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NEW FRONTIERS FOR SILLIMAN

INTELLECTUAL MATURITY

THE CULTURE OF VIRUSES

A QUARTERLY DEVOTED TO DISCUSSION AND INVESTIGATION
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A QUARTERLY DEVOTED TO DISCUSSION AND INVESTIGATION IN THE HUMANITIES AND THE SCIENCES

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SILLIMAN JOURNAL

THE WALLS WE BUILD

THEY BUILT a wall in Berlin: a thick, ugly wall, topped with barbed wire for effect; a wall that divides a city and breaks up families; a wall stained with the blood of East Berliners attempting to reach freedom on the other side.

The Communists had wanted merely to build a wall to plug up the exodus to West Berlin; instead, they had erected a dramatic and compelling symbol of the "People's State."

A wall is divisive, restrictive and exclusive. It is the antithesis of freedom. He who builds a wall shuts out something more precious than he shuts in. "Something there is," writes Robert Frost, "that does not love a wall." The free human spirit—it does not love walls.

But freemen, too, build walls everywhere. Not always with honest mortar and brick and tangles of prickly wire; but walls of prejudice, ignorance, suspicion and hate. We build walls against strangers and friends alike, neighbor against neighbor, people against other peoples.

The Berlin Wall stands because freemen, by default, have allowed the Communists to build it, to command the initiative in many critical areas in the world, to undermine by subversion or destroy by overt aggression many of the things we hold dear. The existence of the Berlin Wall points up a basic weakness in free world policy: the tendency to indulge in wishful or hopeful thinking, to prevaricate, to temporize in moments of decision.

But no wall is a guarantee of security. Sooner or later, walls, however massively built, must come down. Nature and human dignity abhor walls. They are, after all, a confession of insecurity and a lack of capability to face the often brutal facts of existence.

Something there is that will not rest until there are no more walls and all men are free indeed.

ANTONIO S. GABILA

SECOND QUARTER, 1962
VOLUME IX, NUMBER 2

NEW FRONTIERS FOR SILLIMAN

Merton D. Munn

THERE ARE a number of words in use today that are both old and new. Words to which we respond with varied reactions. One of these will figure prominently in our discussions. The word "frontier" immediately catches our imagination. This is the word around which our discussions will center. And on which I shall base my talk on the subject, "New Frontiers for Silliman".

What is a frontier? I heard when I first came to this country that the last frontier in the Philippines was the island of Mindanao. On this island was unexplored land waiting to be developed, and many peoples from various parts of the archipelago were moving to Mindanao to begin a new life in a new and untried land. Hope for a better life and a challenge to conquer the unknown will always draw those with ambition and imagination.

Today we have this word "frontier" used in connection with our own University. Silliman was begun as a "frontier" university and has remained such over the years. With the present competition and the prevailing attitude toward higher education, we ask, "Can it continue as a frontier university?" We are looking to the future as every worthwhile university must do: to new frontiers for Silliman—challenging, demanding, rewarding frontiers.

Overhauling the Status Quo

Last year, before an assembly of the College of Arts and Sciences, an alumnus expressed the thought that the University is not what it used to be. He did not feel that the University, the admi-

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MERTON D. MUNN, *Dean of Instruction and Dean of the College of Arts and Sciences, prepared this paper as a keynote address at the annual faculty-staff retreat at Silliman University, June 2. He has also written extensively on the University's general education program.*

nistration, the faculty and student body was accomplishing as much and adjusting themselves to the community as well as they did in the "good old days". What this man did not seem to realize was that Silliman University could not be what it used to be. To remain as it was at that time would mean that it had nothing to offer for today and for today's young people. Silliman then was small and not very complex. Today it is a university and its program is complex. We must never fail to profit from criticism but we must also remember that Silliman can never remain static and still serve the present generation. When criticism cuts across the area of freedom of thinking and freedom of expression, or if it seeks to deny the entrance of new ideas, then, it is imperative that we defend our University, its faculty and its students and quickly point out that the modern university cannot make progress by maintaining the status quo.

There are basic principles which need not change with the years. Silliman has always been a place where the individual is considered important. This, we hope, is as true or truer today than it ever has been. Related to this, but in a unique way, Silliman has been a community—a community where each is expected to add something to the group. We trust that we can continue to make our community strong. It offers opportunities for personal expression and development which will be valuable in later family, church, vocational and community life. Silliman University has always been and must always continue to be a Christian institution. Thus, it has a frame-work in which its total program is being worked out.

Our Public Image

Over the years all great universities develop a personality, an image which becomes known to the outside world. The university policies may change as time goes by but they change within this image. It is well then that the image of Silliman University be sound and worthy, characterized by a wholesome climate and by excellence in its faculty and academic program—matters to be considered during this retreat.

New Frontiers for Silliman! If there are new frontiers for Silliman, then we as a faculty must be frontier people. Frontier people are not those who sit back and say, "Let the experts do the thinking, we have been hired to do the teaching." Let me say this: There

is no place for such people in our type of university. We stand on the edge of great accomplishments but it will never come to pass unless we as a faculty are willing to put forth more effect than most of us have thus far exhibited. A university is made great by hard work, by careful and serious thinking and by a faculty willing to be explorers. I trust through this conference that you will stay with us; that you will enter into the discussions and that you will do all that you can to make this meeting a success.

I believe that one of the imperative tasks of institutions of higher education in the Philippines today is to produce leadership in education. We are all aware that there seems to be a general decline of public confidence in the effectiveness of the education given in the institutions of higher learning. If the learning or teaching is ineffective then it follows that the leadership being turned out is also ineffective. Let it never be said that this is true of Silliman University. For this very reason we must constantly analyze and study our aims and program of education. I like the idea that we are going to think in terms of the future because I believe we must frame our leadership in the perspective of the future. We have a way of life to preserve and perpetuate but this can never be done if we turn our attention to the past. The road ahead, rather than the one we have traveled, provides the guide for the planning and the decisions that we still have to make. Robert Oppenheimer said, in a recent address before the American Institute of Architects, "In planning for the future our tradition is a guide of limited value." If this is true for architects, how much more so for us who are thinking in terms of mental accomplishment. Many of the problems that loom ahead of us are without precedent and their solution will depend upon careful, analytical thought.

I am an optimist. I greatly dislike an alarmist. However, I do think that there are causes for alarm. If we are to solve the problems ahead of us we must show a spirit of daring, of adventure, of initiative and of resourcefulness. There is a responsibility resting upon each man and woman in this room. This faculty must carry the banner of progress in making Silliman University an institution for the training of leaders or it has no cause for existence.

Areas of Concern

A Silliman education can be an investment which will return a

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Areas of Concern

A Silliman education can be an investment which will return a

high rate of interest to those receiving it. If it is a good investment then we need to produce a better brand of education each year in order to keep its dividends high. I shall try to outline areas for our thoughtful consideration, areas in which some of our research should be directed; areas that should be the real concern of faculties. As we talk about these frontiers, we are not assuming that we have solved all of our past concerns. Some of the things that I will mention will possibly be an attempt to put new faces on old problems. We have before us a tremendous task. Our aim is to produce more than graduates. We must produce men and women of wisdom with high standards of values, with Christian convictions; individuals able to distinguish the genuine from the counterfeit. Our future lies in advancement and in enriching that which is already ours. To be more specific, here are some areas in which you as a faculty must do your thinking—and later act. These are critically important areas not only in the interest of Silliman University but also in the interest of national survival.

1. The first area to which I call your attention has been the subject of much recent writing and discussion throughout the educational world—excellence in education. At Silliman University we have called it "quality education." Call it what you will, we as a faculty have done little to apply it to our own teaching. It has been largely a thing to talk about—something with a good academic flavor to roll around on our tongue.

Quality or Equality

Certain words have characterized definite periods in education and I believe that the 1960's will be characterized by the word "Excellence." It is a powerful, high-sounding word or as one man said, "A true sentence-stopper in educational discussions." Here are some of the titles of books and articles which have appeared recently: "The Pursuit of Excellence," "The Price of Excellence," "Encouraging the Excellent," "High Peaks of Excellence," and "The Retreat from Excellence," and another which is called just "Excellence". A recent publication of our own is entitled "Education for Excellence". Just recently I finished reading an article, "The Trouble with Excellence," which has challenged me to do some careful thinking regarding the meaning of this word as it applies to educational thought and practice.

No doubt the best and most far-reaching book on the subject has been written by John W. Gardner, President of the Carnegie Corporation and of the Carnegie Foundation for the Advancement of Teaching. This book should be read by every teacher. He writes out of a deep concern over the lack of high standards in so many areas of life. He presents reasons for our present low standards and tells what he believes can be done to encourage excellence. Thought-provoking, difficult questions are asked such as:

1. Can we have excellence in a democracy?
2. Does our belief in equality doom us to mediocracy?
3. Does everyone have a right to a college education?
4. Do we really believe in mass education or the education of an elite?

This last question has been a bothersome one for many of our own alumni and perhaps for some of the faculty also. Should Silliman be selective? Is it either democratic or Christian? I believe that Mr. Gardner helps to answer this question when he points out that,

> The demand to educate everyone up to the level of his ability and the demand for excellence in higher education are not incompatible. We must honor both goals. We must seek excellence in a context for all. A democracy, no less than any other form of society, must foster excellence if it is to survive; and it should not allow the emotional scars of old battles to confuse it on this point. Democracy will have passed an important milestone of maturity when those who are the most enthusiastic proponents of a democratic way of life are also the most vigorous proponents of excellence."[1]

The concept of excellence differs in the minds of many. As all institutions are not dedicated to the same purposes, standards of excellence may not be alike. Yet, they can be alike in that each can hope to achieve excellence in terms of what it has set as its purposes. Certainly institutions should not be alike—all poured from the same mold—but each should have a distinctive or distinguishing feature of its own. As I see it, our trouble is that we tend to be satisfied if we are as good as or possibly just a bit better than some other university.

The Overvalued Norm

From the endless normative survey studies made in education

[1] John W. Gardner, *Current Issues in Higher Education,* 1958, National Education Association, Washington D. C., p. 9.

and reported in our various professional journals, it appears that we give great weight to averages and normative practices in our educational institutions. Some of the implications of such practices are open to question. There is danger that averages may become goals. If this happens, then they become a grave danger to progress. Plato believed in the ideal and that imitation was always less than the ideal. Progress is never made by establishing averages as goals. What if the average is low as it very often is? Any system based on the average is not a system of excellence. Excellence is interested in the ideal as its goal.

Dr. Carlin Aldin, speaking of norms and progress says:

> Norms are safest for those who find them distasteful.. They are for diagnosis and cure, but they can be habit forming and growth inhibiting.[2]

I am not suggesting that norms are of no value but it seems obvious that no one here today would be satisfied with any educational endeavor which is not dedicated to the highest standard that can be accomplished. Yet, I believe some of us are guilty of being satisfied with less than we hold as an ideal. We have tolerated or explained student behavior when we should have disciplined, directed and inspired. We have not challenged students to the limit of their abilities—thus betraying the democratic and Christian ideal in which we believe. If we demand less than a student is capable of giving we rob him of the opportunity to develop self-respect and independence. Sterling M. McMurrin, United States Commissioner of Education said recently:

> We can approach excellence only by demanding of all—administration, teachers, students and the general public—all that they are capable of achieving. If ever in the past there were reasons for asking less, there is none now, for our times are perilous and will accept no less.[3]

Let me react to a few practices, which in the end may help us to see the meaning of excellence more clearly.

Analysis of Excellence

1. Excellence does not mean heavier assignments or lots of hard

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[2] Carlin Aldin, "Norms and Progress" *Phi Delta Kappa* (Jan. 1962) XLIII Bloomington, Indiana.

[3] Sterling M. McMurrin, "The Crisis of Conscience." *Saturday Review* (Sept. 16, 1961), New York.

work. There is nothing wrong with this but there is a strong question whether quantity produces quality or excellence. A student who spends one hour a day on a subject may be little wiser for spending two if he does not know how to study or why he is supposed to master the contents of the assignment. Increasing the work load and cutting down on distractions are good only under circumstances that produce excellence.

2. The demand today for more independent study and honor programs is open to question. Faculties are giving little aid to students in striking out for themselves. Nor are they impressing them with any reason why independent study is important.

3. Excellence is not achieved by creating scholars in the image of any faculty member. Yet, it has been suggested that this is the aim of most professors. No student should be taught to emulate the teacher although it would be good to be a teacher worth emulating. The best education aids the student in discovering himself as a thinking individual.

Excellence then becomes more than attending classes, fulfilling class assignments, keeping study periods, the writing of papers, the taking of examinations or working in the laboratory—good and necessary as these may be. The business of a college is to direct its education toward accomplishing worthy goals which are understood by the faculty, and the training and graduating of students who are capable, yes, and willing to carry out these goals in their individual lives.

Louis T. Benezet, President of Colorado College, recently wrote:

> Our trouble is that we have allowed the college effort to fall short: that is, to serve shorter-range, more specialized objectives in turning out graduates to be professionally employable and socially acceptable. To go beyond these bread and butter attainments will require a new order of determination in leadership. It will require gaining agreement among professors that reproduction of their own kind is not the only goal for their teaching, whether or not it remains their fondest goal.[4]

The task of creating excellence is not too great for us if we can agree upon the goals of the University and move toward accomplishing them in the lives of our students. Out of such effort may truly come the quality education about which we talk.

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[4] Louis T. Benezet, "The Trouble with Excellence." *Saturday Review* (Oct. 21, 1961) New York.

Honors Program

The second area is related to and possibly grows out of the first. If quality and excellence is to be our destination, would it not be wise for us to set up within our present framework an experiment in which excellence could be demonstrated? This would afford a goal or standard toward which we could lift the whole university. Such an experiment could be set up within the College of Arts and Sciences which would in no way be detrimental to the good aspects of liberal arts as taught since Silliman became a University in 1935. It could strengthen it.

As shown by our own entrance and placement test, for a number of years Silliman has admitted many superior students who differ much from the average. Studies have shown that frustration, dissatisfaction and boredom characterize the superior student when the program is not tailored to his needs and when he is not challenged by the professors. To satisfy these superior students many universities have instituted programs of independent studies, research, and honors courses usually beginning in the junior year when the major field of concentration has been selected.

Let me try to outline a possible program for Silliman University which would be designed to meet the need of capable young people with a stimulating and enriched course of study. This program would be planned for them right from the start of their freshman year. It could be called the "Honors College" or the "Honors Program" to be effective as soon as a course of study could be designed, accepted, and the needed finances assured. The basic features of the plan would be:

1. Invite 60-100 freshmen students who demonstrate ability to succeed by scoring high in the Silliman University Entrance and Placement Test, to participate in the program. Other criteria may also be used for selection, such as high school grades, recommendations and demonstrated ability to do independent work. Selecting not over 100 students for the program would make it possible for one capable teacher to handle each of the General Education subjects.

2. In the beginning, the program would be limited to students working for the A.B. degree and who plan to graduate from the College of Arts and Sciences.

3. The program would be started with one in-coming freshman class and extended to succeeding years annually.

4. The program would emphasize enrichment of courses rather than acceleration; quality rather than quantity. The need of the superior student is not best served by finishing college in less time but rather by more challenging and intensive work which has depth and meaning for him.

5. Independent study would be emphasized at each level although probably increased as the student matured. However, this program would be a joint venture and not only a program of independent study. Just because a student is bright should not deprive him of what one educator called "the communal aspects of learning, teaching and scholarship". Departmental seminar courses and division inter-disciplinary seminars could be included.

6. The program would call for a careful selection of teachers especially for the freshman and sophomore years. Teachers will be needed who have ability to teach, who have an adequate understanding of students, who are well grounded in their own disciplines, and who are able to bring out the unique possibilities of each student. They must also believe in and understand the program thoroughly.

7. Students participating in this program would not be set apart from the regular University students. The rules of the University would apply to all alike.

8. The operation of the program would be in the hands of a committee coordinated by the Dean of the College. The teachers in the General Education courses would serve as academic advisors to the freshmen and would meet monthly to consider problems arising out of the program.

I believe such a program could ultimately do much toward raising the standards of the University. In the eyes of outsiders, Silliman University would be held in high esteem academically. Such a program should attract students throughout the nation. It is within the realm of possibility that it would receive foundation support both for the recruitment of students and for its general budget. It is hoped that the Bureau of Private Schools would grant permission to carry out such an experiment.

Relationship to Life

My attention has been directed recently toward a third frontier. Research indicates a disturbing fact especially for those of us who

believe a liberally educated person must possess a worthy and wholesome set of values. Simply stated, studies show that four years of university life has left all too little influence on the value judgment of students. Educators have apparently assumed that a great many changes have taken place in the lives of the students. This has not been the case. I raise this issue today regarding our own University. As a group of Christian educators we should be concerned about what is or what is not happening to our students.

Is the lack because our higher educational institutions are unrelated to life? I believe this is partially true. Schools that have related their programs to life outside the classroom and have had their students wrestle with real social problems seem to have the better record in this area.

One does not need to speak at length to show the importance of this problem. Nor do we need to spend time defining values. We need only ask, "What is wrong with our world today?" It has a wrong set, as well as a wrong scale, of values. Consider briefly the commandments of life and, further, that if they are commands of life they are also commands for education. "Thou shalt love God with all thy heart, soul and mind." This places God where He rightfully belongs. Then, "Love our neighbors as ourselves." This is done by practicing the golden rule. In the light of this consider money, profit, vocation and the like. Some would call this sort of living impracticable, a futile dream. When we ponder on our present set of values, those which have plunged us into two world wars and now threaten us with total annihilation, this "golden rule" approach has its appeal. George Bernard Shaw, who claimed no kin to Christianity, once said that after studying the affairs of man for sixty years, he could see no other way for a man of state to follow than the way of Jesus.

The most comprehensive study of changing values in college for American students was made by Philip E. Jacobs under the auspices of the Hazen Foundation. The study was so provocative that many other studies and commentaries resulted. Considering the amount of attention we have given in recent years to developing the whole man, the picture is anything but bright.

To a faculty like this the discouraging thing is that the chie educational force on the campus seems to be a student culture ra ther than the curriculum or the quality of the teacher or of th

teaching. Dr. M. B. Freeman says:

> The student body as an entity may be thought to possess characteristic qualities of personality, ways of interacting socially, types of values and beliefs and the like which are passed on from one generation of students to another and which, like any culture, provide a basic context in which individual learning takes place. We contend, in fact, that this culture is the prime educational force at work in the college for as we shall see assimilation into the student body is the foremost concern of most students.[5]

Marjorie Carpenter, Chairman of the Division of Humanities, Stevens College, believes we have a responsibility to seek to affect student values for good in every formal course. She points out how devastating it is to have our contemporary novels and plays reveal the values of our heroes as shallow and vulgar—without sense of what life is for. She says:

> This is a dark picture. It sounds as if the small salaries we do receive have not been earned. Our students seem to have missed some very important vitamin in their educational diet while we have been arguing whether we should train just the intellect or the whole man.[6]

It appears then, that we need to approach this problem from two directions. First, to study how we may teach value concepts through our formal courses. This might be a good subject for discussion in our departmental and college faculty meetings. Second, if we are to do a complete job in the area of building desirable value patterns, we must give a great deal of attention to the building of a student community which will be a good educational force on the campus.

Recently, the Rockefeller Foundation has appropriated $55,000 for the study of the effects of higher education on student values. This study is to take place at International Christian University in Tokyo. The annual report of this Foundation for 1960 says regard-

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[5] M. B. Freeman, "What Does Research Show About the Effects of the Total Institutional Program on Student Values." *Current Issues in Higher Education* 1958, Washington D.C. Pp. 102-106.

[6] Majorie Carpenter. "How Can Teachers Realistically Seek to Change Student Attitudes and Values Through Courses in the Various Disciplines." *Current Issues to Higher Education* 1958, Washington D.C. P. 108-114.

ing the study:

> The values to which a student is exposed in the course of a university education not only contribute to his personal development but may also determine the human use to which he puts his intellectual achievements in later life. Yet relatively little is known about the effect of higher education on personal values, since research techniques in the comparatively new field of value measurement is still rough and imprecise.[7]

The Implications of Teaching

The fourth frontier I would like to present is one that is always contemporary but seems to have a special significance for us at this time. It is the problem of teaching. It is not my purpose to discuss the problem of teaching either from the standpoint of the increase and complexity of knowledge, or the difficulty in keeping up with the advances in one's field, nor even the need for knowing more than one's own subject. Certainly these are problems needing our attention but for our consideration today I want to discuss the Art and Science of Teaching.

Should we call teaching an art? If it is, then this suggests that teaching is not completely objective, something everyone can learn equally well. The best teachers are artists in the sense that they, through the discovery of themselves and their abilities, are then able to develop the unique potentialities of each student. The basic thought in the artist-teacher concept is that the teacher does not set himself up to be emulated. Good teaching does not make all students alike but unique. I read recently that the modern conception of an artist is that he and his medium must interact. To do this he must know intimately his medium. Only as a teacher knows his students does he have a chance of becoming an artist-teacher.

Teaching is also a science, and as a science it can be studied, practiced and improved upon. A teacher does not become an artist without training and experience although many subject matter specialists question the value of professional courses in educational practice. As a painter must study both techniques and his public if he would be successful, just so must the teacher study both techniques and his students. Also, this is not a thing that can be learned once and for all time. The teacher must experiment, study, and read

[7] Rockefeller Foundation Annual Report 1960, New York. Pp. 198-9.

widely if he is to keep up-to-date in his profession. It is only when we find out what a teacher does when he teaches and under what circumstances the best teaching takes place that ways to improve the process can be found.

We must understand the student. We must also realize that it is important for him not only to acquire but also to use knowledge. The teacher makes the difference. Thomas Aquinas in the 13th century said,

> The teacher leads the pupils to knowledge of things he does not know in the same way that one directs himself through the process of discovering something he does not know.

"The teacher leads" stands out as the important clause in the sentence because it infers that teacher and student are not equal. One leads, the other must be led. They cannot be equal. Anthony Nemetz, speaking of this idea before a Great Books Club, suggested that teaching cannot be a democratic process where teacher and student count for one and no one for more than one. He said,

> I confess that I and many of my colleagues have become extremely annoyed and wearied by the widespread tendency to be sure that everything is democratic. Democracy is indeed the best kind of government but to confuse political procedure with educational procedure is simply stupidity.

I once tried to draw a portrait in words of the ideal teacher for Silliman. This has found its way into print for our use but let me merely say here that if we could find ways of living up to this portrait we would begin to improve our services to the students of the University. Also, if we are to draw and satisfy the more capable student we can do no less than try!

Our Committee on Instruction and Growth is dedicating its efforts this year to the improvement of teaching. Yet, no one need wait for such a concerted effort. You may through your own initiative, through experimentation, through reading, through becoming acquainted with your students and their needs improve the effectiveness of your own teaching. The true artist-teacher is always himself a student searching for knowledge.

The late books in one's discipline, books on world affairs, and current magazines must be read if one is to keep himself prepared to aid students in their quest for the best education. No teacher, re-

gardless of his or her discipline is exempt. With a 15-hour teaching load every member of the Silliman faculty has time for serious study and careful preparation of his subject in order to deserve the faith of those who look to us for guidance and leadership in their search for knowledge.

Topics for Discussion

In connection with frontiers for Silliman, I would suggest three more problems needing our careful study. I am not suggesting that they are less important but that they will have to wait for elaboration.

A. First problem—What extension services are appropriate and useful for the University? In recent years pressure has been put upon Silliman to extend its services beyond the immediate campus—outside the framework of classes and research.

The University as we know it has a primary function and that function is largely performed on its campus for its own student body. Yet, can a university afford to be guilty of not bringing the benefits of education to the community around it? Should the traditional program be its only concern? I am thinking of such things as: a speakers' bureau, off-campus classes, correspondence courses, library service provided by mail, conferences, institutes, instruction by radio, community development and so forth.

B. Second problem—The responsibility of Silliman University, as a Christian university, to its students, the church, and the nation. We must develop a more definite, positive Christian witness than we are now doing. It is my contention that Silliman University holds a unique place in the Protestant movement in the Philippines. It is more than just another church-related school. It must express itself as the Christian university providing a laboratory and training ground for Christian scholars of all Protestant faiths. It should be foremost in providing top-level Christian teachers for other church-related schools.

The United Board for Christian Higher Education in Asia is interested in this ideal for their schools. They have asked and discussed the question: "How can United Board related colleges serve other Christian schools in raising the standards of higher education among them?" As yet, this faculty has not adequately considered this an obligation.

C. The third problem concerns what has been referred to as the "sputnik mentality". This University, along with others in the free world, has stressed the need for a General Education program which should undergird all technical courses of study.

Since Russia seems to have made great educational advances in the technical fields, there has been a tremendous hue and cry that we must re-assess and re-appraise education. Many educators seem ready to throw in the towel, to forget General Education for a time and concentrate only on the technical training. Communst goals are clear and simple—world domination! We do not expect Russia to change its purpose nor its goals. The problem confronting us is how *not* to lose the advances that have been made and still meet the challenge in the technical military sense. We know that science and technology will not provide the answer to the world's problems any more now than it has in the past. General Education is not merely a peace-time program. It is a program that will aid us in developing a world in which we can live in peace.

As I close this paper I would like to recall a bit from Alice in Wonderland. Undoubtedly there have been times when we have all felt like Alice when she asked the cat, "Would you tell me, please, which way I ought to go from here?" "That depends a good deal on where you want to get to," replies the cat. I hope that you do not feel like Alice, even though there is a germ of a good idea in what she says: "I don't much care where." "Then it doesn't matter which way you go," says the cat. But Alice adds, "So long as I get somewhere."

I sincerely trust that some doors have been opened to us. We cannot be expected to exhaust all that lies behind each door. You remember that the cat had still an answer for Alice wanting to get somewhere. "Oh, you're sure to do that if you only walk long enough." We hope that this annual Faculty-Staff Retreat will be but the beginning of a successful walk toward the solution of our problems and that it will lead us to the building of a Greater Silliman, the school we have grown to love.

MARKS OF INTELLECTUAL MATURITY

Constancio C. Amen

SOME twenty-four hundred years ago there live in Greece a man named Socrates. One day the Oracle made the important statement that Socrates was the wisest of all men. Socrates, surprised, could not believe that. So he went about finding out if there was any truth to what the Oracle had said. He inquired into the state of knowledge of poets, politicians, and other people reputed for their wisdom. And Socrates discovered that the poets, the politicians and the others—men well known for their depth of learning—were not wise at all. He found that these people believed they knew much when in fact they knew very little, at least not enough to entitle them to the name, "wise". At the end of his inquiry Socrates concluded that the Oracle was right, that he was the wisest of all men. His wisdom lay in the fact that he knew that he did not know, whereas the poets, the politicians and the other people did not know that they did not know what they believe they knew. They were only pretenders to knowledge.

Socrates has left us the injunction, "Know thyself." He discovered that one important concern of every man should be to know himself—to know what he knows, what he does not know, what he thinks he knows but doesn't, and what he is in doubt about. We may say that we begin to be intellectually mature when we begin to inquire into our intellectual condition. Lest, like the poets and politicians of Socrates' day, we be misinformed about ourselves.

And so let us each ask ourselves: Am I intellectually mature? Surely that is a question that should concern every college student and graduate. We have an obligation to be intelligent, to be intellectually mature. But to answer that question we have to know what it is to be intellectually mature. I shall then discuss some—only some traits of the intellectually mature person.

CONSTANCIO C. AMEN, *Assistant Professor of Philosophy, prepared this lecture paper for a convocation series, "The Christian Faith and Maturity," at Silliman University.*

The Challenge of Ideas

The intellectually mature person delights in the purely intellectual. He believes in the value of ideas as ideas. By active interest he promotes the origination, dissemination, and discussion of ideas.

Aristotle said that the one distinctive characteristic of man—the property that distinguishes man from plants and other animals, with which he has much in common—is reason. Man is not truly man unless he performs the distinctive function of rationality. To Aristotle ". . . to be learning something is the greatest pleasure not only to the philosophers but also to the rest of mankind. . . ." True happiness, Aristotle said, is contemplation.

Albert Einstein expressed it this way:

> There exists a passion for comprehension, just as there exists a passion for music. That passion is rather common in children, but gets lost in most people later on. Without this passion, there would be neither mathematics nor natural science. What, then, impels us to devise theory after theory? Why do we devise theories at all? The answer to the latter question is simply: because we enjoy comprehending, that is reducing, phenomena by the process of logic to something already known or (apparently) evident.

Shakespeare said the man is to be pitied who has no music in his soul. So to be pitied is he who is incapable of the delights of the mind.

We who are in the university have a special reason to be concerned about the purely intellectual. For what really is a university? Isn't a university a factory and market of ideas? The essence of the university is the origination, dissemination, and discussion of ideas. There is no university where there is no passion for the purely intellectual.

Unfortunately, as we look around in our country we find that education has to a shameful extent become commercialized. How many of our colleges and universities are not run for mainly profit reasons? It is true that we rank high in the world in the number of citizens going to college or university. But it is a serious question how many of our college and university students are motivated by the desire to know and how many are interested only in the units and the degree and the money that the degree makes possible. You often hear it these days that if you get so many units in graduate school you get so much increase in salary. One wonders how many go to

graduate school only for the increase in salary.

It is boringly familiar that our education authorities are working hard to detect the schools and colleges that are substandard. We appreciate the concern of our government authorities. But until our students themselves are concerned; until our students are motivated by the desire to know; until it is the purely intellectual that impels our students—so long will our government authorities have to run in circles trying to catch diploma mills. There would be no diploma mills if there are no students who patronize them.

How much interest is there among our college students in purely intellectual activities? How much purely intellectual intercourse goes on outside the classroom? If a basketball game and a purely intellectual session were to take place at the same time on a college campus, which activity would attract the more students?

In terms of the purely intellectual, we are still an underdeveloped nation. What recognition do we as a people give to the intellectual? Whom do we applaud, whom do we honor? It is the politician, it is the man who shakes the hands of the people, it is the man who delivers speeches to big crowds, it is the man whose name we often read in the newspapers. But whoever gets excited in this country over a discovery in chemistry? Or over a paper in psychology? How often do we see a scientist's name on the front page of the newspaper? What learned societies are there in our country?

The Discipline of Logic

The intellectually mature person arrives at conclusions on the basis of evidence or logical deduction. All assertions are reasoned out on the basis of the evidence. He does not reject an assertion unless he has an argument to refute it.

In this respect the Church in its history has more than once fallen short of maturity. One instance was the action of the Church hierarchy on Galileo. From the Second Century to the Sixteenth the Ptolemic theory that the earth is the center of our solar system had been universally received. Then in the middle of the Sixteenth Century the Polish astronomer Copernicus advanced what is now known as the Copernican system, the theory that the earth is only one of the heavenly bodies revolving around the sun. In these days the Copernican system was revolutionary.

In 1609 Galileo began his researches on the telescope, which had

been invented in Holland only the year before. Galileo was able to make a much more powerful telescope than the one made in Holland. For a number of years he devoted his time to the study of the heavenly bodies. And his findings established the truth of the Copernican system.

Then his troubles began. When Galileo's strong defense of the Copernican system was published (1632), the Church authorities condemned his work as highly dangerous, perhaps because in their opinion it took away from the earth its preeminence in the solar system, thereby making man's abode less important in the scheme of God's creation! Galileo was summoned to appear before the Inquisition in Rome. He was compelled to kneel before a great assembly and to renounce the truths he had maintained in his writings. The first verdict was imprisonment but this was commuted to banishment to the villa of the Grand Duke of Tuscany at Rome. Later he was allowed to return to Arcetic, not far from Florence.

The point is that the Church dignitaries compelled the scientist Galileo to renounce his findings but they did not give any arguments to show why Galileo's conclusions should be abandoned. They did not argue with Galileo as to the accuracy of his findings. They merely compelled him to renounce the results of his investigations, on pain of imprisonment.

Or take the case of Martin Luther. In the controversy between Luther on one hand and the Pope and other Church dignitaries on the other, the Church authorities committed another mistake of intellectual immaturity. In his study of the New Testament, Martin Luther discovered that man does not buy or earn his salvation. Luther saw that it is God's love in Christ and man's faith in Christ that make his salvation possible. This is the fundamental doctrine of justification by faith.

Now this Biblical teaching was opposed to the teachings and practices of the Church in Luther's time. The Church hierarchy summoned Martin Luther and demanded that he renounce his views. But Luther would not recant. His position was well founded on the Bible, and he was prepared to argue his case. But the Church dignitaries insisted that he give up his views. In fact Luther's life was endangered because of his refusal to bow down to the hierarchy.

Here again, what I'd like us to see is that the Church authorities did not refute Luther's conclusions; they would not debate with

Luther point by point; they merely wielded the big whip of authority.

It is intellectually immature to ask a man to give up his views unless you can present arguments to show why he should, arguments based on evidence or logical deduction.

There was a young man who was sure that the version of the Bible used by the Protestants is bogus, that it is only the version used by the Roman Catholics that is genuine. Upon questioning he admitted he had not seen either version of the Bible! How could he have arrived at that conclusion without having read either version It is intellectually immature to hold an opinion for which one ha no basis at all.

The Worship of Authority

The intellectually mature person does not accept a principl merely because it has been advocated by some great person or by a institution.

During the Dark Ages, when learning underwent a virtual black out, the works of Aristotle seeped through the darkness into th mind of Europe. The Arabs brought the writings of Aristotle t medieval Europe. By the early Thirteenth Century Aristotle's work had been translated into Latin. The efforts of Thomas Aquinas helpe to entrench the teachings of the Greek philosopher—Aquinas unde took the gigantic task of trying to synthesize Holy Scripture an Aristotle. Now by the Thirteenth Century the authority of Aristot had come to be accepted in Europe as well-nigh absolute. It wa enough to defend a point by saying it was according to the doctrin of Aristotle. If Aristotle said so, then it must be so.

An amusing example of Aristotle's hold on the thinking of th time was what happened between Galileo and a metaphysician. On day Galileo asked the metaphysician to look through the telescop into the heavens to see newly discovered heavenly bodies. The met physician refused to look through Galileo's telescope saying th Aristotle's writings did not mention such heavenly bodies!

The worship of authority is illustrated also in the case of t philosophy of Aquinas. In the Nineteenth Century the Pope issu a decree declaring the philosophical system of Aquinas the offic philosophy of the Roman Catholic world. All Roman Catholic phi sophy teachers are expected to subscribe to the system of Aquin According to Bertrand Russell in our generation this decree of t

Pope is still very influential in the thinking of Roman Catholic teachers of philosophy. (Incidentally, philosophy books written by Roman Catholic philosophers must have the imprematur of the Church.) In a broadcast a few years ago over the British Broadcasting Corporation, Bertrand Russell made some remarks which were critical of the philosophy of Aquinas. Shortly afterwards he got a storm of protest from Roman Catholic philosophy teachers.

What I want to point out is that no person holding an exalted office (no matter how exalted the office) has a right by virtue of his high office to dictate that some philosopher's system be the official system of any group of philosophy teachers. One accepts a philosophical system on logical or evidential grounds, but certainly not because some dignitary issues a decree endorsing the system. The person or office of any man does not make a false statement true or a true statement false.

But we must not overlook an important qualification. It is not without worth to cite the opinions of experts, or authorities. By "expert" we mean a person who by reason of many years of study and experience in a special field is qualified more than others to make statements in that field. We give weight to his judgments in his field. Ours is a century of specialization. Gone are the days when one man could acquire depth of knowledge in all the areas of learning. It is now impossible for any man to read in his lifetime all the books written in a given general area of intellectual concern. So whether we like it or not, we must specialize, or else we only scratch the surface. And because we cannot be specialists in several different fields we have to depend for expert opinion on those who have spent many years of study in specific areas. We look up to them as authorities.

But at the same time that we recognize that those who are steeped in a special field are qualified to inform us, the fact must be underscored that the expert is not qualified as an authority outside of his special field. If we violate this principle we commit the fallacy of arguing from authority. The specialist in economics, for instance, is not an authority in music, unless he happens to be also an authority in music. We don't look up to the agriculturist for authoritative judgments in poetry.

In this regard history has shown us some significant examples of intellectual immaturity. The supposed conflict between natural

science and Christian faith is a case in point. In modern times many people have supposed that there is a conflict between natural science and Holy Scripture; many believe the two cannot be reconciled. But is there really a conflict? No. Whatever conflict there is supposed to be is not necessary. Natural science and Holy Scripture can be harmonized. This is not the place or time to discuss that point. What I want to point out here is that a major factor behind the belief that natural science conflicts with Holy Scripture is the fact that some scientists and theologians have committed the mistake of overstepping their special fields. The fact that one is a recognized authority in physics does not qualify him to throw judgments here and there about what the Bible says, unless he himself has spent a good deal of his time in Bible study. Martin Luther committed this mistake when he condemned the heliocentric theory of Copernicus. As a theologian Luther was not qualified to condemn as false the results of Copernicus' astronomical investigations.

The Ability to Communicate

The intellectually mature person prefers to use simple, ordinary words. He strives to communicate ideas accurately, not to impress his listeners with high-sounding, pompous words and long flowery sentences. If he can say an idea in five words he does not say it in ten.

On the occasion of the burial of Union soldiers at Gettysburg Abraham Lincoln was not the principal speaker. But today people remember what Lincoln said in his short address whereas they cannot even recall the name of the principal speaker. There are only 268 words in Lincoln's famous Gettysburg Address but they are words that are combined in such a way that they are memorable; they express ideas even non-Americans will not easily forget. The greatness of Lincoln's prose lies in the fact that he used simple, ordinary words and short sentences to express great ideas.

But what do we find in much of the writing and speech of Filipino students? High-sounding words, long sentences, often with trivial content, as if our students are ever trying to justify the Filipino's reputation as an orator. Often the Filipino uses fifteen words when eight would suffice. The student who uses pompous words and long flowery sentences is like the radio announcer whose main concern is not to communicate ideas but to impress his listeners

with his voice or his pronunciation. The listener is left with the conclusion that the announcer is enamored with his voice; he has not been moved to react to what the announcer was saying. The secret of good radio announcing is accurate communication. When we write or speak our purpose is to communicate ideas. The criterion should be how accurately the listener understands and not how he has been impressed with the words we use.

The Desire to Impress

The intellectually mature person does not speak to give people a better impression of what he knows than is actually the case.

You are familiar with the story of the emperor's new clothes. The emperor engaged magic weavers to weave him a suit. These weavers were such magic weavers that the clothes they made could not be seen except by people who were of low intelligence, dishonest and lazy—intelligent, honest and hard-working people could not see them. Well, the day came when the suit was finished. When he was fitted, the emperor could not see the suit, and that, of course, meant to the emperor that he was intelligent, honest and hard-working. The emperor set a day for a parade around the town. On the day of the parade the people lined the streets to see the emperor in his new clothes. No one saw the suit. And the people were glad they were intelligent, honest and hard-working. It was a child who stated the fact that the emperor had no clothes! The child, you see, was too young to be affected by the desire to impress.

There is an idea that is familiar, that some people who don't understand the better kind of music pay much for concert tickets just so they will be counted among the cultured of the community. They sit there, act as if they enjoy the performance, although they don't understand half of it, and in some cases, are actually bored.

Or there is the case of the person who wants to impress people that he is an intellectual. He talks about deep subjects even to someone who has not gone to high school. He despises religion because it is beneath the dignity of the intellectual. But if you take time to sound him you'll find that in many cases he is really shallow.

The Need for Humility

The intellectually mature person is willing to have his beliefs examined and criticized and when convinced that they are mistaken

is willing to revise or even abandon them. He upholds the truth even if it hurts him. Pride is the great obstacle in this regard. It takes humility to have one's views dissected and criticized.

In the opinion of D'abro, in his book *The Rise of the New Physics*, it was their lack of modesty that kept the Greeks from discovering the experimental method. Writes D'abro:

> The Greeks were perfectly capable of understanding the valué of experiment but. . . they did not wish to recognize it. Plainly, the application of the experimental method is not a matter of mere intelligence; it involves in a less conspicuous form other qualities, namely, character, sincerity, and modesty. It requires character to see the truth even when we have reason to fear that it will not be to our liking. It requires sincerity to accept the truth when this truth happens to contradict all that we have previously professed. Finally, it requires modesty to recognize that man cannot, by his inner vision alone, attain to truth and that he must stoop to experiment. Experiment has always been anathema to the egotist, not necessarily because it involves manual labor but because it belittles man.
>
> These qualities of courage, sincerity, and modesty, which the ancients seemed to have lacked, prevented them from creating a science. Thus we find Pythagoras concealing his discovery of irrationals because it upset his doctrine of numbers. . . . And, if Plato by opening a box could have tested his theory of universals, we may be certain he would have destroyed the box rather than run the risk of being refuted.

The Open Mind

The intellectually mature person is willing to examine openmindedly any assertions which are contrary or contradictory to his own views. The open-mindedness of the inquiry into the contrary ideas must be emphasized. It is one thing to inquire into a theory with a mind already made up that the contrary theory is wrong—that is intellectual immaturity; it is a different matter to examine the contrary ideas objectively, with no presuppositions conditioning the mind. This of course is by no means easy to do, especially if the contrary ideas threaten convictions one has cherished for a long time. Not that the inquiry into the contrary ideas necessarily results in a change of one's beliefs, not necessarily. Mature inquiry does not imply embracing the new or contrary views. All it implies is an objective, honest study of the evidence and the reasoning involved in the contrary ideas. The modifying of one's own beliefs follows only from having been convinced of the greater justifiability of the

contrary ideas.

It is inevitable that as men continue to experiment and read and think new ideas, new theories arise, some of them tending to destroy ideas that have been received for a long time. That is how mankind expands the frontiers of knowledge. The mature person is alive to new ideas; he studies them open-mindedly; he grows as he studies.

But we often observe the tendency to cling to the old, the familiar, the understood. Somehow there is a reluctance to change; somehow it is easier to doubt new ideas than old ones. There are today many people who refuse to consider objectively the arguments of the new philosophy, the analyst school, insisting that the analyst philosophy is not sound because it destroys metaphysics.

No matter how revolutionary the new ideas may be, no matter how radical, the mature person is willing to study it with an open mind. It is grossly immature to judge a theory before one has thoroughly studied the evidence and the reasoning that supports it.

Critical Thinking

The intellectually mature person listens and reads critically. He does not believe all that the speaker or the book says unless he is convinced that it is true or sound. He evaluates what he hears or reads. It is said of Thomas Hobbes that he spent more time thinking about what he read than reading.

During the retreat of the Silliman faculty and staff last June 2-3 the statement was made by some of the speakers that many students tend to believe whatever they read. Somehow the printed page has an aura of authority. One speaker said that one day he pointed out to his class a statement in their textbook which was questionable. The students believed the book. Just because something is printed is no guarantee it is true or sound. The mature person thinks as he reads or listens.

Perhaps we teachers and students are guilty in this regard. It is an important question whether in our classrooms we don't put more emphasis on memorizing than on understanding and reasoning. (Indeed it is an important question if government examinations do not emphasize memorizing more than reasoning.) Just a few days ago a college teacher told me that he felt frustrated over the fact that his students seldom talk. When he asks thought-provoking questions to get them to react, most of them just keep quiet. College

education must develop in students the critical attitude. We should promote controversy in the classroom. College should be the place where young minds are trained to think. The free expression of ideas must be encouraged. It is in the context of controversy, of exchange, that the mind is sharpened and the judgment disciplined. The college or the university should be turning out thinking graduates and not just memorizing parrots.

The Fallacy of Emotion

The intellectually mature person does not mix emotion with reasoning. He reasons dispassionately, not with the heart but with the head. He rests his case on evidence and logic, not on tears and laughter. He relies on the force of arguments, not on extravagant gestures or a loud voice. When he argues he does not resort to such ungentlemanly tactics as making fun of his opponents. You don't win an argument by getting the audience to laugh at your opponent. It is intellectually dishonest to make capital of emotions in an argument. Tears or laughter cannot convert falsehood into truth.

In Shakespeare's *Julius Caesar* we find a classic illustration of the fallacy of capitalizing on emotion. Over the dead body of Julius Caesar, Mark Anthony, using sarcasm and other tricks, incites the crowd to a pitch of anger until they scatter determined to hunt the killers of their hero. It was all a matter of arousing their feelings.

When Socrates was falsely accused he argued his case point by point. When he was sentenced to death, Socrates told the judges:

> Well, gentlemen, this and perhaps more like this, is about all I have to say in my defense. Perhaps someone among you may be offended when he remembers his own conduct, if he, even in a case of less importance than this, begged and besought the judges with many tears, and brought forward his children to arouse compassion, and many other friends and relatives; whereas I will do none of these things, though I am, apparently, in the very greatest danger.... And why shall I not do so? Not because I am stubborn or lack respect for you..... But apart from the question of reputation, gentlemen, I think it is not right to implore the judge or to get acquitted by begging; we ought to inform and convince him. For the judge is not here to grant favors in matters of justice, but to give judgment.

Yes, to judge is to "inform and convince". Tears or laughter do not make a fallacious argument valid or a false statement true. It

facts and logical principles that prove or refute. And the mature person does not seek conviction by arousing feelings.

The Never-Ending Quest

The intellectually mature person is never satisfied that he already knows enough. There is never a time when he feels he has arrived intellectually. His thirst for knowledge is never fully satisfied, his questioning for truth never ended.

Referring to teachers a college principal in England expressed this idea this way: "He who learns from one occupied in learning, drinks of a running stream. He who learns from one who has learned all he is to teach drinks the green mantle of the stagnant pool." The teacher is first of all a student; a good part of his time is spent in studying. Graduation from college is not the end of studying, or learning. The mature person is always a student, ever learning new ideas, new facts; ever re-examining beliefs and revising those that need revision; ever seeing new relationships of ideas. The mature person enjoys the adventure of learning.

Intellectual Courage

The intellectually mature is willing to make known his opinion on a given subject even if his judgment is at variance with the opinion of the majority. He is guided by the pertinent evidence and not by what others believe or want him to believe. To him no doctrine or practice is exempt from inquiry just because it has been held by the majority for a long time.

In the June 17, 1962 issue of the *Sunday Times Magazine* the editor laments the fact that we have been "de-humanizing" Rizal. We have painted Jose Rizal as a genius at everything. The editor complains that we have tended to make of Rizal a "god". And he asks, "But who dares write about the faults and weaknesses of Dr. Jose Rizal?" Yes, who dares to make public the negative facets of Rizal's character? Is it because we are afraid of being suspected as Communists if we dare to mention any negative quality or deeds of the national hero? Is it because we are afraid of public opinion? If so, is it because we as a people are so intellectually immature that we easily label a man unpatriotic for talking about the faults and weaknesses of our national hero?

For instance, what was Rizal's religious persuasion? Was he

a Christian? Or an atheist? Or an agnostic? What do we find i
Rizal's writings about his religious persuasion? I once heard a lectu
by Dean Ricardo Pascual of the University of the Philippines o
this subject. His lecture was devoted to showing that Rizal was a
agnostic. And Dr. Pascual quoted many passages from Rizal's wri
ings to support his conclusion that Rizal was an agnostic. Was Pa
cual right? Was Rizal an agnostic? If he was, why don't we menti
that fact?

The Humility of the Intellectual

I must not end this lecture without emphasizing the intima
link between intellectual maturity and faith in Jesus Christ. W
have seen that humility and integrity are essential to intellectu
maturity. It takes humility to admit that one does not know ve
much. It takes humility to be willing to listen to someone analy
criticize one's views. It takes humility to admit that one has be
mistaken and to revise one's conclusions. It takes humility not
seek to give a better impression of what one knows than is actua
the case. It takes integrity to examine open-mindedly views contra
to one's own. It takes integrity to suspend judgment when one ca
not justify a conclusion. It takes integrity to acknowledge what o
has borrowed from others—it is only dishonest persons who comm
plagiarism.

Now the virtues of humility and integrity are not natural
man. The Bible describes the natural man as proud, selfish, jealo
dishonest. And the Bible tells us that it is only when the Spirit
God controls a man's life that he can be humble, honest. It is o
by the power that Jesus Christ gives that man can overcome t
natural tendency to be proud, selfish, jealous, dishonest. And
man being what he is, it is very difficult, if not actually impossib
for a man to be intellectually mature apart from the enabling pow
of Jesus Christ.

MORAL LEADERSHIP IN EDUCATION

Delfin D. Estolloso

IN THE COURSE of the current school year, it seems not impertinent to ask, "What is the primary aim of education?" In fact a restudy of the basic aims of education should be undertaken at the beginning of every academic year. This review will serve to motivate the work and gear activities toward the accomplishment of the goals of education. The teachers should focus their thinking on the basic aims of education and rededicate themselves to moral leadership which the teaching profession demands of them. The teacher's philosophy can be crystallized in the intelligent discussion of goals at teacher's meetings, inasmuch as no teacher may be expected to carry out intelligently or effectively any educational reform unless he understands and believes in the basic philosophy of the Philippine Educational System.

With the leadership of the school officials, insights will be gained into the confused array of aims and purposes. Wrong emphasis can be corrected and right ones maintained and improved toward the achievement of the true aims of education. Administrators and supervisors moreover, ought to give more time and effort to the achievement of positive moral values among the teachers and learners.

The Supreme Goal

The supreme purpose of teaching ". . . may be summed up in the concept—Morality"[1] But what is morality? All school people from the grade school teacher to the highest official in the Department of Education should be able to answer the question in the words of Herbart. "Morality implies conformity with, and acceptance of

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[1] Frederick Eby, *The Development of Modern Education* (New York: Prentice-Hall, Inc., 1952), p. 474.

existing standards. . . .”[2] The existing standards are those patterns of behavior which have gained acceptance and approval in the community. The mores are the foundation of moral and ethical behavior; hence, of morality. To be moral one must act as justly, wisely, and magnanimously as one can. The requirement is for one to find and follow the best that is possible and subject that to the tests of truth and fairness and to the criteria of goodwill and benefits to all concerned. Morality is founded upon the claims of the community upon its members; therefore, it is relative to culture. The people's deep common beliefs of what is acceptable, permissible, required, desirable, and expected are the sources of their moral authority. Plato, the first educational philosopher, declared that what is honored in a place will be cultivated in that place. What is accepted and approved wil be followed and imitated. If corruption is tolerated and grafters g scot-free, the young will cultivate immorality as their norm of con duct. A Manila columnist writes: “With nothing to emulate but evil how can they do better? Delinquent parents and elders breed delinquent children.”[3]

Froebel, the practical-minded mystic, declared that the primar objective of education is the development of “a steady, dependabl moral character.”[4] By moral character is meant a positive personalit which outgrows and directs itself in its endeavor to pursue persist ently and consistently ideals once perceived as the highest virtues By choice, constant and unwavering, even in the face of difficultie these virtues are steadfastly sought. But what is the relation bet ween morality and character? There is some substantiation of th idea that moral and ethical behavior manifests the character of a individual. Character is regarded as more inclusive and dynami and morality is its essence. Moral character, therefore, is the in tegration of the moral forces which help one to exercise intelligen choice and sound judgement by weighing properly the individu and group demands. Self-discipline, consciousness of rights, the r quirements of authority, and the demands of duty—these are th

[2] Cecil V. Millard, *Child Growth and Development* (Boston: D. C. Heath a Company, 1958), p. 330.

[3] Teodoro F. Valencia, “Over a Cup of Coffee,” *Sunday Times*, Vol. XII, N 159, July 28, 1957, p. 4.

[4] Frederick Eby and Charles Flinn Arrowood, *The Development of Mode Education* (New York: Prentice-Hall, Inc., 1945), p. 761.

fibers for a moral, strong character. Because of public and private apathy to the questionable patterns of morality, the development of moral character should be the chief objective of teaching by those entrusted with the education of children. Moral considerations are primordial in the lives of individuals. To be effective in the process of development and guidance of the learners, teaching should recognize the principle that "The most potent and universal bases for determining educational objectives....are those which deal with ethical or moral distinctions."[5]

Moral Character

In primitive times, a crude thoretical moral education in learning how to deal with the unseen accompanied practical training in the vocation. The young savage learned from the medicine man the religious forms and ceremonies of the group. He fulfilled his duties through the observance of the mores and folkways of his people. Any violation of the mores was met immediately with drastic punishment necessary to curtail any further disobedience. Still primitive in theory and praxis, Oriental education was the responsibility of the sacerdotal class required to preserve the moral and religious heritage of the people. The earliest from of education in India endeavored to imbue the learners with religious doctrines in order to prepare them for absorption into the Infinite instead of training them for the activities of this life. The members of the upper caste were the only ones supposed to gain knowledge of the sacred books. The earliest Hindu teachers were all Brahmans, showing that, to the Hindus, education was a moral and religious activity conducted only by the sacerdotal class as guardians of the morals of the people. In all Oriental nations education was in the best tradition of morality and religion.

The Jews made unique contributions to the development of moral education. From them, our moral and religious concepts were derived. The Jewish ideals in education have profoundly influenced modern education. Schools were attached to the synagogues for they believed that "the fear of the Lord was the beginning of wisdom". The Jewish fundamental aim of education was religious

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[5] Educational Policies Commission, *The Purposes of Education in American Democracy* (Washington, D. C.: The National Education Association of the United States and the American Association of School Administrators, 1938), p. 5.

and moral. Before the children went to school, the parents were held responsible for their systematic training in morality and religion. Speaking of Jewish education, Graves wrote:

> They acquired a sound training in the morals and manners growing out of their religion, which emphasized such virtues as reverence, obedience, patience, charity, thrift, prudence, and patriotism.[6]

Elementary education among the Jews was universal and compulsory for the purpose of holding the favor of Jehovah. The subject matter was essentially religious; the passages in the Scriptures were the important components of the curriculum.

In the living past, morality was consistently emphasized as th aim of education. The Greeks by their intellectual training anc ethical ideals had given impetus to moral education with the development of the arts designed to express their appreciation for thei gods. Socrates inveighed against the Sophists and their individualism in education which underscored the importance of self-aggrandizement. In his dialectics, he pointedly stressed the reality of virtue and the significance of moral principles. He lived a rugged mora life, and his moral stamina proved too resolute for his follower to change or to persuade him to escape with the consent of hi jailer. In prison, Socrates found himself in a moral situation i which the chance to escape was offered, but true to his moral conviction, he chose to die with honor. Truly it has been said that moral situation is fraught with sacrifices and grave dangers t the lives of those involved. Two other philosophers, Plato and Aristotle, pursued relentlessly morality as the purpose of education. T them as well as to Socrates, the problems of ethical life were suprem and overriding. They believed that knowledge was virtue, and th the virtuous man was the best product of education, indicating t modern teachers that teaching is a moral responsibility requirin moral leadership. Any individual, therefore, who calls himself teacher must recognize the moral and religious perspective of h calling. He is the guardian of the morals of the people.

Throughout the ages, moral character has been emphasized the basic aim of education. Every nation has included ethical character as the basic purpose of education. Teaching is an ethic

[6] Frank Pierrepont Graves, *A Student's History of Education* (New York: T Macmillan Company, 1936), p. 21.

activity. The teacher aims at the development of the character of his pupils; hence, the teacher himself must be a moral and virtuous individual with high ethical ideals which he should earnestly and consistently follow in thought and deed. The teacher must live what he teaches.

Ethical Criteria

A review of the aims of education will show the permanency and consistency of morality in all educational activities. Because aims give meaning and direction to teaching and learning, the teaching process must be measured by ethical criteria. The Seven Cardinal Principles of Secondary Education, recognized as fundamental in guiding educational activities, include ethical character as one of the seven basic purposes of education. In fact, every aim of education has a moral implication. Every teacher holding in her hands the fate of her pupils is also entrusted with the future of the nation. The teacher has an appointment with destiny. All the aims in the Seven Cardinal Principles connote morality. In truth, all purposes of education become empty and highly superficial, if not downright dangerous, without the underlying principles of moral character. The development of vocational efficiency carries with it ethical considerations for without these, the individuals become dangers and liabilities to the community. Living activities mean activities involving other people who should be given due respect and regard. The individual to be accepted as a contributing member of the community must lead a moral life. Without morality, the community will suffer from dangers and difficulties inherent among people who are not motivated by moral ideals.

The Educational Policies Commission in 1938 adopted a set of objectives, three of which underscored the primacy of morality and discipline. The first one, self-realization, includes character development to equip the individuals with the responsible direction of their lives. The second is explained by respect for humanity, friendships, cooperation, courtesy, appreciation of the home, conservation of the home, efficient home making, democracy in the home. The fourth, civic responsibility, in its wider and deeper meaning, suggests moral responsibility as it allows the enjoyment of freedom which should be balanced by obligations. It must be recognized that these aims of education are restatements of the moral needs of young people and

children in the process of their growth and development. In the words of the Educational Policies Commission, "It follows from this analysis of the problem that the survival of every complex society is dependent in part on the moral quality of a program of organized education."[7]

Discipline

Section 5 of Article XIV of the Philippine Constitution provides among other things for the mandatory aims of education. The first objective which is moral character and the second, personal discipline, are the recognition of the national need for morality and discipline. By constitutional mandate, every teacher should emphasize morality and discipline in his teaching. Teachers should be of high morals and strong self-control so that they shall be fit to guide and give examples by their lives. Failure to bring to the teaching profession a high sense of moral responsibility and strong personal discipline is a violation of the Teacher's Oath of Office, which requires strict obedience to the mandates of the Constitution. Many o the questionable activities of administrators, supervisors, and teachers stem from their failure to act with a high sense of moral responsibility and tend to minimize the maximum efficiency of teaching and learning.

The basic philosophy of education in the Philippines is foun in Section 1 of Republic Act 1124 which created the National Boar of Education. All educational institutions are required to accomplis "an integrated, nationalistic, and democracy-inspired educationa system in the Philippines."[8] This is a reiteration of the aims c education as spread in the Philippine Constitution. To explain fur ther the full significance and meaning of the basic philosophy, th Secretary of Education issued Department Order No. 1, on Januar 17, 1957, which embodies the "Revised Philippine Educational Pro gram". Article I of the Revised Program enumerates the funda mental objectives of education in the Philippines. The first of th five aims commands all schools "to inculcate moral and spiritu

[7] The Educational Policies Commission, *The Education of Free Men in Ame can Democracy* (Washington, D. C.: The National Education Association of t United States and the American Association of School Administrators, 1941), p.

[8] Cresencio Peralta, *Teachers and Nation Building* (Manila: The Natio Teachers College, 1957), p. 7.

values inspired by an abiding faith in God."[9] Needless to say the latest declaration on the aims of education in the Philippines starts out and repeats the importance of morality and spiritual values.

Moral Leadership

The supreme sacrifice of Rizal is the highest price paid for moral leadership. Teachers may well learn from the national hero the meaning, the significance, and the national effect of abiding by one's moral obligations. When teachers fulfill their duties and obligations with a high sense of moral responsibility, there will be a positive reawakening in the educational system in the Philippines. Dr. Vicente G. Sinco, until recently President of the University of the Philippines, declared:

> No country and no people can have education without well-educated and deeply dedicated teachers, Education is discipline, mental, moral, and spiritual discipline, with all the hardships that the idea of discipline involves.[10]

The highest policy-making body in education in the Philippines has declared the importance of moral and spiritual values; by this declaration, teaching should be considered a moral responsibility which demands moral leadership. The burden of this responsibility lies squarely on the shoulders of teachers, school administrators, supervisors, and the higher officials in the Department of Education. It would be superfluous to say that the leader, the Secretary of Education, should exert efforts and bring to bear upon all officials and employees of his Department, the force of his moral leadership which is urgently needed in Philippine education. In fact, all leaders in every endeavor, public and private, should bring to bear upon the teaching profession the full weight of morality and spiritual values. In short, all leaders from the Halls of Congress to the last teacher in the farthest barrio should exert a telling and dynamic moral leadership. Teachers, whether in the classrooms or on the athletic fields, should not overlook nor neglect the moral perspective of all teaching. School administrators and supervisors should create situations, should bring about environments, which are conducive to making teaching and learning a moral activity at all times. Men

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[9] *Ibid.*, p. 15.

[10] Vicente G. Sinco, *Education and National Self-Realization*, Speech Delivered in Baguio City, July 4, 1960.

and women high in the government hierarchy should not forget that they too have a stake in education; they should therefore provide facilities for teachers and learners to develop a high sense of moral responsibility. Lacking moral responsibility, man is not educated; without ethical principles, man cannot be invested with rights. Neither can he be entrusted with the duties of political or social living. Because of these, teaching should exert moral leadership worthy of imitation by the learners.

Adult Behavior

Imitation is a fundamental process in helping the young develop a strong moral character. For this procedure, the adults should be held responsible; it is they who should set the pattern for ethical and moral behavior. Problems in the community—social, political, economic, or otherwise—are the responsibilities of the adult citizens. Community life is shaped by the activities of the adults. Whatever these citizens do, either bad or good, will go a long way to deepen and heighten the ideals and aspirations of the young. Knowingly or unknowingly, however, through ignorance, plain negligence, or downright cupidity, these models, the adult citizens, parade their wickedness, their dishonesty, their defiance of authority, their neglect cf duty, their immorality within the view and hearing of children and the youth. The adults stand accused by the youth for showing false models, discordant notes, and irresponsible behavior in public and private life. Teenage escapades and hooliganism, sometimes resulting in murder and fatal accidents, are traceable to the laxity in morality and discipline of the adults. Whatever glaring violations of the fundamental and elementary tenets of morality are perpetrated by the adults in high or low, public or private, positions in life are impressed upon young minds and hearts. Certainly the environment in which our children grow is not conducive to the development of moral life. Our homes have been negligent in the proper discipline of young people. These places are the domains of the adults where their behavior is the model and standard for children to imitate. Thus Herman Harrell Horne wrote:

> In this connection it is to be remembered that the most valuable elements in human life, morality and religion, are largely the products of childhood's imitation.[11]

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[11] Herman Harrell Horne, *The Philosophy of Education* (New York: The Macmillan Company, 1904), p. 185.

The accepted process of imitation in learning, in developing patterns of behavior, character and personality, cannot be gainsaid. The child learns by imitating those around him, whoever that individual may be. As he grows older, when his perceptual powers become sharper, he selects those patterns which bring him satisfaction. The recognition of this basic principle in child growth and development should make parents, teachers, and other adults conscious of their moral responsibility to provide children and the youth with the best environment in which imitation will result in the development of a strong moral character and personal control.

Moral Lack

Education, public and private, is today harassed with serious problems which threaten to destroy the faith of the people in their educational system. The most difficult of these problems involves the moral leadership of the men and women in public and private life. President Roxas, speaking on moral bankruptcy, said:

> Many of our people have come to accept the easy advantage of bribery, of evasion, untruth, graft, and even corruption. . . Religion and the eternal moral precepts have lost much force and meaning in our lives.[12]

Public life lacks morality and the children grow and develop in environments which are conducive to disrespect for authority, to delinquency, to graft, and even to corruption. The accusing finger has been pointed at the teaching profession, and teachers have been accused openly, both on platforms and in the columns of newspapers, as wanting in moral responsibility. Ethical considerations as guiding principles in teaching are flagrantly violated. Superintendent Conrado G. Genilo of Tarlac, in his report to the conference of Public School Superintendents in April, 1962 at Baguio, declared:

> The crying need of the hour is still an effective character training to solve juvenile delinquency and remedy the general deterioration of the Filipino character.[13]

Forgotten and even ignored, the basic aim of education, morality, is judged old-fashioned and impractical in a world gone mad

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[12] Manuel A. Roxas, Quoted by Antonio Isidro, *The Philippine Educational System* (Manila: Bookman, Inc., 1949), p. 45.

[13] Conrado G. Genilo, "Character Education Lack Bared at Meet," *The Manila Times*, Hometown News, Sec. B, April 12, 1962, pp. 1B and 2B.

in a reckless drive for power and wealth. Teaching requires moral leadership, dynamic and pervasive, so that the learners will develop in an atmosphere where compromise with evils is not tolerated. Rather than appeal to greed and selfishness, moral precepts should be the criteria when choices and decisions are to be made. Teaching should not be measured in terms of material gains made by fair or foul means to the utter and brazen disregard of the education of the children.

The Greatest Need

To restore sanity and discipline in our schools, teachers and education officials must exert moral leadership. All leadership to be effective for community living should be moral leadership. Any leader without any moral backbone cannot be efficient in the building up of society. To be effective, moral leadership demands on the part of the leaders sacrifices in many forms. Leadership must be intelligent and responsive to the needs of the community. It must be unselfish and responsible. It must exercise fairness and goodwill for all irrespective of party lines and relationships. Moral leadership must be firm, yet objective; sympathetic, yet determined to pursue its purposes which are calculated to benefit the people it serves. Moral leadership must be free from self-concern; it must be socially mature, dependable, and self-reliant.

In the endeavor to rehabilitate our schools in the pursuance of morality, the leaders in public and private life should rededicate themselves to the fulfillment of their responsibility in strengthening and developing the moral stamina of the citizens. The leaders should recognize their moral obligations to the community. It is they who by virtue of their leadership can initiate the moral rearmament of our people. Unless the present leaders become dynamically conscious and persistently active in their moral leadership in education, the present impasse in morality will continue unabated. The results are not too difficult to surmise. As a warning, in his opening speech to the faculty and staff members, Dr. Cicero D. Calderon, the new President of Silliman University, underscored the need to strengthen the moral fibers of the people. Our leaders in education should purge themselves of the vices that breed dishonesty and wickedness in public and private affairs. In the classrooms, on the athletic fields, in the halls of Congress, and in all government offices, there is a need for moral leadership to bring about a regeneration of spiritual values, morality, and discipline in education.

A SIMPLIFIED PROCEDURE FOR THE CULTURE OF VIRUSES

George W. Beran

Introduction

THE CULTURING of viruses in the laboratory poses difficulties not encountered in the culturing of the larger micro-organisms, namely the bacteria, the fungi and the protozoa. As the smallest of the organisms classified as micro-organisms, most individual viral particles can be visualized only with the aid of the electron microscope. The inability of viruses to replicate apart from the living cells in which they exist as obligate parasite precludes against their being cultured on artificial media.

The problem of the minute size of viruses can be resolved in many cases by visualizing the effects of viral activity rather than observing the viral particles themselves. Gross and microscopic observation of lesions produced in infected tissues enables the pathologist to characterize and classify many viral agents without seeing the actual viral particles.

The second problem of the obligate parasitism of viruses is less easily resolved in the laboratory. Although certain viruses may be cultured in experimental laboratory animals or embryonating hens' eggs, suitable laboratory animals have not been found for many viruses. Laboratory animals, being complex living hosts, often show variable responses to viral infection. They are frequently costly, difficult to maintain, and may even be dangerous to the experimenter.

In the last two decades, the cell culture method of supporting viral repiclation has been developed into an efficient and sensitive

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laboratory tool for the recognition, identification and characterization of viruses. The principles of the cell culture technique are simple. Sterile, living tissues are collected from avian, mammalian, or human hosts and cultured *in vitro*, usually in closed test tubes. Media are employed which provide essential nutrients to the living cells for reproduction and maintenance. Viruses are introduced into the cell cultures and the effects of their infections are observed with the aid of an ordinary light microscope, usually at a magnification of 40-100X.

Cell cultures may be derived from a wide variety of small laboratory animals and large wild or domestic animals and even from human tissues, providing a large host range for the culture of viruses. They may be maintained in a small space and are convenient to use, silent and safe. Their high degree of uniformity reduces the variability of response inate in the use of whole laboratory animals. Viruses cultured in cell cultures are readily recovered for further study or storage. Certain cell cultures, particularly those originating from malignant tissues may be subcultured from one culture tube to others. More frequently employed, however, are primary cultures which utilize fresh tissues from the host animals each time new sets of cell cultures are prepared.

Although the principles of the cell culture technique are simple, the procedures involved are specialized and sensitive. Recent developments in the technique have been toward the use of increasingly complex media and of more costly equipment. These refinements have led to more precise results and wider applicability of the cell culture method for viral studies. Many laboratories, however, which desire to use cell cultures and which have personnel who have received some training in their use, find the costs and technical difficulties too great to surmount.

These difficulties are especially marked in those countries where equipment and media must be imported, frequently at high cost and with long delays. Deterioration of imported items is often rapid and the lack of a repair part or a single chemical may cause the loss of valuable time or of a continuously maintained line of cells which may be difficult to replace.

Studies in the Silliman University Mission Hospital laboratory have been directed toward the development of cell culture techniques which incorporate as many as possible of the benefits of recent ad-

vances with a maximum simplication of the procedure. Primary emphasis has been on the development of primary cultures of monkey renal cells for the recognition of polioviruses, ECHO viruses, and influenza viruses in clinical specimens, the last by the aid of the hemadsorption technique, and for the preliminary classification of unidentifiable agents. The performance of more complex studies, particularly metabolic studies, may be more readily performed in the larger, better equipped laboratories. The procedures described here have utilized the simplest equipment, materials and techniques which were found to give satisfactory results. Economy of equipment was given preference over the reduction of labor whenever both could not be mutually achieved.

MATERIAL AND METHODS

The following minimum required items were available from local importers as standard items for hospital and clinical laboratory use.

Equipment and supplies purchased.

Balance, analytical, with weights, one only;
Refrigerator, household, one only;
Incubator, bacteriological, small, one only;
Centrifuge, laboratory, angle head, one only;
Burner, gas, pressure; or hot plate, electric, one only;
Cooker, pressure, household, ten liter size, one only;
Microscope, student type, one only;
Filter, Seitz, Model EK, 30 or 100 ml. capacity, one only;
Pads, filter, Seitz, Model ST, Size B or D, one package;
Aspirator, water, with rubber tubing, one unit;
Lamp, alcohol; or burner, Bunsen, one only;
Thermometer, laboratory, one only;
Flasks, Erlenmeyer, 250 ml., two or more;
Flask, suction, 250 or 1000 ml., one only;
Flask, boiling, flat bottom, 250 ml., one or more;
Beads, glass, solid, 5 mm., 50-100;
Cylinders, graduated, 100 ml., two or more;
Pipettes, 10 ml., six or more;
Pipettes, 1 ml., six or more;
Funnel, glass, one or more;
Plates, Petri, glass, two or more;
Tubes, test, 16 x 150-mm., 100-200;
Tubes, test, 13 x 100 mm., 50 or more;
Tubes, centrifuge, conical, calibrated, 12-15 ml., two or more;

Syringes, glass, 10 ml., two or more;
Needles hypodermic, 20 gauge 1-1/2 inch, two or more;
Scalpel, surgical, one or more;
Scissors, surgical, two or more;
Forceps, hemostatic, rat-nosed, two or more;
Forceps, thumb, rat-nosed, two or more;
Miscellaneous items: wrapping paper, rubber bands, string, gauze, cotton or kapok, waxed paper, household detergent, glass marking pencils, assorted bottles for chemicals and solutions, assorted cans to hold equipment for sterilization or storage.

Equipment and supplies made in laboratory.

Pipettes capillary: Drawn from glass tubing. Etched at 0.1, 0.2, and 1.0 ml. contents;
Racks, test tube, vertical: Wooden blocks with holes drilled to fit tubes;
Racks, cell culture tubes 6° from horizontal; Wood and fiber board construction with holes drilled to fit tubes;
Holder, cell culture tubes 6° from horizontal; microscope: Wooden block with center hole for passage of light through tube, groove to hold tube;
Pans, washing, and racks, glassware: Cut from 19 liter kerosene cans, painted with white enamel.

Solutions and media.

Hank's Basic Salt Solution (BSS), modified[1]

Distilled water	1000 ml.
NaCl	8.0 gm.
KCl	400 mg.
$MgSO_4.7H_2O$	200 mg.
Na_2HPO_4	60 mg.
KH_2PO_4	60 mg.
Glucose	1.0 gm.
Penicillin	100,000 u.
Streptomycin	100 mg.
Mycostatin	10,000 u.
$CaCl_2$	140 mg.
$NaHCO_3$	350 mg.

Add components in order listed, Sterilize by Seitz filtration. For sterilization by autoclaving, solution A $=$ $NaHCO_3$ in 50 ml. water, solution B $=$ other components in 950 ml. water. Autoclave 10 lbs. pressure for 10 min. Store not over 12 hours at room temperature or 24 hours in refrigerator. Mix solutions A and B before using.

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[1] Hanks, J. H., and Wallace, R. E., "Relation of Oxygen and Temperature in the Preservation of Tissues by Refrigeration," Proceedings of the Society for Experimental Biology and Medicine, Vol. 71, 1949, p. 196-200.

Phosphate Buffered Saline (PBS), modified[2]

Distilled water	1000 ml.
NaCl	8.0 mg.
KCl	200 mg.
Na_2HPO_4	1.15 gm.
KH_2PO_4	200 mg.
Penicillin	100,000 u.
Streptomycin	100 mg.
Mycostatin	10,000 u.
$MgCl_2.6H_2O$	100 mg.
$CaCl_2$	100 mg.

Add components in order listed. Sterilize by Seitz filtration. For sterilization by autoclaving, solution A = $MgCl_2.6H_2O$ + $CaCl_2$ in 100 ml. water, solution B=other components in 900 ml. water. Autoclave 10 lbs. pressure for 10 min. Store not over 12 hours at room temperature or 24 hours in refrigerator. Mix solutions A and B before using.

Chick Embryo Extract, aqueous (CEE)

9-10 day chick embryos, eyes removed, and adjuncted fluids	50.0 ml.
Phosphate buffered saline, sterile	50.0 ml.
Penicillin	10,000 u.
Streptomycin	10 mg.
Mycostatin	1,000 u.

Employ sterile equipment and aseptic precautions throughout.

Homogenize embryos and adjuncted fluids in mortar with sterilized washed sea sand. Add PBS and antibiotics. Stand at room temperature 30 min. Stand frozen in freezing compartment of refrigerator overnight. Thaw and refreeze two additional times. Clarify by centrifugation 3000 rpm. for 20 min. and decant supernatant fluids, or by Seitz filtration. Store in refrigerator not over 6 months.

Ascitic Fluid (AF)

Obtain by aseptic paracentesis from patients with cirrhosis of the liver. Culture to ensure bacterial sterility. Store in sterile bottles in refrigerator not over 6 months.

Monkey Serum

Obtain by cardiac puncture of anesthetitized monkeys. Aseptically separate serum from retracted clot and store in sterile bottles in regrigerator not over 6 months.

Trypsin Solution[3]

Trypsin 1:250	2.50 gm.
Distilled water	1000 ml.

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[2]Dulbecco, R., and Vogt, M., "Plaque Formation and Isolation of Pure Lines of Poliomyelitis Viruses," *Journal of Experimental Medicine,* Vol. 99, 1954, p. 167-182.

[3] Dulbecco, R. and Vogt, M., *op. cit.*

Penicillin	100,000 u.
Streptomycin	100 mg.
Mycostatin	10,000 u.

Sterilize by Seitz filtration. Store in refrigerator not over 6 months.

Distilled Water

Single distilled in Barnstead(R) still. Boil 1/2 hours before use in cell culture solutions.

Pomerat's Ascitic Fluid Medium, modified[4]

BSS	450 ml.
CEE	50 ml.
AF	500 ml.

Adjust to pH 6.8-7.0 with NaOH or HCl as needed, using Fisher's Gramercy Universal Indicator(R)

Melnick's Lactalbumin Medium, modified[5]

BSS	980 ml.
Lactalbumin Enzymatic Hydrolysate (LEH)	2.5 gm.
Monkey Serum	20 ml.

Pancreatic Digest of Casein (PDC) may be subsituted for LEH

Adjust pH to 6.8-7.0

Gramercy Universal Indicator(R)

BSS	950 ml.
LEH or PDC	2.5 gm.
Yeastolate	1.0 gm.
CEE	50 ml.

Adjust to pH 7.0-7.2

RESULTS

Handling of equipment. All glassware and instruments were washed in tapwater with the aid of household detergent. Pipettes were washed by bubbling detergent solution through them with the aid of a water aspirator. All items were rinsed for one minute under flowing tap water. Cell culture tubes were rinsed four times in flowing distilled water. Other items were rinsed twice by serial dipping in pans of distilled water. (*See Figure* 1.)

Test tubes, flasks, and cylinders were closed with kapok plugs wrapped with gauze and tied with string. Kapok was locally available and naturally water repellent, making it a satisfactory subs-

[4] Pomerat, C. M. "Motion Picture Studies of Living Papilloma of the Breast and Breast Cancer," *Texas Reports on Biology and Medicine*, Vol. 10, 1952, p. 217-227.

[5] Melnick, J. L. "Tissue Culture Techniques and their Application to Original Isolation, Growth, and Assay of Poliomyelitis and Orphan Viruses", *Annals of the New York Academy of Science*, Vol. 61, 1955, p. 754-773.

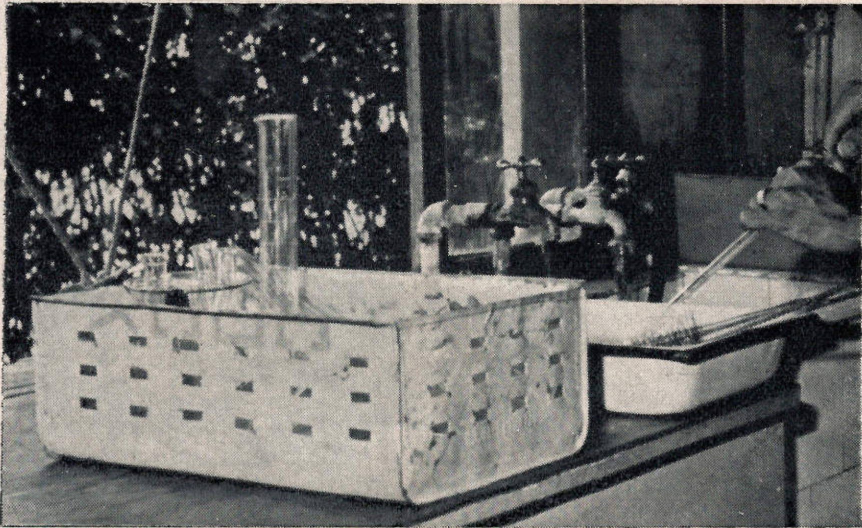

FIGURE 1: WASHING GLASSWARE. Glassware rack made from 19-liter kerosene can. Water aspirator on faucet draws detergent solution through pipette.

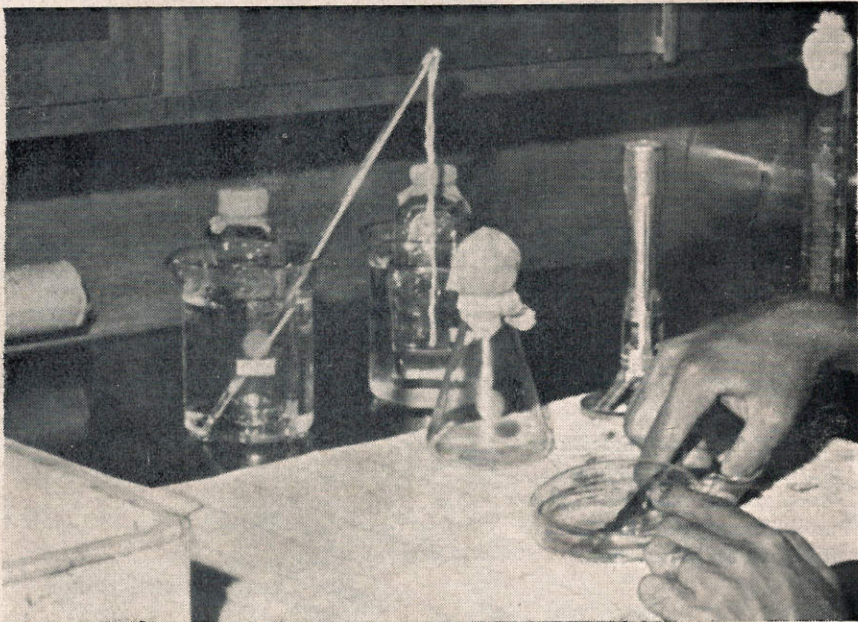

FIGURE 2: MINCING OF KIDNEY CORTEX with scissors. Bottles in water in beakers contain PBS and trypsin solutions at 37°C. Plugs are gauze-covered kapok.

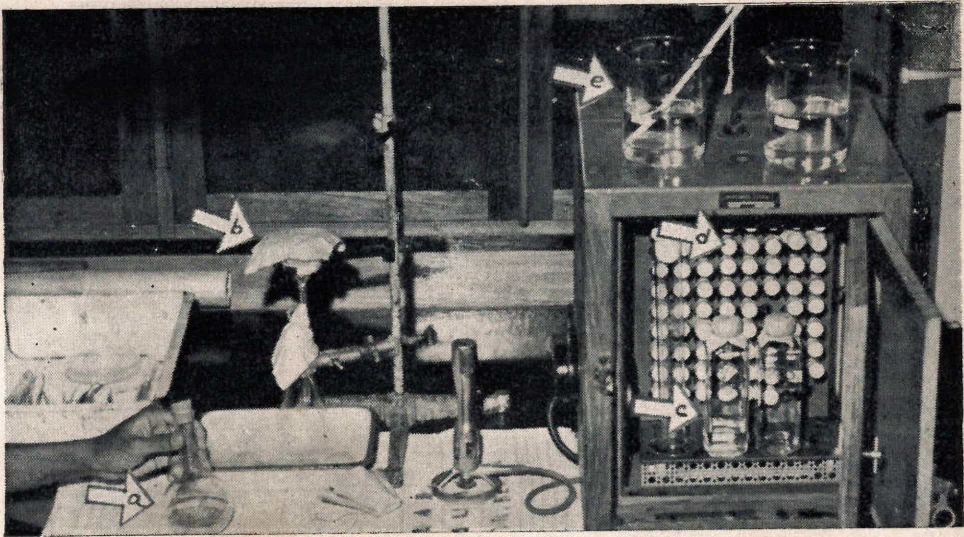

FIGURE 3: TRYPSINIZATION OF MINCED KIDNEYS. (a.) Spherical flask with glass beads for enzymatic extraction. (b.) Gauze-covered funnel and flask in ice bath for dispersed cells. (c.) Bottles of solutions in 37° incubator. (d.) Cell cultures in rack in incubator. (e.) Beakers of water used to heat solutions to 37°C.

FIGURE 4: MICROSCOPIC EXAMINATION OF CELL CULTURES. (a.) Wood rack to hold tubes. Natural light is used to illumine field under observation.

titute for nonabsorbent cotton. The plugs were reused until worn. Wrapping paper was used for hoods over kapok-plugged vessels and for wrapping instruments, mortars and pestles, Petri plates, pipettes, funnels, syringes and needles.

Autoclaving was performed in a household pressure cooker, being careful to maintain a pressure of 15 lbs. for 20 minutes. Sterilization indicators were not employed. Each item was marked "Sterile" with a wax pencil as it was taken from the cooker. Moisture remaining in the glassware was allowed to evaporate during storage or was removed by placing the items in the incubator set at 60-70°C.

Contaminated equipment was boiled for 20 minutes immersed in tapwater with one teaspoon of detergent per four liters of water before being washed.

Preparation of renal cells for culture. The method employed was a modification of that described by Youngner.[6] Healthy, immature monkeys (*Macaque cynamologus*) were anesthetized with ether and exsanguinated by cardiac puncture. The blood was preserved to supply serum for media or alternately the whole blood was utilized to prepare blood agar plates for bacteriological studies.

Immediately following death of the monkeys, the kidneys were aseptically removed and placed in sterile Petri plates. The capsule and medulla were dissected from the cortex of each kidney and the cortical area was minced into segments 4-6 mm. in diameter with scissors. Careful aseptic technique was employed throughout the procedure. (*See Figure* 2.)

Before proceeding further, trypsin and PBS solutions were warmed to 37°C in beakers, or a pan of water, with the aid of a gas burner or hot plate. The solutions were then placed in the incubator at 37°C to maintain this temperature during the remainder of the operation, affording an effective substitute for the constant temperature water bath.

The minced tissues were then placed in a sterile Erlenmeyer flask and washed three times with warm PBS, using 20 ml. of the salt solution per kidney for each washing. Following decanting of the last wash solution, the PBS was replaced with 20 ml. per kidney

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[6] Youngner, J. S. "Monolayer Tissue Cultures. I. Preparation and Standardization of Suspensions of Trypsin-Dispersed Monkey Kidney Cells," *Proceedings of the Society for Experimental Biology and Medicine*, Vol. 85, 1954, p. 202-205.

of warmed trypsin solution. After five minutes of gentle agitation, the trypsin was removed by decanting and discarded. These four washings were performed to remove blood, urine, and fragmented cells remaining in the mass of minced kidneys.

Trypsin solution was again added to the minced kidneys; the mass was swirled; and the suspension of kidney segments was transferred aseptically to a sterile boiling type flask containing approximately 50 glass beads. The flask was shaken to agitate the kidney segments in the trypsin solution by the action of the glass beads. Tryptic digestion of the intracellular cement of the kidney tissue was allowed to procede under agitation for seven to ten minutes until the solution became cloudy. The shaking was then stopped to allow the large particles to settle from the trypsin solution. The trypsin with its suspended cells were decanted into a glass funnel covered with four layers of sterile gauze and into a sterile flask placed in an ice water bath. The gauze pad acted to remove tissue fragments that remained suspended. Further tryptic action on the isolated cells was prevented by cooling in the ice bath. (*See Figure* 3.)

Five to eight further extractions were performed in the flask with glass beads until the majority of the epithelial cells were removed and the exhausted cortical fragments remained as white threads of connective tissue. The chilled suspensions of epithelial cells in trypsin were transferred into sterile 16 x 150 mm. test tubes and separated by centrifugation in the angle head centrifuge at 800 rpm for 5 minutes or by standing in the refrigerator for two hours. The supernatent trypsin solution was removed from the sedimented cells by decanting or by aspiration with a 10 ml. pipette fitted with a rubber bulb. The cells were resuspended in an estimated 20 volumes of sterile chilled BSS by aspiration into and expulsion from a 10 ml. pipette. They were resedimented by centrifugation or standing as before. Two to three washings were considered adequate to remove all remaining trypsin from the cells. The last washing was performed in sterile conical centrifuge tubes to facilitate measurement of the sedimented cell volume. After removal of the last wash fluid, the sedimented cells were resuspended in a small volume of cell culture growth medium and diluted to form a 1:200 suspension by volume in a flask of growth medium. This cell suspension was distributed in one ml. aliquots into 16 x 150 mm. culture tubes with the aid of a 10 ml. pipette. Before each additional 10 ml. sample

was withdrawn from the flask, the cells were resuspended by aspiration and expulsion with a pipette. The culture tubes were closed with gauze-wrapped kapok plugs and covered with two thicknesses of waxed paper secured with rubber bands to reduce the escape of carbon dioxide from the tubes. In later studies, white rubber stoppers were available and proved to be more convenient, but no more effective in closing the culture tubes.

Culture media employed. The relatively simple culture medium described by Pomerat in 1952[7] supported satisfactory growth of the cells. The lactalbumin medium[8] or the digest of casein medium were also simply compounded and proved to be satisfactory growth media. Since these media contained ascitic fluid or serum, the danger existed that they might contain antibodies that would interfere with viral replication, so the maintenance medium was formulated to contain neither of these components.

Care of cell cultures. Culture tubes containing cells suspended in growth medium were marked with a wax pencil by lines near the openings parallel to the long axis of the tubes. They were placed in the incubator at 37°C in racks 6° from horizontal and rotated until the wax pencil lines were at the tops of the tubes. The cultures were left undisturbed for three days to allow the cells to settle from the growth medium and attach to the inside walls of the tubes. After the third day, a sampling of the culture tubes was examined microscopically each day to observe the growth of the cells into a monolayer. At the time the cell sheets had developed over approximately one half of the area covered by medium when the tubes were in the incubating positions, the spent medium was decanted from the tubes and replaced with newly prepared growth medium, observing strict aseptic precautions. At the time of the replenishment of the growth medium, usually on the fourth to sixth day of culture, the pH of the spent medium was found to be 5.5-6.0. The tubes were returned to the incubator as before.

Daily microscopic observations of the cultures were made until the cell sheets were developed into confluent monolayers on the inside walls of the tubes. At this time the growth medium was removed. One ml. aliquots of sterile BSS were placed into each tube and de-

[7] Pomerat, C. M., *op. cit.*

[8] Melnick, J. L., *op. cit.*

canted so that the fluid flowed over the cell layer and out of the tube. The culture tubes were then replenished with sterile maintenance medium and returned to the incubator for one to four days. At this time, the tubes were examined for the presence of contaminating bacteria by observing for cloudiness of the medium, and tubes showing no evidence of contamination were inoculated with specimens for viral study. Tubes kept for more than four days were replenished with newly prepared maintenance medium before inoculation. Satisfactory maintenance of the cells was usually obtained for ten days without further replenishment of the maintenance medium following inoculation.

Handling of specimens. Throat swabs, fecal specimens, and tissues or body fluids collected at necropsy were stored in the freezing compartment of the refrigerator until processed for viral assay. Particulate matter and absorbed fluids collected on throat swabs were suspended in 2 ml. each of sterile PBS in sterile 13 x 100 mm. test tubes by swirling the swabs in the fluid and expressing them against the inside walls of the tubes. Fecal samples or tissue specimens were homogenized in sterile mortars to make 10% suspensions in sterile PBS. Body fluids were diluted to make a 10% solution in PBS. All suspensions were clarified by centrifugation at 3000 rpm for 30 minutes or by standing in the refrigerator overnight and the supernatent fluids were decanted or aspirated into sterile 13 x 100 mm. test tubes. Antibiotics were added at the rate of 50,000 u. of penicillin, 50 mg. of streptomycin, and 5,000 u. of Mycostatin per ml. of fluid. The tubes were plugged, hooded with waxed paper, and stored in the frozen state. Blood samples collected by venipuncture were kept at room temperature until the blood clotted and then placed in the refrigerator until the clots retracted. The sera were decanted into 13 x 100 mm. test tubes, closed and stored as described above.

The saline extracts of the specimens were assayed for viruses by placing 0.1 ml. aliquots of each extract into 2-3 cell cultures each, with the aid of capillary pipettes. The inoculated cultures were maintained in the incubator and observed microscopically every 1-2 days. Cultures showing microscopic evidence of viral activity were harvested at the time that cytopathic degeneration of the cell sheet appeared to be maximal. Cultures were harvested by vigorously shaking the culture tubes and pouring the fluids into sterile 13 x100

mm. test tubes. These tubes are closed and stored in the freezing compartment of the refrigerator. Inoculated cultures which failed to show evidence of viral activity within ten days of observation were either recorded as negative or the fluids were subcultured into newly prepared cell cultures and observed for an additional ten days.

DISCUSSION

The cell culture method employed in this study was found to support the replication of enteroviruses and influence viruses of human origin for isolation and serologic studies. The glass bead method for trypsin extraction of renal cells was found by comparative studies with the tissue blendor method to give equal or higher yields of viable cells. The lack of an indicator dye in the growth and maintenance media was found to be no handicap if the medium changes were scheduled by the development of the cell sheet as outlined.

This description of a simplified procedure for the production and use of cell cultures for viral study is intended for the microbiologist or medical technologist who has a general knowledge of the cell culture method but may not have access to the literature on the subject. For this reason, the principles underlying each phase of the operation are not discussed in as much detail as is allotted to the mechanics of the procedures and the formulation of the media involved.

SUMMARY

Laboratory aid in the diagnosis of viral diseases is becoming an urgent need in hospitals throughout the world. The economic and technical difficulties involved in the utilization of modern methods of virus culture preclude their use in medium size or even large hospitals or research laboratories in many countries. By the utilization of the simplified procedures described in this report, the required equipment and chemicals for the production of cell cultures which satisfactorily support the replication of enteroviruses and influenza viruses from human patients can be limited to items of standard supply for clinical laboratories.

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THE HUMBLE AGENT

John C. Kennedy

AS A Peace Corps volunteer I have seen some of the needs of the land in parts of Luzon and in parts of Negros Oriental. I do not write as an expert in any of these matters having to do with soil, but I am an interested amateur who has worked on the land, studied the subject in marginal hours for years, and spent a good deal of time touring the United States, Europe, England and Scotland following the "compost trail".

My general conclusions, after having demonstrated compost-making to several hundred barrio and *poblacion* farmers and gardeners in the Philippines, is that they do not know much about compost although they do ask intelligent and searching questions, and they do show a remarkable amount of interest. Whether this interest will continue through the making, developing, and maturing of a pile is, of course, the question that is pertinent.

I tell them in these demonstration-talks that I have nothing to sell to them, only some personal experience and a deep conviction to share; and I urge them to believe nothing solely on my word. Use the scientific method: try making compost. It is simple. Everything is at hand in these delightful islands. After having made their own piles they can make their own judgment on the results. But they should be sure to understand that bad compost *can* be made.

The late Dr. Leonard Wickenden, a distinguished scientist of the United States, writes in *Gardening with Nature* (pp. 24-25):

> All gardeners who steadily feed their soil with properly prepared compost are astonished at its potency. The results obtained by it are much too impressive to be explained by the nutrients it contains. It produces plants with extraordinary vigor and of great productiveness. Bean bushes are loaded, pea vines heavy with plump pods, cauliflower heads majestic, onions large and

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JOHN C. KENNEDY, *a member of the Oberlin College administrative staff for thirty years, has used his marginal time to do gardening and composting. He joined the Peace Corps last year to help teachers in Negros Oriental build good compost piles as part of the gardening course in Philippine elementary schools.*

solid, things *grow* in it, flowers and vegetables alike, and are so handsomely healthy that the gardener knows that something is at work in his garden of which he is only the humble agent and which is doing for him what all his skill and experience could never accomplish unaided.

On the basis of chemical analysis compost is, of course, a good fertilizer; it contains nitrogen, phosphorus and potash, and (as a consequence of its mixed composition) a long line of trace elements. But that is a small part of the story. The heap is a culture bed for microorganisms of many different kinds. When you put compost on your soil you put life into it: *the value of that life is something of which, at present, we have learned only a small part.* There is no doubt that many of these organisms secrete antibiotics which protect our plants against disease: or that some of them fix nitrogen from the air; or that compost greatly increases earthworm population; or that it improves the texture of soil and its water-holding properties or that the acids formed during its decomposition dissolve and make available some of the great store of minerals in the subsoil. But above and beyond all this, the experienced compost gardener is convinced that the full story of compost is not yet known.

Compost needs to be properly proportioned if it is to be good, so a scheme of measuring the ingredients has to be developed. The same is true of a cake. Does a good cook use rotten eggs, uncertain contaminated milk, and a crusted, ant-infested sugar brought in from the back yard? Indeed not! She measures clean and fresh materials carefully, bakes them precisely, and keeps meticulously clean the resulting dessert, serving it to the family the way approved by custom and logic. The same is true of compost: measure honest materials, aerate them properly, and the result will be compost.

What are these honest materials? The ingredients of a compost pile are organic materials of animal and vegetable origin—like garbage, straw, leaves, seaweed, any animal or human manures, fish-market refuse, slaughter-house wastes—topsoil, and wood ashes. Some folk would call these materials filth: this article is not for them.

I usually propose for the individual gardener a 4ft.-by-4ft. or a 6ft.-by-6ft, pile placed on top of soil that is well-drained. Skin off any sod that may be present. Spread 6 *inches* of organic material within an enclosure of bamboo or other fencing that will keep stray animals out of the pile. If the materials are built around a bamboo pole 6 or 7 feet long which is stood in the center of the enclosure and removed when the pile is finished, increased aeration results. If the material is dry straw, give it a good soaking before laying

it down, so that it will have absorbed plenty of water; if the material is wet, like newly cut banana stalks, just shred it somewhat to assist the decomposition; mixing materials like straw and juicy material like newly cut and shredded banana stalks is good practice.

Next add about *an inch* of manure. If you can mix manures, do so. (Chicken manure with its highly concentrated character will do its job in a compost pile in a half-inch layer.) Human feces that are infected should be placed near the center of the pile, where the temperature becomes higher than at the edge.

Over the manure goes about *an inch* of topsoil, and *a sprinkling* of wood ashes (or agricultural lime—ground limestone—if wood ashes are not available).

These layerings set the proportions for the compost "cake". Construct additional layerings in similar fashion until your material is used up, or you have reached a height of about five feet.

As the fermentation requires air, it is essential that the pile be constructed so that air is constantly present. Then heat will be generated within 48 hours, and it is well to cover the pile with a coating of topsoil or old burlap or palm fronds so as to conserve as much heat within the pile as possible. It is an interesting scientific exercise to keep a chart of the heat rise and fall in the pile. Gardening teachers can use this dramatic temperature rise as a striking illustration of the heat generated in the fermentation process.

When the temperature begins to fall, the time has come to "turn" the pile: that is, to shift it to another spot, putting the outside of the pile on the inside of the new pile, so that all the materials may have the maximum heat treatment. For the temperature rises again in the "turned" pile, and on the second falling of temperature the pile should be again turned. The composter will then let the compost mature until in his judgment it is ready to be applied to the land as a mulch, a total of perhaps 6 weeks. The condition of the compost will vary according to the materials of which it is composed, the weather, the moisture content, and aeration. If the composter wishes a very fine compost, suitable for indoor potting, he will turn the pile a third time and use the compost when it has reached a stage of fineness that meets his desire.

Dr. Scharff found that temperatures went to 168 degrees Fahrenheit (app. 77 degrees Centigrade) in the center section of a well-

made compost pile, and cites authorities who proved that 132 degrees Fahrenheit killed all pathogens, including ascaris and the common hookworm. Like Sir Albert Howard before him, Dr. Scharff emphasized the importance of the sanitizing effect of composting human wastes; one does not need to elaborate the meaning of this virtue of compost in the cholera situation here in the Philippines, but Holman's statement in *Mother Earth* (October 1960, p. 372) will be of interest:

> Louis Pasteur emphasized that it is far more important to prevent a disease than to treat it. It is eminently obvious to all that the majority of those disease processes which have almost been abolished from the civilized races, *e.g.*: plague, typhoid, cholera, have been controlled by preventive means and not by cure.

For convincing, up-to-the-minute, authoritative data on this subject and the fact that Pasteur meant sanitation and not innoculation, interested parties are referred to René DuBois's recent book, *The Mirage of Health.*

My own amateurish study of soil in two provinces of the Philippines indicates that the great need is for more humus to support more soil life—indeed this is the need of most soils over the world. The manifesto of the Friends of the Land, an American group interested in contemporary land problems, includes the following: "Evidence on this point is far from complete, but the trend of accumulated findings is unmistakable. If the soil does not have the essential elements in it, plants that grow there do not; nor do animals that eat those plants; nor do people throughout a country who eat those plants and animals. Soil debility soon removes stiffening lime from the national backbone, lowers the beat and vigor of the national bloodstream, and leads to a devitalized society." This is the reason why we must go back to our soils if we wish to build health in our people. Most of us look to our medical doctors to keep us in a state of health: let us realize that our farmers are basically responsible for the health of our people. Dr. Jonathan Forman, dealing with an American problem, recently said: "American medicine exists for the care of the sick. It has nothing to do directly with health. The prevention of diseases from now on is pretty largely an individual matter—a personal responsibility." Filipinos will have to determine for themselves whether they must shoulder a similar responsibility.

Dr. W. Coda Martin, in a talk before the National Dietary Food Association in the United States, said:

> Man is a living dynamic organism. He is a three-fold being consisting of body, mind and spirit. Therefore scientists cannot produce food for living organisms, plants, animals or humans, by methods applicable to those used for dead or inanimate machines . . . Only on a fertile soil, with a high percentage of organic matter, which in itself is a living organism, with its teeming millions of microorganisms, and a balance of trace minerals as well as controlled moisture content, can we produce a protein of high biological value that will maintain cell life and the forces for procreation. . . Only life reproduces life. Unless we understand and apply these basic truths, our revolution in nutrition will produce only chemically pure foods, which will not sustain life. Such food can be classified as a poison . . . Animal feeding tests show that the imbalanced protein molecule in plants today, which is of a low biological order, will produce metabolic diseases and thus is a poison.

I shall not further labor the importance of fertility except to ask, Could our schools have a better scientific challenge—from elementary grades through the university—than this? Elaborate science laboratories are not needed for studies in animal nutrition. Our own rats, mice, rabbits, cats, dogs, pigs, and chickens can be raised with a minimum of trouble and with vast amusement for the students: feeding experiments, running through several generations and involving controls and meticulously kept records, with composted versus chemically fertilized foods will give us opportunity to teach science methods and to get answers for whatever questions we raise about food quality.

May not compost be the key that will unlock the tremendous agricultural potential of this lovely land? It costs nothing but a little labor, it can be prepared on a garden or a farm scale, and it can be made by municipalities with or without modern machinery.* Is compost not the positive answer to the problem of sewage disposal that has plagued all men everywhere through the ages?

Fertilizer, sanitizer, health-builder in plant and animal: these are the prospects when good compost is made. I think here of what a prominent plant pathologist recently vouchsafed to me. "Compost

* On February 15, 1962, the Siaton (Negros Oriental, Philippines) Municipal Council voted to conduct municipal composting experiments.

lunatics," he said, "claim that compost will do anything and everything." Among this tribe, I am sure, there are those who are a trifle too enthusiastic, and I will plead guilty to being a trifle enthusiastic. In the same breath I will insist that I have made and used compost, and I have seen something of what it will do. My best wish for the reader who has lasted to this point is that he, too, will see what it can do for him.

POSTSCRIPT

As a postscript I should like to add that if you are in a hurry to make compost, you can use succulent plant materials—like shredded banana stalk—and turn the pile every second or third day. This use of succulents only in the pile makes for faster action and is supposed to give good compost in the Philippines in two weeks; my own experience to this point has been with tougher run-of-the-mine materials which take longer to break down, but I shall certainly experiment with two piles now, one of succulents and the other of everything else of plant origin that comes to hand.

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This paper is written a half-world away from my library, so footnoting each item I have borrowed is impossible. My impertinence can only be partially explained by the statement that I have made most of the material my own by practising the organic approach to agriculture. Below are some authorities that may be checked by those interested. —J.C.K.

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BOOK REPORT

BEYOND BLASPHEMY AND PRAYERS

The Plague. By Albert Camus. Translated from the French by Stuart Gilbert. Penguin Books. Re-issue, 1960.

OUR TIMES have been variously referred to as the Age of Nuclear Fission, the Atomic Age, the age of Thermodynamics, the Age of Space. But even without these identifying tags our times may be easily recognized through the new set of attitudes that are evolving in our society pointing a new direction to an ethos appropriate to the changes that have taken place in a nuclear-conscious world.

Anyone interested in a searching look into the conscience of our times will be stimulated by the novel entitled *The Plague,* written by the late Albert Camus, winner of the Nobel Prize Award in literature for 1957. In a quiet, very moving manner Camus, in *The Plague,* asks the big questions that assail every thinking man in every age. Large and basic and universal, these questions are concerned with three things: Faith, Life, and Death. Camus probes into the sensitive areas of our conscience and renders his penetrating and often tortured searching into these three areas as the individual in our society encounters them. Camus renders these problems of faith and life and death so honestly and hauntingly in his several works that his citation for the Nobel Prize honors him not only for "his important literary production," but also "for illuminating the problems of the human conscience in our time."

Albert Camus was born in Algeria in 1913, of a French father and a Spanish mother. He was brought up in North Africa and held many jobs there before he came to Metropolitan France and took up journalism. He was active during the German occupation and became editor of the underground paper, *Combat.* Albert Camus is the author of a prewar play, *Caligula,* and during the war he wrote the two books that first brought him fame and attention. These two books are *L'Etranger* (*The Stranger*) and *Le Mythe de Sisyphe* (*The Myth of Sisyphus*). He left politics and journalism and devoted himself to artistic writing, and established an international

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reputation with such books as *Les Justes, The Rebel,* and the novel which is the subject of this review.

The Plague is the allegorical story of the town of Oran in Algeria as it is stricken by the bubonic plague and held in a state of quarantine from the rest of the world for about a year. Like many books that ask far-reaching questions. *The Plague* may be interpreted on more than one level—as a matter of fact, this reviewer sees this book on four planes of interpretation. First, there is the level that treats the plague as an actual plague, and the interest here, therefore, is what happens to the people of the stricken town, how they react to the constant shadow of death over them, what they feel about the deaths day by day, by the hundreds, of their friends and neighbors. That is the first level of interpretation.

Then there is the level on which the book is perhaps most often interpreted: that the plague is not an actual plague but is meant as a parable of the resistance movement couched in terms of a city under sentence of the bubonic plague. In other words, by this second interpretation, the plague is the symbolic representation of the German occupation.

A third level may see the plague neither as an actual epidemic, nor as a parable of what happens to people in a war, but as an allegory of the fate of man. On this third level of interpretation the plague is just life, where our common, everyday existence is experienced as an unnatural disease that plagues a world which should be naturally healthy and happy otherwise. Day-to-day living is seen as a drawn-out plague from which we escape only by our death. A very depressing outlook, indeed.

This reviewer offers the fourth level as an interpretation that considers the plague not as the regular everyday order of life, but rather as the irregular, sporadic vicissitudes that agitate a normal and placid existence. By the fourth interpretation, the plague does not stand for the expected order of things, but for the occasional crisis of events that shakes people out of their smugness and complacency, as some financial misfortune, perhaps, or an emotional upheaval, or the like.

Even when read on the first level, that is, as a pure narrative, the book is admirable for its relentless and detailed description. People who are distinctly individualized move through the fabric of this tale of death and horror, people who give the book its color

and pattern through their brilliant projection upon page after fascinating page. The author causes us not only to see but also to palpate, so to speak, every character, by his faithful delineation of motives, a delineation which is sure, restrained, objective, but always sympathetic. The physical details of the plague are depicted in the factual and controlled manner of a chronicler, never exaggerated, but nevertheless bringing forth a picture of the epidemic in all its tense and naked horror.

Read on the second level, the book shows the allegory of war through the state of siege in which the town is held for about a year. Members of families are separated from each other and communication is nearly impossible. There are sentries posted at the gate to prevent people from escaping and thus violating the isolation imposed on the whole town. There is rationing of food, and there is the monotony of an existence cut off from the rest of the world, where, for example, the same movies are shown over and over again for lack of new films coming in; and worst of all, there are the victims dying by the hundreds, and the constant sword of death hanging over everyone's head. These conditions are alike both in a state of plague and in a state of war. It is therefore not difficult to see the plague as a parable of the resistance movement during the German occupation.

Read on the third plane of interpretation, that is as an allegory of man's fate, the book assumes significant proportions, for here the plague is interpreted as life itself. On this level, as well as on the fourth level, where the plague may be seen as the sporadic and evil vicissitudes that afflict mankind—on these two levels, the third and fourth, the big questions of the book are asked regarding faith, life, and death.

If the whole of life is a plague, where is its meaning? If life is a plague and death is the only deliverance, what, then, is the faith that should sustain us? If life is a constant and unremitting plague, then death is not a gateway to the fulfillment of this life, but death becomes an end in itself; extinction is therefore to be courted and sought and anticipated for its own sake, merely because it will mean cessation, particularly the cessation of torture and suffering.

At this point, however, I wish to bring out the fact that Camus sees man, ideally, not as a rat beleaguered by a plague, but as a proud and silent creature who sees the inevitable end but who ne-

vertheless, out of his stubbornness and his dignity, still struggles against the incontrovertible defeat that soon overwhelms him and wipes him out. The whole story, as a matter of fact, poses the problem of man in the midst of evil and misery, and each of the characters in the novel represents a distinct way of responding to this evil and misery.

I shall mention only five characters, and the manner in which each one conducts himself during the plague. There is Cottard, who, in normal times, is an unhappy man because he is a coward and a weakling, but who, during the plague, makes money and becomes rich and happy in the misery of his fellows. Unlike the other characters, Cottard never offers himself as a volunteer in the fight against the disease. He just looks out for himself. In the end, when the plague subsides and the town cheerfully goes back to normal, Cottard refuses to rejoice with the others. He returns to his cowardly ways and to his self-recriminations, and eventually goes out of his mind and shoots people in a spell of violent madness.

There is Grand, the very ordinary man with ambitions quite above his ordinary powers. Grand is neither unusual nor heroic. But he offers his services as a volunteer to care for the victims and he almost dies as a result of the contagion. Grand offers himself, not out of heroics, but simply as a matter of course.

There is Rambert, a transient in the town, a stranger who starts out by persistently trying to escape from the town to rejoin his wife, but who ends up by voluntarily throwing away the chance to escape when it finally comes, and choosing instead to stay as a volunteer to care for the sick. In the end, Rambert no longer feels himself a stranger, but as one united with the town in the common struggle against the disease.

Then there is Tarrou, the sensitive, thinking man who is battling his way toward a philosophy of a life that is seen only as an endless period of suffering. The attitude Tarrou finally evolves toward evil and suffering is one that glorifies man's attempt to endure with dignity, to fight as long as one can, to do one's utmost in minimizing the suffering of others, and finally to die—as Tarron does die in the book—without losing a shred of courage or will to endure. The philosophy here is very reminiscent of Hemingway, but more charged with the dark Existentialist undertones of Sartre or André Malreux.

Finally, there is the narrator who is himself a character in the story: Dr. Bernard Rieux, the doctor who chronicles the days of the plague. For his so-called documentation of the events, Dr. Rieux leans heavily on the notes of Tarrou, his right-hand man in the fight against the disease. Helped by Tarrou and a number of other volunteers, Dr. Rieux spearheads the efforts to care for the victims day after day, with all the strength and skill and dedication he is capable of—and like Tarrou he looks upon his services not as anything heroic, but only as a gesture of common sense. It has to be done, so Dr. Rieux explains, the sick have to be cared for, the inflamed and ravaged bodies have to be incised of their swelling buboes, serum has to be concocted and administered, the dead have to be carted off and buried. So this man, Dr. Rieux, self-forgetting, self-giving, sacrificial in the extreme, drains himself in alleviating the pains of his fellowmen; and yet he himself considers this deed as nothing unusual, but as just plain common sense. It is not heroics, it is not even duty, it is just logic, he says, a thing that has to be done. And yet throughout this astonishing and consecrated ministry to the sick, the unemotional Dr. Rieux has been compassionate and very tender, and his own spirit wounded over and over again at the sight of so much pain.

To this reviewer, in the character of Dr. Rieux lies the terrible irony, the painful but triumphant paradox which the book is trying to resolve. I say it is a paradox because Dr. Rieux is an acknowledged atheist, a man who believes in man but who does not believe in God, who says, in his own words: "Since the order of the world is shaped by death, might it not be better for God if we refuse to believe in Him, and struggle with all our might against death without raising our eyes towards heaven where He sits silent?"

And this is why I also say that in a very real sense, Dr. Rieux is Albert Camus himself: the man with a deep-seated belief in man's defeat, but also with an equally deep-seated belief in man's courage in accepting that defeat, and who further believes that man's aim for living is to minimize the pains of that life-long, never-ending defeat. Albert Camus, therefore, is a humanist, a sensitive, hopeful atheist who, at the time of his best works, was groping his way to God, not through the easy acceptance of a traditional faith, but by making his way toward a higher faith through questioning, through not accepting, through shaping his truth anew in the not-too-certain

light of the values of our own time. Understandably, his was a faith hardly won, too cautious and perilously balanced above the hollows and pitfalls, above the pocked and gouged-out terrain that modern man is making of his world. Yet had Camus not died, his faith would have been surely won, as evidenced by statements in his books that bespeak a growing, yet a careful and timid faith. He says: "If there is one thing one can always yearn for, and sometimes attain, it is human love." In another place: "A loveless world is a dead world, and always there comes an hour when one is weary of prisons, of one's work, and of devotion to duty, and all one craves for is a loved face, the warmth and wonder of a loving heart."

From the love of man, it is not an impossible step to the love of God. Camus loved man; to him man is what matters. As Dr. Rieux tells the priest in the book at the height of the plague: "(You and I are both) working side by side for something that unites us—beyond blasphemy and prayers. And it's the only thing that matters. . . . What I hate is death and disease."

And the priest concurs with the humanist, with this atheist, with this lover of man, and replies, "Yes, yes, you, too, are working for man's salvation."

EDITH L. TIEMPO

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April–June, 1962

By Gorgonio D. Siega and Eliseo P. Bañas

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