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WORLD PEACE THROUGH LAW

...I speak to you tonight under the auspices of the Philippine Constitution Association dedicated to the defense and preservation of your constitution and the leader in the never ending crusade for the respect of the rule of law. The contribution of this association is not only working toward law and order in the Philippines; it is also making a real contribution to peace through law throughout the world. For, we know that wars settle little. We must realize by now that peace will only come through law. World peace through law must become the goal for all freedom loving people...

What we need more than anything else is faith in our own governments — faith in our own Constitutions — faith in our own laws. Secondly, we need determination and willingness to work within these laws. We must insist on government of laws — not government of men. Thirdly, we must realize that true democracy, a lasting peace requires hard work by all peoples.

So, I close with two final admonitions. One is an old true statement: "Eternal Vigilance is the price of Peace." And another old but true statement repeated by President Johnson just a week ago: "No Country and no man ever stands as tall as when he falls on his knees before God." — *Thurgood Marshall, Justice of the U.S. Supreme Court, from his speech before the Philippine Constitution Association.*

- This paper presents a novel and interesting angle on the problem of the Filipino national language.

A PROPOSAL ON THE NATIONAL LANGUAGE PROBLEM

One curious fact about the national language movement is that, despite the dictatorial methods employed by the original leaders of the movement and the tremendous pressure applied by their successors to propagate the national language based on Tagalog over the last three decades since President Quezon's proclamation of December 30, 1937, the national language so based has not as yet found general acceptance among the people in the non-Tagalog-speaking areas. And since it has not found acceptance in these areas of the country, the Tagalog-based national language cannot be said to have been useful in the achievement of greater national unity. As a matter of fact it has contributed to more dissension than to harmony on the national scene. Even among the Tagalog speakers themselves, there is

no general consensus as to which form of the language — the purist or non-purist — should be propagated as the national language.

So in the face of this widespread dissension about the national language, it should be time to re-examine the whole problem thoroughly so that a more satisfactory solution could be arrived at through general consensus. A plebiscite need not be resorted to obtain the majority opinion; it might give rise to unnecessary acts of hostility between the language groups. A far-seeing and firm statesmanship, which will reject dictatorial or short-cut processes, should be in a position to show the way to a peaceful and satisfactory solution to the problem.

I think that all thinking Filipinos, whatever be their native language, are agreed on the advisability of having

a common language of autochthonous origin which will eventually be used throughout the country. In the absence of a language which, from the outset, is acceptable throughout the country, the bone of disagreement for the last three decades has been the implementation of the Constitutional provision to the effect that the Congress was to take steps towards the development and adoption of a national language based on one of the existing native languages.

I have done a lot of thinking on the matter and I have come to the conclusion that the most advisable way of implementing the Constitutional provision is by means of the Constitution itself. Problems brought about by operation of the Constitution can best be solved by proper amendment or amendments to the Constitution itself. And since in three years we shall be amending the Constitution through a Constitutional Convention, it should be wise even this early to consider the matter of a national language.

To my way of thinking the most effective way of imple-

menting the Constitutional provision on national language, as well as the most democratic way of achieving national greatness, is to establish a federal republic in place of the present unitarian republic that we now have. Under the proposal, the existing provinces could be regrouped into autonomous states on the basis of the languages spoken by the inhabitants. All functions and powers of government except those relating to foreign relations, citizenship, national defense, currency, immigration and customs, are to be exercised by the various states. This scheme of government, I make bold to predict, will be able to achieve and preserve greater national unity and a more viable democratic way of life than the Republic under which we are living.

Under this proposal the Tagalog-based national language will continue to be developed as the national language of the Republic, with English as a second language which, however, should continue as the official language of the Republic until the Ta-

galog-based national language has been sufficiently developed to serve as an adequate language of government; but the various states are to choose which local languages they are to use within the state, in addition to the Tagalog-based national language and English. This means that along with the literatures in the national language and in English, the literatures in the main local languages are to be cultivated and enriched, instead of being discouraged or suppressed as it seems to be the plan of the present leaders of the national language movement.

The indifference and sometimes hostility to the national language movement that one finds among speakers of the more important native languages may be traced to the ill-concealed intention of the Tagalistas to discourage the development and eventually suppress the various languages in order to give way to the exclusive use of Tagalog throughout the nation. To these Tagalistas, Tagalog is really the national language, the Constitutional

provision about the development and adoption of a national language based on one of the existing native languages being only a euphemistic way of warding off opposition from the non-Tagalog-speaking Filipinos. The development of the regional languages along with the national language based on Tagalog will remove the indifference and weaken the latent opposition to the national language movement and pave the way to greater national unity and the development and strengthening of our democratic institutions.

One could of course raise the question whether political and cultural decentralization, as proposed in my scheme, would be best for our people. It can be seen that it runs counter to the present political and cultural scheme, which is highly centralized.

MY THESIS

My thesis is the political and cultural decentralization, which will result in equitable distribution of political power among the more important ethnic groups, would bring about greater national unity

and a more viable democracy. The great problem of a multi-ethnic state, such as ours is, is how to distribute political power equitably among the several ethnic groups. Predominance in the membership in the powerful Senate, which is elected by the whole nation, has always tilted towards the Tagalog-speaking regions. If, as in the United States Senate, each state in the federal Philippine Republic will have equal representation in the Philippine Senate, then the distribution of political power will have been partly solved. In the House of Representatives, the principle of proportional representation will work as well as in the present scheme, if not more effectively, since the autonomous states will be more vigilant about their representation than the existing provinces.

SOME PROPOSALS

My proposal envisages the amendment of the Constitution to provide for the reconstitution of the existing provinces into countries and their grouping into ten states namely: (1) North Luzon,

(2) Central Luzon, (3) South Luzon, (4) Southeast Luzon, (5) West Visayas, (6) Central Visayas, (7) East Visayas, (8) East Mindanao, (9) Central Mindanao, and (10) West Mindanao. The cities of Manila and Quezon City are to be reconstituted into a Federal District, which will serve as the capital of the Federal Republic.

Since this political reorganization is designed to promote local autonomy and encourage the development of the cultural heritage of the various ethnic groups, then the regional language and literatures will have to be enriched through the help of the governments of the various states, which are enjoined to use the more important local languages as official languages within the state. Iloko is the dominant language of North Luzon, with Ibanag as second in importance; Tagalog is dominant in Central Luzon, followed by Pampanga, Iloko and Pangasinan; Tagalog is the lone dominant language of South Luzon, while Bicol is of Southeast Luzon. Hili-

gaynon dominates West Visayas, Sugbohanon the Central Visayas, and Samareño the East Visayas. Likewise Sugbohanon is dominant in East Mindanao; Magindanao and Maranaw are the leading languages of Central Mindanao, with Hiligaynon and Iloko trailing behind; and Tausug and Samal are most widespread in West Mindanao and Palawan.

With writing in these various languages encouraged by the various state governments, along, of course, with the national language which is based on Tagalog, hope is expressed for the flowering of the human imagination throughout the land in the not too distant future. Our democracy will have become more viable with its grass-roots strengthened through the exercise of local autonomy. Love of and pride in the local or regional community will blend naturally with love of and pride in the national community. It is in the nature of things for a person to take more interest in the things that are closest to his day-to-day existence than in

matters that are remote. Once you have developed his self-respect through local civic pride — that is once you have inspired in the Bicolano, the Ilongo, the Cebuano, the Ilokano, the Pampangan, the Pangasinan, the Maranao, the Tausug, or feeling of pride in his community represented by his autonomous state — you can expect the Filipino citizen in any part of the country to develop a greater love for and loyalty to the bigger community that is the nation.

Under this political organization and socio-cultural set-up, language movements for purism and anti-purism, like those of Mr. Gonzalo del Rosario and Mr. Geruncio Lacuesta, will no longer be necessary because the national language will follow a natural development. As a second language of the Republic and as an official language for some time, English naturally will continue influencing the growth of the national language, in vocabulary and in grammar. With the various states using their own main languages and

English, the local languages will have a rich opportunity to contribute to the enrichment of the national language. There will no longer be any reason for conflict between the local or regional languages and the national language, because the national language will have extensively borrowed from the regional languages for its own enrichment.

When that time comes — may be three to five generations from now, that is, if a

Federal Republic is set up through a Constitutional amendment — a Dante, a Chaucer, a Luther, a Cervantes will appear on the national scene to produce a masterpiece or masterpieces in the new language that will mark a significant take-off point for the growth of a greater national literature which our posterity will be proud to call its own. — *A Lecture by Leopoldo Y. Yabes, Professor, University of the Philippines, at the Y.M.C.A., Manila.*

ON SAVINGS

One of the surest ways to make money is to save money.

Savings are the storage batteries of financial power.

— *Savings & Loan News, 1968*

GENERAL EDUCATION – A NEW DIRECTION

It has always puzzled me to try to understand our academic mentality. Ideally, we agree that general and special education should supplement each other. Practically, we find ourselves in verbal conflict, in which general education usually comes our second-best. Tradition is not on its side, nor is prestige. Today a teacher's value is too often measured by the number of grants he brings to the institution and the smallness of the time he devotes to teaching.

Certainly general education must take some of the responsibility for its present uneasy position. We have not done a very good job; we have not lived up to promises.

We have put things together in a kind of crazy quilt fashion. We have denounced survey courses as superficial but in effect have gone right on using them. We have set up thousands of high-sound-

ing objectives for our courses while paying little or no attention to the real residues the student may carry away from them. Frightened by the boggy of standards, we have made our courses difficult instead of challenging and interesting. Like the rest of higher education, we have spoonfed our students with well organized lectures, controlled their supposedly immature minds in class discussion, and given them little or no chance to discover the joy of learning for themselves or creating vital ideas of their own. I am more convinced than ever that we can produce better learning by doing less so-called teaching.

As David Riesman puts it, "There is the paradoxical possibility that teachers are now too erudite and capable, for their students are given to feel that there is little left to discover for themselves. . . . There is hardly any room in

which students can outflank (their teachers) and gain the feeling of independence that comes in this way."

In a natural sciences, for example, the teachers have been too devoted to their subject matter to do a good job for the nonscientist. I have about come to the conclusion that this job in science for the nonscientist might be better done by a philosopher — or by a scientist-philosopher-historian team. Graduate preparation of all kinds of college teachers, narrowly specialized as it is, gets in our way and keeps us from breathing life and meaning into liberal education.

General education is not merely the victim of change; it is also the victim of its own blundering, philandering, and of its efforts to gain academic erudition. But let us not overlook its successes. It has opened the doors to experimentation, to better ways of dealing with the vastness of accelerating knowledge, and to better teaching. It has produced many fine programs and kept hopes alive for teaching more vital goals.

It has by no means completed its mission, nor has it failed in its mission. Those who strangle it to provide more time for specialization are focusing merely on a brief moment of the present. Yes, we need technicians and specialists. We also need in these same human beings those who can see, think, and evaluate the possibilities of the future in terms of the swift-moving present. Our pressing problems are not technical; they are human.

When we are willing to take a close look at the needs of our college product, when we are willing to quit building curriculums for the convenience of faculties and turn our attention to the student — how he learns, and what we can do to help him help himself — when we recognize that we as teachers have only a humble place in the learning process as the starters and promoters of self-discovery and self-achievement, we will not need to worry longer about any conflict between breadth and depth. It will take care of itself. We can achieve this by doing less teaching, thus providing op-

portunity for more learning.

At this moment, one can see ahead only a hazy continuation of the present trend. There is only the mad drive for specialization and *more* education, whatever its nature. Continuing down this path indefinitely can lead only to debasing the academic currency.

General education needs to take a new direction. It has spent too much time revising and tinkering with curriculums and too little effort stimulating and inspiring students. Our curriculums must relate more closely to life, to change, and to students. I have said many times that general education curriculums should be torn up and thrown away even five years. Only in this way can they retain vitality.

We need to reduce and simplify our objectives and bring them closer to life. The student today is merely jumping through hoops to get that coveted degree. Yet we think we are providing him with an education. If it is true that students no longer trust anyone over 30, we need to take a long hard look at what is

wrong with us and our system. They have good reason to distrust us. Both the curriculums and the teaching of today are highly seasoned with nineteenth-century flavor. Yet, conceptually, acceleration has carried civilization well into the twenty-first century.

We have long needed more meaningful preparation of college teachers, not only for general education but for all fields. It is not enough today to be able to talk and to know one's subject well. This kind of handout teaching reaches the lowest level of efficiency if we are talking about real education.

Most desperately we need experimentation in new ways of teaching as reflected in student learning, which is after all, the only reason for teaching. We need a few institutions willing to go all out in experimenting, with the focus on the learning-teaching process and not the teaching-learning process, in an honest and sustained effort to release all students from our present *stupid system of credit accounting* and the debased state of class-

room-handout bondage. Student independence and freedom to learn, even if the process is slow and painful, must be the major objectives. I am convinced that there is private-venture capital available to any institutions willing to strike out boldly in this direction.

It is time for this kind of experimentation on a major scale. The place for it is in general education, where what we cover is of much less importance than what the student does with his own mind. We have all the accessory apparatus for moving rapidly ahead, such as teaching machines, workbooks, textbooks, and audiovisual tapes to provide essential handout learning of facts. The teacher must be free for the critical job — to raise questions (but not to answer them) to guide, prod, lead, provoke, and counsel as needed.

This, in my judgment, is the essential direction general education must take — to lead the way up and out of an educational stalemate with massive efforts to blast a new road toward intellectual free-

dom. A former speech teacher, now an eminent statesman-leader, said recently: *"Most of all we need an education that will create the educated mind — not simply a repository of information and skills, but a source of creative skepticism, characterized by a willingness to challenge and be challenged. . . . It means a fundamental improvement in the quality of our education."*

But there is no way to improve the quality of American education without seeking new directions. We have come close to the end of conventional improvements — better lectures, better discussions, better textbooks, better facilities. *Experiment after experiment has shown us that students learn about the same amount of subject matter whether they are in large classes or small classes, lectures or discussions, before living teachers or viewing audiovisual tapes, before machines or using workbooks. We have juggled with such experiments long enough.*

Our job should be to set students free, not to tighten covalent bonds to teachers.

We have preached this for years; now it is beyond high time for the action phase.

We need a few courageous institutions willing to take this kind of risk, not to introduce safe independent honors programs for the selected few, but to go all out for freedom from tradition and bondage — for all. *Team teaching, with its strong counseling segment and its emphasis on the student, provides an ideal starting place.*

The situation indicates the need for a sharp change in

direction. Someone must make the change boldly; someone must support it generously; someone must produce this minor miracle quickly. The alternative for general education is gentle demise. The alternative for all of higher education is a half-life of useless residue. There is already a wide-open door — through well conceived existing programs of general education, and some willing leaders. — *Sidney J. French in The Journal of General Education.*

THE ABLE RULER

“No man is fit to govern great societies who hesitates about disobliging the few who have access to him for the sake of the many whom he will never see.”

— *Thomas Babington Macaulay*

TRAINING FOR OUR FUTURE PRESIDENTS

One of the strongest reasons President Quezon used in supporting the restoration of the Senate was his belief that it would serve as a good training ground for the country's future Presidents. In a way it has so served; but in effect, it is proving a very inadequate school for chief executives.

The Commonwealth began with a unicameral National Assembly. This meant that future Presidents could count on gaining experience in government as assemblymen or department secretary or both. This was obviously not enough. According to Mr. Quezon, the President could easily control the Assembly because its members, not having the stature to be independent, readily kowtowed to Malacañang. Training as department secretary was no better; a department secretary, being a presidential appointee, was nothing but a minion of the President.

A senator being nationally-elected, Mr. Quezon argued, would in the nature of things be more mature than a member of the House of Representatives and greater in stature than either a department secretary or a representative. His argument was based on the assumption that a politician who can command a national following was of necessity a man on the rise. This was the theory, but the practice became entirely different.

In the first election for senators the so-called block voting was adopted under which a voter could check just a box on the ballot, and the entire ticket of the party for whom he voted obtained one vote each. When public opinion denounced this scheme as political fraud, it was abolished but candidates for senator thereafter habitually rode on the President's coattails. The senators became more personal selections

of the Chief Executive than the members of the House.

This is still the situation today. Hardly any candidate for the Senate without direct presidential support can get elected. Yet, today, when we think of presidential timbers, we continue to look for them in the Senate. The current speculations on whom the Liberal Party may field against Marcos are confined to senators. Even when the idea is toyed with that the LP might give the NP a dose of its own medicine and pick an NP to run for President, just as Magsaysay and Marcos were lured from the LP by the NP, only NP senators are mentioned — Puyat, Magsaysay and Tolentino. Secretary Fernando Lopez and Representative Emmanuel Pelaez would by far be more attractive candidates, but not being senators they are not remembered. Yet, they have been both senators and possess executive experience.

All this proves how restricted and inadequate is the training for President our political establishment affords.

In the United States, the

sources of Presidents are more varied: state governorship, the U.S. Senate, the Cabinet and the armed forces. U.S. state governors learn the vast executive side of government, and the presidency is executive in character. Woodrow Wilson, who rose from the governorship of New Jersey to the presidency, is the best example. U.S. senators are elected by the states as partymen but largely on their own. They thus have a real political base. Most U.S. Presidents have come from the Senate, a fact that probably influenced Mr. Quezon's thinking. Former Cabinet secretaries have the advantage of having gone through the complicated executive mill; William Howard Taft, former Philippine civil governor and secretary of war, is a conspicuous case. From the armed forces, several war heroes have become Presidents starting from George Washington, with Dwight Eisenhower as the latest General-President. The American presidential school has produced Chief Executives of wider experience and greater stature.

Except for Magsaysay and Macapagal, we have had senator-lawyers for President. Experts in advocacy and legislation, most have had the handicap of being uninitiated in executive work. If only to provide better sources of Presidents, we should return to the election of senators by districts and raise the stature of provincial governors, per-

haps by making each senatorial district a single province together with a legislature. Such a scheme will also improve Philippine democracy by welding the provinces closer and making representation more direct and genuine. — (VICENTE ALBANO PACIS, in *The Manila Chronicle*)

LIBERAL EDUCATION

Knowledge is one thing, virtue is another; good sense is not conscience, refinement is not humility, nor is largeness and justness of view faith. Philosophy, however, enlightened, however profound, gives no command over the passions, no influential motives, no vivifying principles. Liberal education makes not the Christian, not the Catholic, but the gentleman. It is well to be a gentleman, it is well to have a cultivated intellect, a delicate taste, a candid equitable, dispassionate mind, a noble and courteous bearing in the conduct of life — these are the connatural qualities of a large knowledge; they are the objects of a university; but still they are no guarantee for sanctity or even for consciousness, they attach to the man of the world, to the profligate, to the heartless — pleasant, alas, and attractive as he shows when decked out in them.

— *Alfred North Whitehead*

- A Spaniard criticized his own countrymen in defense of the Filipino.

ON FILIPINO 'INDOLENCE'

The Philippine Progress, a monthly newsletter published by Development Bank of the Philippines, has a very interesting article entitled "Is the Filipino Indolent?" It quotes two old conflicting opinions on this topic — one by an Augustinian friar, Gaspar de San Agustin, the other by a Jesuit father named Juan Jose Delgado.

In an open letter dated 1772, Fray Gaspar wrote:

"The complexion of these Indians (Filipinos), as revealed by their outward features, is cold and moist, being much under the influence of the moon... This complexion and influence is what makes them inconstant, malicious, suspicious, sleepy, lazy, sluggish, given to frequenting rivers, seas and lakes, attached to fishing, ichthyophagous, that is to say, thriving on fish diet more than any other, poor spirited owing to their cold humor, and little inclined to work."

The Jesuit father, on the other hand, wrote:

"Who are the seamen who sail the ships and galleons to Acapulco and other ports, and sail them back again? The Spaniards, perhaps? Ask the navigators, the marine officers, the boat-swains, and they will tell you that this great and inestimable service is performed by Filipinos... Again, who are they that cultivate these lands and supply us with what we eat? Do the Spaniards, perchance, dig or reap, or plant any where in these islands? Of course not; for they no sooner land at Manila than they are all gentlemen... It is the Filipinos who plough the soil; who sow the rice; who weed the field; who watch over the growing grain; who reap it... It is the Filipinos who defend us from our enemies; for who are they who make up our garrisons, who man our fleets, who are ordered to advance first in every battle? Does

anyone believe for a moment that the Spaniards by themselves can keep this land if the Filipinos did not help them?"

It is interesting to note that the debate on Filipino fainéance has been going on as far back as 200 years. Then as now, the Filipinos had their detractors as well as defenders. There were Spaniards who thought very little of the

Filipinos. But there were also Spaniards who dared criticize their own countrymen on their attitude towards the natives of these islands. It is obvious that Fr. Delgado thought more of the Filipinos than his own countrymen. And that is saying a lot especially in that day and age. —(ALEJANDRO R. ROCES, in *The Manila Chronicle*)

KNOWLEDGE FOR ITS OWN SAKE

Cicero, in enumerating the various heads of mental excellence, lays down the pursuit of knowledge for its own sake, as the first of them.

"This pertains most of all to human nature," he says, "for we are all of us drawn to the pursuit of knowledge; in which to excel we consider excellent, whereas to mistake, to err, to be ignorant, to be deceived, is both an evil and a disgrace."

■ This thoughtful paper is a remarkable expression of what may be called the way, the truth, and the light.

A REASONABLE HOPE FOR OUR TIME

Ten days ago I was standing in the midst of the Amazon Jungle three hundred miles south of the Equator. There were seven of us who had set out to visit a settlement of the Yagua Indians who inhabit the forest areas along the Amazon River. Our bare-footed guide, himself a half-breed, after leading us through underbrush which he cut as he went along with his machete finally located the little clearing where one lone family of the Yaguas was living. The family consisted of the parents, four children, and a mother-in-law; their worldly possessions comprised three iron pots, a couple of hammocks, a blow gun with a quiver of poisoned darts, a few scraps of coloured cloth, and a jar of red paint with which they proceeded to decorate one of our party as a special sign of

favour. Their shelter was freshly cut from native tree branches; their food appeared to be a few fruits on a rack and a fish which was roasting in a banana leaf over the embers of a fire.

We were seven; they were seven — nothing except our common humanity made us kin — neither language, nor custom, nor civilization. We had expected to find ten times their number in an established village, but we were to learn that whenever a death occurs the entire camp is abandoned and the huts burned to the ground lest the evil spirits pursue the survivors. There apparently is no doubt in their minds but that there are evil spirits and that malicious spirits will do them evil. They are fearless as they pursue the jaguar and tiger through the forest with their slender

poisoned reeds, and as they paddle blithely along the Amazon in their fragile canoes knowing full well that the river is ready to swallow them up and the man-eating piranha is inescapable. Of these things, they have little fear, and in dealing with them they have much knowledge; of the evil spirits, they have great fear, and in dealing with them they doubtless *think* that they also have great knowledge.

It is apparent, however, from our point of view, that in everyday life they act upon one kind of knowledge and in their religious life they operate upon a second kind. The knowledge and skill by which they not only turn the steaming jungle to the purposes of nourishment and shelter but even fathom out the secrets of medicine from the herbs of the field and the trees of the forest — in this they act upon the same principles and by the same methods as rational men everywhere;—and given the same facts and experience, we and they would doubtless find little upon

which to disagree. In the realm of the spirit world, however, it is doubtful whether many rational men would arrive at a common agreement with them.

The Greeks made a careful distinction between knowledge and opinion — between that which was verifiable and that which was based upon feeling or impression. Indeed, for that matter, so have all intelligent men, and all of us know that the hottest arguments arise in those areas where men have the strongest opinions and the least specific knowledge. Not all conflicts, to be sure, have arisen from faulty knowledge, but not a few of the bitter controversies in politics and religion have found their support more from the ignorance of men than from their enlightenment.

And yet men *must* have opinions for there are many relevant areas of life in which we must act without sufficient knowledge and for which there can be no postponement. Indeed, some sort of faith is an essential to existence as is the body of

verifiable knowledge requisite to rational daily living. I gather that except that each of us assembled here this morning felt the need of and had some intimations of the nature of faith we would hardly have left our comfortable homes to gather here. Faith may be, sometimes has been, and perhaps often is a lazy substitute for hard-headed thinking and wrestling with cold realities but it is far more than what and it is relevant even to the 20th century scientific man. Much faith has, indeed, been shallow and oftentimes we have told men to have faith when we couldn't think of anything else to tell them. Some of us will recall Calvin Coolidge's pat exhortation to **HAVE FAITH IN MASSACHUSETTS** when some of us would have preferred that he should have attempted to tell us what kind of Massachusetts he was offering us to have faith in.

My topic this morning is **A REASONABLE HOPE FOR OUR TIME**. In a sense, I, too, am urging you to have faith in our time, our world, our society — but I hope it

will not be a shallow faith nor an unrealistic one. To be sure, we could exhaust the remainder of the hour in enumerating all the reasons for abandoning hope in our time. We could recall the war in Vietnam, the crime in our cities, the corruption in our politics, the indifference of our people to social issues, the lost college generation with its hippies and addiction to drugs, the bitter tensions of civil rights and black power — all these and more can neither be dismissed nor brought under immediate solution. Yet it would be more unreasonable to be hopeless than to affirm our conviction in the ultimate triumph of righteousness. The fact is that the pluses still outnumber the minuses else the social order would have crumbled and we would indeed be in the midst of anarchy; crime is still newsworthy because it is exceptional, unusual and contrary to the usual order of events. It may be small comfort to affirm that there is more good than evil abroad in the land and in the world, and that most men whether

they be Yagua Indians on the Amazon or neighbours in Back Bay are more friendly than unfriendly, and more to be trusted than feared most of the time. Yet, from this modest premise we can build our stater mansions of faith, and upon these foundations we can build our castles of hope.

I discern, however, a number of false hopes in our time and I believe we should examine them candidly and dismiss them before they disillusion us.

There is in the minds of many men the hope of *uniformity* — that somehow the day will come when all men, presumably by the process of education and yet of their own free will, will come to think and act alike. In religion they will all be good Unitarians, or Catholics, or Baptists, or whatever our own preference in these matters; in politics they will instinctively adhere to the right issues and parties; in taste they will enjoy the same music, the same art, the same recreations. In short, it is very difficult for most of us to accept the fact that other

individuals can possibly differ from us in an essential matter except it be from ignorance, stupidity, or perverseness.

Another heresy of our time is like unto the first, namely the false hope of *conformity*. If men will not or cannot honestly arrive at the same convictions in all matters essential, then we like to believe that somehow a false uniformity may be achieved by imposing a gentle or less gentle conformity. The pressures to conform are not the same in our generation as those of the Spanish Inquisition or Puritan New England, but they are not absent and the flower people, if they have a message for our age, may be just saying this—to remind us that the pressures to conform are *real* and sometimes *oppressive*.

Another heresy of our time is the *ecumenical movement* because, I believe, it is a false hope. Good Christian people, recalling all the bickerings, the bloody religious wars, the useless theological squabbles, are decided that Christianity should bury its differences and strive for

uniformity and conformity, the better to propagate its doctrines and to defend itself against the indifference and hostility of a secular age. Our orthodox friends are undergoing much soul searching and agony of spirit as they struggle to reduce the peculiarities of their own particular tradition into conformity with a single statement of faith and common creed, losing much, I believe, of the richness of their religious heritage in the process.

These are hopes of our time — in politics, in society, in religion. I have called them heresies because I am convinced that they are false hopes and will neither be achieved, nor is it desirable that they *should* be realized. It is *not* bad that men should think differently, that they should act differently, that they should believe differently. It is *bad* that they should fight with each other, that they should hate, that they should be uncharitable and dishonest with one another. **BUT THESE ARE DIFFERENT MATTERS.**

But there are real and reasonable hopes in our

time — positive signs of promise and faith.

There is the hope of the unity of understanding. We live in a marvelous era of communication and enlightenment. Many of our grandparents lived lives of extraordinary isolation; — or if not our own grandparents, the generations immediately behind them — they seldom traveled, they read little more than local news, they had only the foggiest notions of what life was like outside their own section of the United States, much less the rest of the world. In fact, it didn't really make much difference anyway, for the United States had not yet become a world power and they, as individuals were not likely to affect many people outside their own community. Today, there is no isolation; indeed, there is no escape. I have heard American jazz in the Sahara Desert and the Amazon valley. Radio has brought sound, and television has brought images into the most remote community — thousands upon thousands have traversed the globe either as civilians or to even

more remote areas in military service. We do not have Wendell Wilkie's one world politically, but we are moving forward to one world of understanding, if it be true that knowledge and experience make for understanding and sympathy. What age has even approached the degree of knowledge of its peoples of one another, or when have more diverse individuals been brought into contact one with another?

And then there is the hope for the unity of good will. Here we need perhaps a higher degree of faith for not all we behold on the face of the earth is in the nature of good will. I believe, however, there is more good will abroad among men today than ever before. There have been foreign missionaries in other centuries and they have served selflessly and with devotion; but what age has ever before seen a Marshall Plan, or a Peace Corps, or organized political concern for the oppressed. Civil rights, fair housing, desegregation—perhaps some of these issues are too pre-

cipitantly launched — but who can say that they are not evidence of a unity of good will unparalleled in our history.

Understanding and good will are the foundations of any reasonable hope for the present or the future. But more than this, there must also be a unity of MUTUAL RESPECT. Men will not arrive at uniformity nor will they conform for any extended time. Nor will men really succeed in reducing the diversity of Christian experience to an ecumenical unity. Nor is it perhaps desirable that any of these thoughts should be brought to pass.

The Unitarian movement is an attempt to incorporate into a religious institution the ideas which I have been discussing this morning. It has always striven to be hard-headed and rational, but it is as aware as any church that men do not live by bread alone. We, as members of this liberal tradition, have never claimed that ours is the only road to salvation or, perhaps, the right road for many

people. We have ever suspected uniformity and conformity in life and doctrine, and we have not so much opposed creeds and forms because of our suspicion of their validity, as from our fear that they may stifle the believer in his personal search after truth. It is not without pain that we suffer fools gladly within our movement and without it, but the same charity that we ask for ourselves must perforce be extended to the most bizarre individualist or the most rigid institutionalist, provided he be sincere and honest in his profession. Our own movement is blessed with diversity and no one can claim that our strength lies in conformity and uniformity.

There is a rational hope for

the year that lies before us and for the unfolding progress of man. But that hope will be realized only as men and women, like ourselves, believe and accept the challenge to make the world better for their having lived in it. The apostle Paul may have been a poor theologian when he tried to deal with sin and election, but he never discerned the spirit of the universe better than when he reminds us that we are co-workers together with God in the building of the kingdom of the spirit. Let us, therefore, take courage with that which has been achieved, fall to the task of the present, and be of good cheer for the future.—*By Reverend Richard D. Pierce, S.T.M., Ph.D., LL.D.*

LOYALTY TO PROFESSION

Every man owes some of his time to the up-building of the profession to which he belongs.

— *Theodore Roosevelt*

- Sweet corn offers the largest profit and has the steadiest market of all field crops.

GREEN REVOLUTION IN CENTRAL LUZON

A green revolution is sweeping peacefully and profitably across the gently rolling plains of Central Luzon, long the rice bowl of the Philippines.

Rice is still the principal crop of the hardworking farmers who till the area's rich, fertile soil. In fact, since the introduction of IR-8 less than two years ago, followed by rapid transition from traditional to modern farm practices under the helpful supervision of college-trained technicians, Central Luzon farmers are producing more rice today than ever before.

At the same time, however, they are dramatically boosting their income—some as much as ten-fold—and greatly improving their living standard by growing and marketing a wide variety of vegetables and field crops. Some farmers are receiving better returns from

the sale of mungo beans, sweet corn and string beans than they are earning from IR-8 production, even though yields are several times greater than rice varieties they used to plant.

Interestingly, explain agricultural technicians, the introduction of IR-8 largely accounts for the revolutionary development in vegetable farming taking place in Central Luzon.

Since IR-8 is short-maturing, they point out, the wet crop is harvested in November, at the end of the rainy season and almost two months in advance of traditional varieties. Early harvesting enables the farmer to plant vegetable seeds sooner, permitting the seed to germinate quickly and the plant to develop rapidly in the soil's high moisture content.

Furthermore, the residual effect of the generous appli-

cation of fertilizer which IR-8 requires, invigorates vegetable growth. Only sweet corn needs additional fertilizer.

Still another factor is the willingness of farmers to care scientifically for their crops controlling insects and plant disease. They learn the importance of such care while growing IR-8 under the Agricultural Guarantee and Loan Fund (AGLF) program, supervised by agricultural credit technicians of the Central Bank of the Philippines.

The purpose of the AGLF is to provide crop loans, without collateral and at a modest interest rate, principally for tenant and leasehold farmers whose main source of credit has been the notorious money lender. Loans are arranged through privately-owned rural banks and are carefully supervised by credit technicians who advise the borrower on proper land preparation, pest control, fertilizer use, and other measures essential for maximum crop yield.

The most successful Central Luzon vegetable ventures, in fact, are those of

the 400 farmers of Mexico, Pampanga, who since December 1966 have obtained more than a half million pesos in loans under AGLF financing from the Rural Bank of Mexico to cultivate 1156 hectares of high-yield rice varieties.

During the 1967-68 dry season, only 300 of the 1156 hectares were planted to rice. The balance was in vegetables and field crops, such as grain sorghum, soybeans, and corn. In early January, to discourage the planting of rice because of water shortage and to promote vegetable growing, the bank stopped granting rice loans until the next wet season.

Best promoters, though, are farmers themselves who have discovered undreamed wealth in the raising of vegetables between rice harvests. For many, vegetable sales have meant the difference between bare subsistence and profitable farming. The difference between grinding poverty and relative affluence.

Take 37-year-old Pedro Dizon who leases 12 hectares

in Barrio San Juan. Before he began planting IR-8 he cultivated one hectare of string beans during the dry season, netting about ₱400. This season, from one hectare and without adding any fertilizer following his IR-8 harvest, Dizon netted ₱4700 from the sale of two crops of string beans.

This, added to his mongo bean and palay sales and excluding five hectares of IR-8 destroyed by Typhoon Welming last November which were replanted, gave him a net profit of more than ₱13,000 in 1967. From his earnings, Dizon made a down payment of ₱6000 on three residential lots in San Fernando, the provincial capital. That he had a net loss of ₱318 from his farm operations in 1966 underscores his spectacular success.

Says Florante Salvador, Central Bank agricultural credit technician who has worked closely with Dizon since Dizon got his first loan under the supervised credit program: "Pedro used to be quite a gambler. He'd disappear for several weeks at a time. Now he doesn't want

to leave his fields. He says he intends to keep his 12 hectares under cultivation the year 'round. He'll be able to because all of his land is irrigated by the Abacan River even during the dry season. Besides rice and beans, he wants to try sweet corn, peanuts and picnic cucumbers."

While not all of Mexico's string bean growers have been as successful as Dizon, many have done very well. Barriomate Leonardo Mal-lari, Sr., boosted his profit from ₱240 to ₱1700 since he began growing string beans after his IR-8 harvest. Another San Juan resident, Gregorio Pineda, saw his earnings jump from ₱300 to ₱850. And Teofilo Dizon of Anao, who earned ₱350 from one hectare of string beans before he began planting IR-8, netted ₱1300 from one-and-a-half hectares this season.

Credit technician Salvador said the municipality's 30 hectares of string beans should net producers an average of ₱1700 per hectare. He estimated an average per hectare profit of

₱850 for the 500 hectares of mungo beans under cultivation.

Among outstanding mungo bean producers are Leonardo Franco, San Juan, and Epifanio Tolentino and Pastor Miranda, both of Anao. Franco had an income of ₱1250 from two hectares compared to ₱340 from one hectare of mungo beans before the land was used for IR-8. Tolentino's earnings were more striking. From two hectares and a profit of ₱260 before IR-8, he doubled his mungo bean earnings although he planted only one hectare. Miranda's profit went from ₱200 to ₱530 from one hectare as he increased yield from five to twelve cavans.

Sweet corn has Mexico farmers most excited. Even though it is more costly to grow than most other vegetables, sweet corn offers the largest profit and maintains the steadiest market. Two contractors competed for Mexico's entire production. The representative of a canning company offered to contract for 20,000 ears a week.

At season's peak, one contractor purchased Mexico's total output, about 60,000 ears a week. He paid the farmer 10 centavos an ear and furnished cellophane sacks into which the unhusked ears were placed immediately upon being picked so as to preserve their freshness. Most of the corn was distributed to Manila supermarkets, Clark Air Base and the U.S. Naval Station at Subic Bay.

"We figure it costs about ₱400 for seed, fertilizer, insecticides and labor," said Vergara, "to produce a hectare of sweet corn. Gross returns on the investment are about ₱1500, or a net earning of approximately ₱1100. This is a better return than most farmers are earning on the production of IR-8 rice."

Primo Mandani planted one hectare of Hawaiian Sweet on his farm in Cawayan. He sold 14,000 ears for ₱1100, had ₱291 in production costs, for a profit of ₱809. He was still harvesting when the data was collected.

Mateo Garcia, Anao, netted P913 from the sale of 17,000 ears of UPCA Hybrid 801, and like Mandani was still harvesting when data was obtained.

So profitable have been the bean and sweet corn harvests of Mexico farmers that many are using proceeds from vegetable sales to pay off bank loans incurred for last year's rice planting. A number were unable to meet their obligation when more than 20 per cent of the rice crop was destroyed by Typhoon Welming.

"This experience," says Salvador, "has taught them that they should not depend on a one-crop economy. Their vegetable crops have been good insurance against a disastrous rice crop."

Mexico farmers, particularly the 400 who have benefited from the rural bank's supervised credit program, maintain they owe most of their success to the faith and understanding of Miguel Vergara, President-Manager of the Rural Bank of Mexico, and the technical skill and encouragement of Florante

Salvador. At the same time, Vergara and Salvador stress that their program would have failed had it not been for the willing cooperation of the farmers who were eagerly responsive to change once they were shown how to improve their farm operations.

There is reason to believe Mexico's quiet revolution is just beginning. Vergara and Salvador have plans for developing a bustling provincial farmers market where farmers from all of Pampanga could bring their produce and contract for its sale to canners and representatives of Manila supermarkets. They want to increase the planting of field crops, improve and greatly expand fish, livestock and poultry production, and promote mechanization as farm earnings increase.

Mexico's greatly increased rice production and successful multiple-vegetable cropping have brought several constructive changes. For one, unemployment no longer is a problem. Those who used to head for Manila after the rice harvest because

there was nothing to do until the next rice season, have found a new profitable interest in vegetable farming. In fact, Mexico actually has a labor shortage.

The most important aspect, however, of Mexico's

awakening is the wholesomely contagious effect it is having on neighboring communities. Nothing succeeds like success. The green revolution is spreading, each day winning more Central Luzon farmers to its cause.

THE NEED IS GOVERNMENT

Government is the thing. Law is the thing. Not brotherhood, not international cooperation, not security councils, that can stop war only by waging it. Where do human rights arise, anyway — security against the thief, the murderer, the footpad? In brotherly love? Not at all. It lies in government. Where does control lie — control of smoking in the theater, of nuclear energy in the planet? Control lies in government, because government is people. Where there are no laws, there is no law enforcement. Where there are no courts, there is no justice.

— *E. B. White*

THE COMMON EXPERIENCE

For all practical purposes I believe it can be said that only man grieves. Only man loses a part of himself and knows he loses a part of himself and feels the loss intensely. The more deeply man feels, the more deeply man is involved in life, the more he grieves. Furthermore, grief is an almost inevitable part of the life of any normal person. Sooner or later he loses a limb or an ear or his nose. Or he experiences separation through divorce; or he finds close friends moving away; or he faces the imminence of his own death. Any situation that involves drastic separation, including unwanted retirement, is a grief-producing situation. The only way to avoid grief is not to live. The very fact we are alive and involved in the lives of other people means the virtual certainty of eventual grief. The minute we marry we invite the likelihood of grief. The minute we have

children we invite the possibility of grief. Life means grief — in time. Love means grief — in time.

But grief is more than being sad for a while. "Grief-work," to use Freud's expression, must be done and this requires time.

During the period of grief the emotional ties to the lost object are broken, even as the ties to the lost object have been physically broken and mentally recognized. The emotional ties must be broken so that new emotional ties may be created.

In the normal course of grief there will be a feeling of loneliness and unreality, an emptiness in the stomach, a feeling of insecurity, a strong temptation to withdraw from all activities. Questions will be asked that can not be answered like "Why did God permit it?" There will be feelings of guilt. A tendency to lash out

against anyone who presumably might have prevented the loss.

To facilitate grief's work let there be tears. Tears, as one psychiatrist has pointed out, is a mechanism for reducing the tension caused by grief. Tears are not a distortion of nature nor evidence of weakness. They are a means by which the grieving persons works his way up from the depths.

Then let there be talk. Repeat over and over again

all the details surrounding the grief-producing tragedy. This makes the loss more realistic and the expectation that the loved one will return is dissipated.

When tears and talk flow freely, grief's work is being done and in time the bereaved person comes to realize what Jesus meant when he said, "Blessed are they who mourn for they shall be comforted."—*Chedbourne A. Spring*

In recent years the "Waling-Waling" has played a prominent role in orchid hybridization work. Orchid hybridizers in Florida, Hawaii, Singapore, Bangkok and other orchid centers of the world have crossed this versatile vanda with other orchid species and genera to produce prolific blooming hybrids. These hybrids exhibit a wide range of shapes and colors in their flowers. Some outstanding examples are the golden-flowered *Vanda Tan Chay Yan*, the pink-flowered *Vanda Nellie Morley*, the blue-flowered *Vanda rothschildiana*, and the red-flowered *Vanda Jane Shimamoto*. In the esoteric world of orchid collectors, these handsome hybrids command near astronomical prices.

WALING-WALING

Vanda Sanderiana (Waling-Waling), the most prominent native orchid, was first detected by Roebelin of the orchid establishment, Sanders and Company, in 1882, while he was collecting throughout the southeast portions of Mindanao Island. It is endemic to a restricted area of this island and can be found in no other place throughout the world. The plant was originally described by Reichenbach in 1882 and is dedicated to the orchid company responsible for its discovery.

This species has been described by various authorities under different genera; Schlechter delegated it to *Eunanthe* while Reichenbach assigned it to *Esmeralda*. The flower differs from that of the typical *Vanda* in having a small lip with no spur and without a saccate formation. Also, because of the distinctive markings of radial line on the sepals and petals, the species has at times been incorporated with the genus *Arachnis*. At present, how-

ever, the plant is included in the *Vanda* Group for which it has an alliance because of its typical *Vanda*-like growth, upright flower scape and general floral arrangements.

Plants of this species often grow to a height of two to four feet, but it is not uncommon for plants to flower that are only eight to twelve inches high with four or five sets of leaves. The unusual flower, the biggest among Philippine orchids, is flat and from three to five inches across the petals. The upper sepal and the two petals are whitish purple with dark reddish-brown spots near the base, while the lower sepals are greenish with purplish crimson netted lines and spots. The flowers which form in big clusters of twelve to sixteen during August and September open a few at a time and the raceme will last for from five to seven weeks. This species is not fragrant. — *Excerpts from the book, Philippine Orchids, by Reg S. Davis and Mona Lisa Steiner.*

VENUS IS A SCORCHED WORLD

The surface of Venus is charred black. There, wood, paper or cloth do not burn. Yet, they produce smoke and are instantly scorched black.

Such is the strange world of Venus where everything burns up without flame or fire.

This has been confirmed by experiments which simulate the atmospheric conditions on the surface of Venus carried out by the Asahi Shimbun Publishing Co., one of Japan's major newspaper publishers, in cooperation with the National Institute of Metals of the Government's Science and Technology Agency.

When the results of the survey by the Soviet Union's unmanned probe, Venus 4, were announced, many scientists thought that "on the surface of Venus, everything burns furiously." But this speculation has now been repudiated. There is not enough oxygen on Venus, so nothing burns

there. However, it is a veritable inferno of intense heat. If a human being without a protective device against heat should land on Venus, he would instantly become a charred corpse.

22 Atmospheres, 270°C, and 0.4-0.8% Oxygen

The atmospheric conditions on the surface of Venus were minutely observed by the Soviet probe on October 18, 1967. The unmanned surveyor was soft-landed with a parachute and conducted a survey of the Venusian atmosphere as it descended. According to the data thus collected, the surface of the planet has a temperature of 270°C, an atmospheric pressure of 15 to 22, and the atmosphere itself consist primarily of carbon dioxide with an oxygen content of only 0.4 to 0.8 per cent and water vapor of 0.1 to 0.7 per cent.

Compared with the earth's atmosphere which contains 21 per cent oxygen, the Ve-

nusian atmosphere contains an extremely small amount. In the light of the fact that Venus has twenty-two atmospheres and a temperature of 270°C, the absolute quantity of oxygen in the atmosphere is not at all small. One liter of Venusian atmosphere contains one-seventh — one-third of the oxygen content contained in one liter of the earth's atmosphere.

Because both the atmospheric pressure and the temperature are high, the oxygen in the Venusian atmosphere is expected to be far more active than that in the earth's atmosphere. This is the reason why it is surmised that combustion there would be far more vigorous than on the earth. But, is this actually the case? At a temperature of 270°C, tin melts but lead does not. Under 22 atmospheres, water boils at 216°C. This much is definitely known. But beyond this, the scientists can only guess.

To simulate conditions of another planet on this earth is one area of experimental astronomy and it was thought

that such an experiment would be of great help in producing a realistic picture of the other planet.

Simulation of the Atmosphere

For the simulation experiment, an autoclave of the National Institute of Metals was used. An airtight chamber used in chemical and metallurgical experiments, it is filled with gasses or liquids at high temperatures or pressures in order to test their reactions.

The autoclave used in this particular test had an internal volume of 500 cubic centimeters. It had two windows at the bottom, one admitting light and the other for making observations.

The artificial Venusian atmosphere was created by mixing carbon dioxide, oxygen and water proof. Since the Venus 4 probe failed to detect any nitrogen gas in the Venusian atmosphere, this element was ignored.

The following mixture of gases was used in the experiment:

| | <i>Venusian Atmosphere</i> | <i>Simulated Atmosphere</i> |
|----------------------|--------------------------------|---------------------------------|
| Carbon dioxide | 90-95% | 98.5-99.5% |
| Oxygen | 0.4-0.8% | 0.4-0.8% |
| Water | 0.1-0.7% | 0.1-0.7% |
| Nitrogen | not detected | 0% |
| Atmospheric pressure | 15-22 | 15-22 |
| Temperature | 270°C | 270°C |

This mixture of gases was placed in a 30-liter tank and then transmitted to the autoclave through a preheating tank at the rate of 500 to 1,000 cubic centimeters per minute while the pressure in the chamber was kept at 22. The gas mixture was removed from a second exit. With this arrangement, the autoclave was constantly refilled with a fresh mixture of gases.

No Combustion Because of Lack of Oxygen

A variety of specimens were placed in this chamber to observe any changes that they might have undergone while the temperature in the chamber was increased up to 270°C. The test materials were chosen from among common items readily available in order to facilitate our understanding.

Under the pressure of 22 atmospheres and at room temperature, it was learned that small electric bulbs used in flashlights, pingpong balls and quail eggs were able to withstand this pressure. Under the same pressure, however, killifish in water in a beaker died instantly in the autoclave. When the temperature was raised, the water boiled and evaporated and the killifish was scorched.

A match, the head covered with combustible chemicals, ignited spontaneously at around 150°C, but the fire thus started did not burn the wooden stick which, instead, began to scorch at about 170°C and became charred around 200°C.

This carbonized match stick would burn in ordinary air with a red glow at about

350°C. In the artificial Venusian atmosphere, however, it did not burn even when the temperature was raised to 400°C. After the temperature was raised above 300°C, however, the carbonized match either bent or splintered and gradually became thinner.

With what percentage of oxygen in the Venusian atmosphere, then, would the carbonized match stick begin to burn?

In an experiment in which the oxygen content in the carbon dioxide was raised gradually from 3 per cent to 5, 10, 20 and 30 per cent, the match stick did not burn at 10 per cent. With an oxygen content greater than 20 per cent, however, it began to burn at 230°C.

That is to say, even when the atmospheric pressure is as high as 22 and the temperature as much as 270°C, a match stick does not burn if the oxygen content is only from 0.4 to 0.8 per cent.

The same may be said of sulphur which readily burns in the air.

Sulphur burns spontaneously in the earth's atmosphere at 230°C. In the man-made

Venusian atmosphere, however, it merely melts and turns into an amber-colored fluid.

It furiously emits smoke but does not create the whitish blue flame which is characteristic of the combustion of sulphur in the air. Even when the oxygen content was increased to 10 per cent in the autoclave, sulphur did not burn, but it did when the oxygen content was increased to 20 per cent.

In the Venusian atmosphere of 270°C, even absorbent cotton, gauze and handkerchiefs simply became carbonized. But these carbonized materials proved surprisingly sturdy. They could be, with some care, folded or unfolded, without crumbling to pieces or turning into ashes.

Does all this mean that nothing ever burns in Venus' atmosphere?

The head of a match burned, to be sure. But this was because the tip was covered with chemicals containing potassium chlorate, an oxidizer. It would burn even in an atmosphere containing carbon dioxide alone or even in vacuum because of the effect

of the oxidizer it contains. This would be true with celluloid which consists primarily of nitrocellulose, such as a pingpong ball.

There are some things, however, which do burn in the Venusian atmosphere because of the slight amount of oxygen contained in it.

The fine particles of magnesium is one example. Magnesium powder which used to be used for flash-light in photography, does not burn spontaneously even when heated up to 360°C in the air. But if mixed with an oxidizing agent, such as used in a match, it can be made to burn instantly with a flash when the agent is ignited at temperatures around 150°C . When the same substances are placed in a container with carbon dioxide with 22 atmospheres and heated, the oxidizing agent of the match alone burns at temperatures around 150°C while the magnesium powder does not. When the same experiment is conducted in the simulated Venusian atmosphere, however, magnesium, too, is ignited and burns instantly.

In the Venusian atmosphere

which contains a very small amount of oxygen, only a small of substances including magnesium burn. Even benzene does not burn there.

When a cigarette is lighted in the earth's atmosphere and placed in a test tube, which in turn is placed in the Venusian atmosphere, the cigarette is instantly extinguished, producing a large quantity of smoke and tar while the cigarette itself becomes charred. Water under 15 atmospheres boils at 197°C and under 22 atmospheres at 216°C . In the Venusian atmosphere, heavy oil evaporates instantly leaving only a dark brown residue.

As said before, the oxygen content in one liter of the atmosphere on the surface of Venus is from one-seventh to one-third that in the same amount of the earth's atmosphere. Yet, despite this relative abundance of oxygen in the earth's atmosphere, things do not burn as readily as they might be expected.

This, reasons Dr. Tsuyoshi Hikita of Tokyo University, is because "in the earth's atmosphere, carbon dioxide, too, is equally compressed

and this, among other things, impedes combustion because it deprives the heat necessary for burning."

"If we took a substance whose temperature is several thousand degrees," says Professor Hikita, however, "to the surface of Venus, the high temperature itself would dissociate oxygen from carbon dioxide, and then that oxygen would cause the substance to burn."

Apart from the combustion experiments, a test was also conducted for checking changes that occur in metals in the Venusian atmosphere. This was done with stainless steel, magnesium, pure iron and aluminum, whose specimen pieces were left alone for one week in the simulated atmosphere. The result showed that the iron became covered with a black coat of rust which in turn prevented the iron from further rusting. Stainless steel, magnesium, and aluminum, also, rusted.

Specialists have said that "metal pieces rust rapidly in the Venusian atmosphere, which has less oxygen than the earth's because of the high temperature." Another

factor in causing the metals to rust may be that oxidation takes place because of the oxygen created by the dissociation of carbon dioxide, besides the 0.4 to 0.8 per cent oxygen in the atmosphere.

Further Approach to Real Atmosphere

The data obtained through the above experiments seem to repudiate almost all the hypotheses hitherto advanced by many scientists concerning Venus.

The theory advanced by Svante Arrhenius (1859-1927), the Nobel Prize-winning Swedish scientist, and Dr. Graviil A. Thikhoff, the late Soviet space biologist that "Venus is covered with vegetation" is now totally inconceivable. The theory of Dr. Fred L. Whipple (1906-), director of the Smithsonian Astrophysical Observatory, and Dr. Fred Hoyle (1915-), a British astronomer, who both advanced the theory that there would be "sea of petroleum" on the surface of Venus, too, would be impossible. For water and petroleum would evaporate and

any plant would instantly turn into charcoal.

The only remaining hypotheses yet to be repudiated is that the surface of Venus is an intensely hot, barren desert. Yet, there is no way of knowing as yet whether the entire surface is desert or if there are high mountain ranges as on the earth and if plant life and microbes might be found at places on the high mountains where the temperature is low. On these questions, there is now only speculation.

The experiments jointly conducted by the Asahi Shimbun Publishing Company and the National Institute of Metals have made a major contribution in changing much of the speculation about Venus into reality. In order to learn more of the realistic facts of life on Venus, how-

ever, it will be necessary to send more sophisticated surveying instruments to its surface.

It is no mere dream to expect that someday such nations as the United States and the Soviet Union, countries which are capable of launching rockets, will launch Venus probes one after another and establish a cooperative relationship in space science, and conduct experiments by reproducing on the earth conditions similar to those on Venus with the further data obtained from such Venusian probes. These recent experiments in Japan will undoubtedly contribute to stimulating further efforts to reveal the secrets of Venus and other planets of our solar system in the interests of greater international cooperation and understanding.
— *Japan Fortnightly*, 1968

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THE COVER — Loneliness occasioned by the absence of the First Lady and their three children, who flew to the U. S. earlier, aggravated by a sprained foot, which grounded him most of the time, plus state problems, engulfed the world of President Marcos during the better part of May, this year.
— **ABP**