every man comes from studies of those myths which have, at all points in history, supplied both consciously and unconsciously, man's need for understanding. Joseph Campbell describes it as follows:

To grasp the full value of the mythological figures that have come down to us, we must understand that they are not only symptoms of the unconscious (as indeed are all human thoughts and acts) but also controlled and intended statements of certain spiritual principles, which have remained as constant throughout the course of human history as the form and nervous structure of the human physique itself.

Briefly formulated, the universal doctrine teaches that all the visible structures of the world - all things and beings - are the effects of a ubiquitous power out of which they rise, which supports and fills them during the period of their manifestation, and back into which they must ultimately dissolve. This is the power known to science as energy, to the Melanesians as mana, to the Sioux Indians as Wakonda, the Hindus as shakti, and the Christians as the power of God. Its manifestation in the psyche is termed, by the psychoanalysts, libido. And its manifestation in the cosmos is the structure and flux of the universe itself. (57-257)

Illich defined education in Deschooling Society before his attack on the concept of education, as learning from the environment in which men have access to facts and tools which shape their lives. Implied in this is that access means also that they have freedom to control their own lives. The study of alchemy suggests that learning is more than access to facts and tools. It is access to those deeper regions of our own being that keep us in touch with all mankind and the infinite mind of the universe. This, the writer con-

tends, is that nebulous border between science and religion, between the objective and subjective, between temporal and eternal, between spiritual and material. Joseph Campbell again:

The agony of breaking through personal limitations is the agony of spiritual growth. Art, literature, myth and cult, philosophy, and ascetic disciplines are instruments to help the individual past his limiting horizons into spheres of ever-expanding realization. As he crosses threshold after threshold, conquering dragon after dragon, the stature of the divinity that he summons to his highest wish increases, until it subsumes the cosmos. Finally, the mind breaks the bounding sphere of the cosmos to a realization transcending all experiences of form - all symbolizations, all divinities: a realization of the ineluctable void. (57-190)

The plea here is not that there be partisan religions taught in the public schools, or athiestic communism or theistic capitalism. The writer suggests that the concept of the human spirit as a deep reservoir of knowing, as a source of contact with all human beings, as a creative and life-giving source of energy, needs to be explored and researched in a context of education.

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