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*In this Issue:*

# EDUCATION FOR INTERNATIONAL UNDERSTANDING[1]

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It has always been a task for the school to adapt itself to the trend of the general development. A generation or two ago in my country we adapted the education to the new society based on modern democracy. Today we have to take the next step: to adapt our education to a society that is more and more affected by the needs of international aspects. In other words, we have to give the young generation an education that can help them to be good and efficient world citizens as well as Filipinos or Americans or Swedes.

In this new way of thinking of education we are confronted by an obvious difficulty. At the same time we have to educate for the society of our own national country and for the world society. Which is the most important one? Of course the answer is that the most important task of the school is to give the students a good knowledge of the society where they probably will spend the biggest part of their life. They have to know its conditions and its problems, economic, social, political and religious. To give them an insight in all this must be the most urgent task of all education. What is outside must come as number two.

Perhaps this is especially important in countries that recently have become independent as in your beautiful country. The main task here must be to find yourself, to establish your own ways of living, to combine the patterns of life and society that have influenced you for centuries with what is really your own. You have to find your own ways, you have to be very much centered on what is really yours. And thus in a country like yours it must be a very important task to arouse in your generation a knowledge of and an admiration for what is really your own, a pride in

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(1)Keynote speech delivered at the Third National Seminar-Workshop, Iloilo City, Philippines, February 12-17, 1968. Printed by permission.

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your history and culture and traditions. This can be done in a spirit of sound nationalism, but it can also be done in a spirit of bad nationalism. In other words, just as nationalism can be very healthy and provide many positive values, it also can be an alarming and perhaps a dangerous base of education.

We have always the right and duty to love our country, but our pride of our own country must never be permitted to be unlimited. Sometimes we are right but sometimes also wrong.

When I was sent on a mission to a country for education for international understanding, a prominent representative of this country said to me: "Why did they send you to my country on a mission for education for international understanding? We are very peaceful and internationally minded! You had better go to our neighbor country!"

This reveals a way of thinking highly of your own people and lowly of your neighbors. It's an attitude that reminds me of the self-conscious attitude in the history textbooks of my boyhood, when my country always in the wars and the disputes with other peoples was right and they were wrong. "Right or wrong, my country!"

I think the time is definitely passed, when we could be only nationalists. We know, all of us, that today, with all our wonderful modern communications, our own country is only a part and usually a very small part of the wide world, and we know all of us, that today we are of no real value if we don't recognize the fact that we are living close together and that we, all of us, are depending on mutual contributions to the development not only of the world as a whole but also of our own country. No one of us today is self-dependent.

So we must recognize the need of not only national but also international aspects in our education. This is what we used to call education for international understanding.

This term, this expression, "education for international understanding," is probably not a very good one.

It is also just now discussed by the Unesco authorities at the headquarters in Paris to get another term for what we now are talking about. Especially they are interested—in the term "education for peace." I am not quite sure that this would be better. Can you really educate for "peace"? "Do you really think that by your teaching in a classroom can stop the war in Vietnam?" This question was given to me by a student in Thailand. My answer was very conventional and superficial. Through teaching for international understanding we hope to create better attitude to other peoples, and if there is a general opinion in a country in favor of peace and cooperation it is possible that a government will follow this general opinion and avoid steps that could lead to a war. But is this really true? The tragic thing is that we don't know for sure the real reasons behind a war. We know that there can be a war in spite of the fact that the peoples involved are definitely in favor of peace and that a war has rather little to do with the general opinion, the attitudes of the peoples involved. Oil field control? Disputes about certain territories? Disputes about certain commercial or communicational favors? We don't know for sure. The Dag Hammarskjold Institute in Uppsala has recently been established for a special peace research.

And because of this it is very uncertain if we really can achieve any obvious results from an education for international understanding. There is no reason for a cheap optimism. But ignoring this I still think there are many and strong reasons for what we call an education for international understanding. One reason is that in a world where we, with each day, come more and more close together it is simply necessary that we have a far better knowledge of each other. We have to adapt our education to the demands of world citizenship.

A knowledge of the world and of its problems has shown to have a favorable effect on our own national feelings. It makes it possible to moderate our national pride and to promote a sound self-criticism.

We Swedes often feel proud of our own country and our ability to give help to other nations. But when we acquire a better knowledge of the suffering in our world, our pride is change into shame; we are ashamed that we do so little, that we in fact give nothing compared with what we really could give, only some crumbs from the table of our welfare. A better knowledge of the gigantic problems in other countries can make us more humble and give us a more proper evaluation of our very small efforts.

Another example: We Swedes in our quiet corner of the world have a tendency to play the role of world conscience, which of course, is very little called for. We condemn the ways in which some countries are solving their race problems. We feel a well founded indignation on behalf of how black people are treated in some countries. Don't they know that we are all brethren, in spite of color? But it is an established fact that black students on scholarships can find it difficult to get boarding rooms in the university cities of Sweden. It is really easy to feel indignant, when you live far away from these problems, but when you get them at home you can find that you are not a bit better than those horrible peoples! We had prejudices without knowing it. And I have found that also among peoples, who are so anxious to declare their good will and friendly attitudes to all the peoples of the world, they sometimes are not aware of the fact that they treat minorities in their own countries with disgust and contempt.

You will acquire a better knowledge of yourself, when you really try to penetrate the important questions of human rights and human dignity and get some real knowledge of the problems and the gambling for power behind the racial conflicts and injustices. Such knowledge can give us a more real knowledge also of ourselves, and at the same time a more true evaluation of our own way of living.

Of course I don't mean to say that the most important aim or result of teaching at school for international understanding is to get a better picture of yourself or to give you material for self-reflection. The most important pur-

pose, of course, is to achieve a better knowledge of other peoples and their history and problems. The pedagogical points of aim can be expressed in three words: imaginations, comparisons and cooperation.

The main purpose of our teaching is to create true imaginations of other peoples, their customs, their way of living, their material and spiritual culture. You have to try to understand that which is strange to you from its own connections. Much of our prejudices and contempt are caused by insufficient knowledge of other peoples.

It is natural to make comparisons of conditions in our own country with those in other countries, but it is not quite safe. Perhaps there is a way to understanding if we go from the known to the unknown. We in Sweden can thus get a better understanding of the African village democracy, if we remind ourselves of the fact that we had a similar kind of democracy in our own peasant society. Probably you can find similar examples in your own country. The differences are often smaller than the similarities.

The third point of the aim for an education for international understanding is cooperation. It is easy to state the fact that technical progress gets the peoples closer together, and at the same time the increasing food problems make peaceful cooperation necessary. We are all familiar with the three steps of development, that we express in the three words dependence, independence, interdependence. We all of us recognize the necessity of interdependence, of a mutual dependence on other nations. The generation of students that we have nowadays in our schools will probably get important duties in this cooperation. Some of them will need a special education for this international cooperation, and all the other students also must get the possibility of understanding and appreciating this international cooperation.

It is impossible to foresee what the coming world will look like. That will be the result of the transformation of

our technical age. You can find different tendencies, that seem to be inconsistent, but probably each of them will be components in the process, from which the world society of tomorrow will develop.

One of these tendencies seems to be a normalising one. We find it in the mass product, both in form and function; we find it in house building and city planning.

As to the spiritual culture the mass media are working with the same tendencies. Wild Western stories come rushing in European as well as in African and Asian houses with the same pattern. Small peoples and economically developing countries have no means to create striking programmes of similar strength. Thus, the American style or the Soviet Union style is influencing our cultural patterns, but in good and bad sides of other cultures. This is a very delicate problem of international cooperation. Will it be possible to avoid a conquest of the souls of peoples through printers' inks or TV or films, when colonial conquests of raw products are not possible any more?

An alternative to this normalising is a mixing of different cultures. We can see this done in several religions and customs and arts.

The cooperation between the peoples must be founded on respect and regard for inherited ways of living and on mutual exchange of cultural values. It is not desirable or necessary to smooth down all tensions. There must remain a freedom to form opinions. No one's feeling must be offered and no one must be prevented from expressing it to another. This freedom of expressing your own opinions will perhaps never be complete, but in a world of manifoldness with different traditions, different ways of living and different religions it must be final aim of education.

It is for this world with different evaluations and different conceptions of life that schools must prepare their students. And in this teaching there is no need for other

pedagogical methods than those that we use in all education.

Teaching facts is the basic method, here as in all our subjects. Only if the students get solid facts and objective facts is there is hope for a better understanding and a smoothing down of antagonism. Most of the subjects at school can give good international views. Not only social science subjects but also sciences and arts and music can give wonderful contributions to understanding of another culture, if you know how to interpret it.

Exercise of skills, of course, here as always is closely connected with learning facts. First of all, this means teaching foreign languages. A practical skill of using one of the world languages is more important than ever. It must be considered as a practical need in all countries to improve the teaching of foreign languages.

Creating good attitudes is, last but not least, of elementary importance in a teaching situation like this. Creating attitudes is mostly done not deliberately but through accents, small accents of admiration or contempt, that not always the teacher is aware of but that have a tendency to give colours to his information and comments.

The attitude of understanding fellow-creatures, of understanding what is different, which we want to promote through our teaching, is not at all self-evident to the teacher. We have all of us, our prejudices and there are prejudices that we ourselves are not aware of, but that we interpret as true descriptions of foreign cultures. The teacher always has a need for good preparation if he will be able to give his students real and true imaginations.

Education for good attitudes towards fellow human beings is the purpose of international guidance on all school levels. And the older students must be aware of the fact that they belong to a generation that will have definite importance when it comes to building up a world community.

The future belongs to the youth. Let us prepare the youth for the future!

# SOUTHEAST ASIA IN INDIA'S DEFENSIVE FRAMEWORK[a]

*Dr. S. N. Tiwari*[b]

It is generally countenanced that the wind-swift supersonic aircrafts and the inter-continental missiles have obliterated the significance of the land bases. In support of this view, it is contended that no country or part of a country is now invulnerable in the wake of an air war theatre. The very similar voices are heard for the seaports also. It is argued that the seaports and natural harbours are not so important, when the naval force may refuel and carry out major repairing of ships, even at sea also. At the same time, submarines, bombing planes and ballistic missiles have reduced the presupposed defensive strength of islands, peninsulas, promontories and the ports of the coast, protected by mountains, deserts and jungles.

Though the aforesaid views in regard to the importance of strategy during the time of war are not anarchronistic in the present situation, the far-reaching consequences arising out of the debacle of the most significant strategical points are very clear to every country, irrespective of its strength. The big powers, too, though equipped with the most virulent and catastrophic weapons, do not fail to recognize the strategical points of the world. It has been proved by the several instances that the great powers sometimes become so particular about the important strategical places of the world, that they think their withdrawal from the place as a sheer defeat. The U.S.A. left no stone unturned to stem the tide of communism from penetrating into the Pacific Ocean. The massacre of the Vietnamese people by the American soldiers and the gruesome death of the American soldiers in jungles of Viet-

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[a]Unsolicited publication. Dr. Tiwari writes: "I am enclosing an article "Southeast Asia: in India's Defensive Framework" with the greatest expectation that you will be kind to get my article published in your esteemed journal."

[b]Dr. Tiwari is a judge advocate, Buxar Court, District of Shahabad, Bihar, India.

nam, are the result of Washington's diplomacy to maintain its advance checkpost against Communism in the East. The opponents of American diplomacy cast similar coveting eyes of the Vietnamese problems. Both the parties involved in Vietnam are preoccupied with an invariable notion to make its strongest host in Southeast Asia and eventually to put their troops from defensive precautions to offensive projections.

In such circumstances, nobody can doubt the strategical importance of the Southeast Asian countries for India's defense and prosperity. There are two main factors that make the countries of the region of transcendent importance for India's well being during the period of peace and for India's defence in the time of war. These two factors are the following:

i. The geographical location
ii. Economic situation

i. *The Geographical location:*

The location of a country always determines its strategic position in the international affair.[1] The Southeast Asian region has a unique location in the world geography. The region is important not only for Asia but for the whole world. For India, the situation of the countries of the region is as significant as that of an integral part of the Union of India. This becomes more vivid, when we make a geographical note of the location of the Southeast Asian region in the world's map.

First: The region lies between India and China, the two great rival powers in Asia. Historically, culturally, economically, and even politically, China's influence in Southeast Asia, since a long time, has been no less than India's own influence in the region. Geographically also, China occupies the same position. Thus, receiving all the privileges which India enjoys in the region, China has always tended to envelop Southeast Asia. But the old historical records prove that the Indians, who built up great

empires, always stemmed the tide of the Chinese influence from coming to the Indian main soil.

At the present time, communist China is applying every overt and covert method to make the region its satellite by outmanuevering India's influence. So now, Southeast Asia's importance for India has increased many times. The situation, created by the Red Chinese regime, particularly in the Southeast Asian countries, leaves no doubt about the belief that the collapse of the region into the hands of the Communists will ascertain the prophecy of Lenin that "for world Communism, the road to Paris lies through Peking and Calcutta." Mao-Tse Tung has fulfilled half of Lenin's dream, and it seems that if the Communist insurrectionary forces fighting at the instance of Mao succeeded in Southeast Asia, it will be difficult to save Calcutta from the Red forces.

Second: The region is like a land bridge between the two continents, Asia and Australia. India and Australia, very close friends to each other, are linked through the region. If the linking agency is disrupted, India's close contact with Australia will be in jeopardy. It is worthy to bear in mind that on the most important Southeast Asian issues, India and Australia have endeavoured to follow an identical policy. Mr. Desai, the Indian delegate with the U.N., said in the Security Council in 1949 that, "Together with our colleagues of Australia, we belong to the South-East Asian sphere and therefore we are concerned in this problem."[2]

Third: The Southeast Asian region is a link between the Indian Ocean and the Pacific Ocean. India, the greatest Indian ocean state, has close contacts with the Pacific. At the present age these contacts have enourmously increased. In no case can India remain unaffected by the events happening in the Pacific. The so-called architect of India's foregin policy, Pandit Nehru, remarked, "Though not directly a Pacific state, India will inevitably exercise an important influence there."[3] Since the World War II and especially after the Communist victory on the mainland of China, the importance of the area conjoining the

two oceans, the Indian and Pacific, has soared very high. Of late, China's continuously growing bellicosity against India has added one more point in the importance of the Pacific region for India.

Now, it would be worthwhile to discuss the location of the different countries, constituting Southeast Asia separately and see how far it affected India.

Burma, India's closest neighbor, shares a common border with India both on land and water. In Assam and in N.E.F.A., Burma makes a long border with India. In the same way the Bay of Bengal washes the Burmese territory. The nearest Burmese outpost is only at a 40 miles distance from the Andaman islands.[4]

The geographical location of Burma is so important for India, that the latter can ignore the existence of the former at its own peril. Pandit Kunzru has perspicuously pointed out: "Whether there is any agreement between India and Burma or not, it is clear that the ultimate interests and security of India lay in the continued freedom and independence of Burma."[5] Burma has been destined at such a geographical location that if it falls into the hands of the belligerent expansionist powers or turns itself hostile to India, the Indian Government will face a pernicious situation in both the cases. A cursory glance at the map makes one believe that from Burma, easy and successful attacks may be launched against the eastern provinces of India, where India's main mineral resources, heavy industries and fertile agricultural fields are located.[6]

The Sino-Pak collusion against India has again added one point more to the importance of Burma for India's defence and well-being. It can be mentioned that if Burma is friendly to India, then it may prove to be a good agency to intercept the Chinese and Pakistani forces meeting together to attack India. Otherwise, when Burma succumbs to the joint bellicose temperament of China and Pakistan against India, the destiny of the people will be jeopardy. Because, if the Chinese forces hold a base in Burma to

operate against India, the former's position will be very strong. The Chinese troops will be greatly benefited by the Burmese petroleum—scarcely found in China, and this opportunity will give an unending momentum to the Chinese government to unleash massive onslaught on India.

The situation of Burma on the bay of Bengal has given it an added advantage of availing the opportunity of control over the vast body of water, as and when required. If it goes against India or if it is under the influence of a belligerent country, Burma can provide a good land base for attacking India. It can also serve as a naval base and her military ships can easily disturb the coastal areas of India. In these circumstances, India's position, especially its defence, will be put to a lot of strain which may ultimately undermine our existence. K.M. Panikkar is rightly of the view, "Besides, as recent events have proved, a power which controls Rangoon can control the Bay of Bengal."[7]

The control of the bay of Bengal in the hands of an enemy nation will coincide with paralyzing India's ocean borne trade and traffic with other countries. In such circumstances it will also become difficult for India to regulate its international trade through the Arabian sea waters and this will cause the origin of multidimensional fronts, which is disastrous for the country.

With the development of the Nagas' and Mizos' hostilities in the Assam areas, Burma has assumed additional strategic importance. The Burmese jungle clad territories may provide a good refuge to the hostile Nagas and Mizos.[8] At this juncture it is essential that Burma should behave like a good friend and should not help the Naga rebellions in their subversive and disruptive activities against the Indian government or give them refuge at the time when they were being chased by the Indian Police or military personnel.

Thailand, the heart of Southeast Asia,[9] and quite near to the Indian group of islands—Andaman and Nicobar, plays an important strategical part for India. Its impor-

ance for India can be reckoned in both positive and negative ways. With its central position in Southeast Asia, if Thailand is inclined to India, then the latter may keep vigilance from here on the activities of the countries of the region. The Thai government will also not allow to develop a situation that may ultimately embroil India's position. During the second World War the importance of Thailand was estimated. It appears probable that, had Thailand denied the Japanese troops passage through the Thai territories or disallowed it to make Thailand its base to attack other Southeast Asian countries, and restored to war against Japan, the British and the Dutch forces would not have been so easily defeated.

Since the Sino-Indian conflicts turned into an open war, the importance of Thailand for India has grown very high. If favourably disposed to India, Thailand, being an anti-Chinese and anti-Communist country, may provide all sorts of help to the Indian government to fight against the Communist China in Southeast Asia.

The countries of Indo-China, although comparatively far from the Indian border, have a long and decisive influence on the Indian strategic policy, against a threat coming from the East. The geographical position of the countries of Indo-China is so important that a strong power based on these countries will be in advantage to threaten even India, through Thailand and Burma. In the remote ages the countries of present Indo-China had proved a strong barrier against an enemy tempted to swallow up the whole of Southeast Asia and eventually India. The well planned expeditions of the Chinese kings, could not touch the Northeast Frontier of India, because the great empires built by the Indian princes in Champa and Kambuja proved a deterrent to all those expeditions. It was the stiff resistance of the great Hindu empires that the Chinese generals could not succeed to establish their bases in the Indian Ocean and thus India was saved from both the sides—land and water. K.M. Pannikkar has aptly observed, "If ever the expanding empire of China did not

extend its authority to Singapore and if the Indian Ocean remains today what its name indicates, it is due to the resistance which Kambuja and Champa put up against the continuous pressure of China."[10]

At the present age, with the increasing use of the air as a war theatre, China's determination to outmanuoevre India's influence from Southeast Asia and a considerable success to the Chinese Communists in all the three countries of Indo-China, have greatly heightened the importance of Cambodia, Laos and Vietnam—the constituent parts of Indo-China, for India.

In the context of the present swiftly oscillating politics of Indo-China countries, China appears to be a conspicuous menace to India, because the Chinese communists have left no stone unturned to absorb the Indo-China countries—very near to the mainland of China. The Chinese government has achieved a grand success in North Vietnam and in the Northern provinces of Laos. Cambodia is also falling in the orbit of the Chinese Communists.

All these recent developments do not fail to impress one that China's strong hold in the countries of Indo-China will create grave menace to the neighboring countries of Indo-China and ultimately "would open the way to India." [11] Thus the geographical location of the countries of Indo-China and the contemporary situation prevailing in and around Cambodia, Laos and Vietnam, remind the Indian government and the people of India that "India's strategic frontiers" as M.R. Masani observed, "lie in Indo-China."[12]

Similar to the continental zone of Southeast Asia about which we have studied above, the insular countries are also the life-blood of India's defence and prosperity. Indonesia, the largest Southeast Asian country, "is a bridge or a series of stepping stones between the Indian and Pacific Oceans, linking the Malayan mainland to the northern tip of Australia by its main trend while the northern extension through the Philippines, connects Australia to the mainland of China by another series of island stepping stones."

A few points we have just referred to about Indonesia's geographical location, indicate that India's farthest defence actually lie in Indonesia. Along with it there are two other important factors that greatly increase Indonesia's value for the maintenance of India's integrity and solidarity. First, the Andaman group of islands are only 90 miles away from Sumatra.[13] Second, all the major ports and coastal settlements of Indonesia, lie on the northward of Indonesia,[14] comparatively nearer to India. The above mentioned two points ascertain the exigency of Indonesia, as India's safeguard and menace both are extended in Indonesia. These two facts may be elaborated thus: the joint Indo-Indonesian operation against a belligerent power can be safely and efficiently maintained, if Indonesia is in amity with India. This action will completely save India's sea bases to be a battle ground. But, if Indonesia becomes hostile to India, Indonesia's major ports located in the northward of Indonesia, may provide a good base to launch attack on India as well as to pulverise India's maritime activities.

Indonesia's strategical importance for India was greatly visualised by the Chinese government and it is not inconsistent to say that the Sino-Indonesian far-developing collusion against India before September 1965, was a plan to threaten India's sovereignty.[15] Indonesia's location in the Indian Ocean, adds one more point in Indonesia's importance for India. The Indian Ocean has been proved the nerve centre for India's independence. India lost her independence when her control on the Indian Ocean became weak. But at the same time it should not be forgotten that the collapse of Indonesia in the hands of an external power, constrained the Indian government to maintain its control on the Indian Ocean routes. This is known to the great Indian leaders. Pandit Nehru once remarked, "If some kind of colonial administration continues in Indonesia, if it is permitted to continue, it will be a danger to the whole of Asia, it will be a danger to us in India."[16]

Next to Indonesia, Malaysia and Singapore possess

vital strategical importance for India. The Strait of Malacca, Panama and Suez of the East, is the most important place in Malaysia. Its importance will grow many folds in the event of an Indo-Indonesian conflict because India's influence in the Strait of Malacca will enable the former to foil the Indonesian aggressive policy against India. Otherwise, India's entry into the East will be sealed, if the Strait of Malacca goes in the hands of an enemy.

Singapore, though very small in size, is very important, so far as its geographical position is concerned. The then Chief Minister of Singapore, Mr. David Marshall, once remarked that "Although we are a small territory, geography has made our destiny a regional destiny."[17] Singapore also shares a great responsibility in India's defence.[18] An expansionist power, determined to reach the Indian border, may be stemmed from Singapore. Though Singapore does not possess enough potentiality to stand against an attack, India can successfully strengthen the government of Singapore.

The Strait of Malacca and Singapore, both have been destined to such a marvelous geographical position that a country like India, whose more than 75% trade is carried out through the Indian Ocean routes, cannot ignore both Malaysia and Singapore. It has been aptly pointed out, "whosoever controls the Strait of Malacca and Singapore, dominate a sea route and strategic key point that is comparable in importance with Panama Canal."[19]

Since the east Pacific zone became one of the most controversial regions in the world diplomacy, the strategical importance of the Philippines reached at its culmination. The day by day browing conflicts between the Western allied forces led by the U.S.A. and the Communist forces, made the countries of the Indian Ocean open "to the pressures emanating from the side of the Pacific."[20]

Though the Philippines is far away from India, its significance in the recent times cannot be ignored. India's friendly relations with the Philippines count a great importance in India's successful diplomacy. To divert the attention of a belligerent power, stationed in a Southeast

Asian country, the islands of the Philippines may prove a good base. From the far-stretching island of the Philippines, successive air attacks may be made against a power, who is determined to invade India.

ii. *Economic richness:—*

The storage of economic resources in abundance in the countries of Southeast Asia, makes them (Southeast Asian countries) very important for India. From the time immemorial, the Southeast Asian countries have been a centre for the Indian merchants. Being motivated by the search for a veritable *el dorado,* the Indian merchants braved their ways through jungle and seas and swarmed over the Southeast Asian countries. The Indian merchants who with the passage of time became the permanent citizens of the Southeast Asian countries, proved to be a good agency in bringing the Indian and Southeast Asian economy very close.

During the time of the Western domination also, the region remained a great attraction for the Indian businessmen and a large number of Indians founded business enterprises, acquired agricultural land, operated money lending business, etc., in these countries. The British colonial government in India also strengthened India's economic relations with the countries of the region.

Even in the present time, the importance and prospects of close economic relations between India and Southeast Asian region have not decreased,[21] rather they have increased to a great extent—which may be illustrated by some facts given below:

India, the developing industrial country, have numerous advantages in the countries of the region to accelerate her industrial output. The Southeast Asian countries are famous for their richness of rubber, tin, tungsten, nickel and bauxite.[22] These economic resources, will be very useful for the Indian industries. The importance of these economic resources for India becomes very great in the sense that the Southeast Asian countries are not

in a position to utilize all their economic resources in their own industries. And there are certain difficulties before most of the countries to become highly industralized. Burma, Indonesia and Malaysia have a large accumulation of oil and petroleum.[23] These countries jointly produce oil 3/4 percent of the world output.[24] Though the Indian government is extensively busy in exploring its own oil wells, there is shortage of petroleum in India. If India succeeds in getting the surplus qualities of oil from the oil yielding Southeast Asian countries, it will be very beneficial for India.

This region is rich not only in the field of mineral resources, but it has a large stock of foodstuffs—especially rice. For its production of rice in large quantity, the region is named as the "rice bowl of Asia."[25] Though India is an agriculturist country, there is acute problem before the Indian government to feed the millions of people in India. In such circumstances, the Southeast Asian countries may be a genuine helper to India.

The next important factor with the Southeast Asian economy is, that it is not competitive but it is a complementary to the Indian economic resources. What India needs the Southeast Asian countries have in abundance and vice versa. P.A. Narielwala who led an Indian Trade Delegation to the Southeast Asian countries said in a speech in New Delhi that the "important factor in the development of trade between India and these countries is that the economy of India and these countries is fortunately not competitive but is complementary. Most of these countries are rich in natural resources; many of which, we ourselves in India, need as raw materials for our industries. It is, therefore, possible for the Indian industries to import raw materials from these countries and to export our manufactured goods to meet their requirements not only of consumer goods but also of industrial products."[26]

Narielwala's report about the future of India's and Southeast Asian economic rapport, clearly manifests that it is an imperative cause for the government of India, not

to show the slightest slackness to boost its commodities into the Southeast Asian countries. Rather, it should pay a special heed to strengthen its trade and commercial relations with the Southeast Asian countries. There are two most important agencies that may successfully herald India's centuries old economic ties with the countries of Southeast Asia. First, almost all the Southeast Asian countries have expressed, more than once, their deep propensities to be in close economic relations with India. Second, a large number of Indians, dwelling in the Southeast Asian countries, may prove to be a proper agency to introduce and strengthen India's economic relations with the Southeast Asian countries. In this connection it is not improper to say that the Indian citizens, living in the Southeast Asian countries are businessmen and have a decisive hand in the economy of the countries they inhabit.

China, the greatest Asian rival of India in the region, is applying every method to outmaneuvere India's economic influence from the countries of Southeast Asia. The Chinese nationals living in large numbers in almost all the countries of the region, are busy to flood the Southeast Asian countries with the Chinese manufactured commodities. Though the western countries, highly industrially developed, have captured an unquestionable status in the Southeast Asian economy, China's intention to dwindle India's economic effect in the region, will create a lugubrious situation for India.

The facts we collected enable me to say that India's defence really exists in the Southeast Asian countries. The natural location and economic resources of the region are so important that the Indian government, irrespective of its internal policies cannot and should not be unaware of the Sountheast Asian policies. The recent developments arising out of the Vietnamese war, give a beacon to the Indian government to be more wary and vigilant towards the Southeast Asian countries.

Though the unchallenging supremacy of any external and expansionist power in the Southeast Asian region is

a doom to India, China, a nuclear power, a potential enemy of India and with its great obstruction for India.[27] The primary object for India is to do her level best not allow the Chinese influence in the region. The Indian government has to reconsider its policy applied to the Southeast Asian countries and it has to pick up the threads of ancient cultural relations that can bring the people of India and Southeast Asia very close to each other.

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4. *The Statesman* (New Delhi) January 6, 1965.
5. "The Hindu (Madras)" August 2, 1955.
6. K. M. Panikkar has rightly remarked, "It should not be forgotten that Calcutta, the first City in India and centre of its Jute industry the Iharia Coalfields which produce the largest amount of coal, the Tata Iron Works, the most important of India's industrial achievement, lie within easy range of air attack from Burma." *The future of Southeast Asian*, pp. 43-44. India's important oil fields are located in the Assam area of Dighoy, Naharkatiya, Hagrijan, Moyan, Sibsagar etc. The Russian experts "associated with the O.N.G.C. feel that the Sibsagar Oil basin is of a magnitude which may give this field an international ranking, a status which no Indian oil field so far has." *The Statesman* (New Delhi) April 14, 1965.
7. *The Future of Southeast Asia*, op. cit. p. 42.
8. Dr. D. S. Raju, the Deputy Minister for defence said in the Lok Sabha that a gang of about 1,500 hostile Nagas, who had skirted the Mizo hills, was moving northwards through the Burmese territory. *The Statesman* (New Delhi) April 20, 1965.
   The two underground Naga leaders Mr. Z. Ramyo and Mr. Zashie Hurie also confirmed that some hostile Nagas had "crossed into the Kachin State of Burma from the Tirrap district of N.E.F.A.". *The Statesman* (New Delhi) May 12, 1967.
9. Prof. Joseph S. Rousek, Thailand in Geopolitics, Contemporary Review, Vol. 202, August 1962, p. 72.
10. *A Survey of Indian History*, p. 96.
11. Alexandre Varenne, "Indo-China in the Path of Japanese Expansion," *Foreign Affairs*, Vol. 17, Oct. 1938, p. 170.
12. "India: Dos and Dont's for Americans," *Foreign Affairs*, Vol. 30, No. 3, 1952, p. 424.
13. *The Statesman* (New Delhi) Jan. 6, 1965.

14. A Study Group of the Indian Council of World Affairs, Defence and Security in the Indian Ocean Area, p. 14.
15. Rt. Reverend Richardson, the Bishop of Nicobar and the former M.P., once said in that Indonesia's increasing alliance with Communist China and the former's activities in "Indian waters off great Nicobar and apprehended the people of Nicobar." *The Stateman* (New Delhi), May 28, 1965.
16. Quoted by S.P.Patel, *India's Foreign Policy*, p. 69.
17. *Asian Recorder*, December 3-9, 1955, p. 547.
18. K.M. Panikkar wrote about Singapore's importance for India that "with Istanbul, Gibraltar and Panama, Singapore shares equivocal honour of being a point of greatest importance in world strategy, its defence is vital primarily to India." *The Future of Southeast Asia, op. cit.*, p. 102.
19. Lennox A. Mills and Associates, *The New World of Southeast Asia*, p. 6.
20. Ravindra Varma, *Foreign Affairs Report*, Vol. 13, No. 1, Jan. 1964, p. 5.
21. B. N. Ganguli has rightly remarked that with her "vast and diversified economic resources and a more balanced political and economic organization, India is a little apart from Southeast Asia, but not so apart as the 'peripheral' countries. It is this, somewhat intermediate position of India which invests the reorientation of India's economic relations with the nuclear countries of Southeast Asia with a special significance. Nevertheless, like the 'peripheral' countries India has the distinct role of adjusting her economic relations with these countries to the requirements of their economic stability and integration in the context of a new rational economic regime which they have to build up for sheer survival as autonomous countries." B. N. Ganguli, India's Economic Relations with the Far Eastern and Pacific Countries in the Present Century, p. 3.
22. According to the report of the E.C.F.F., released on March 5, 1960, mentioned that the S.E.A. region and the Far East produced 90% of the world natural rubber and two thirds of it was yielded in Malaya and Indonesia. Asian recorder, April 16-22, 1961, p. 3902.
23. India is a main importer of oil from the Southeast Asian countries. In 1964-65 about 500,000 tons of Crude Oil was imported from Indonesia. The Statesman (New Delhi) August 12, 1965.
24. W. Gordon and O. R. K. Spate, *The Changing Map of Asia.* p. 195. In 1962, Burma's oil fields yield 600 thousand metric tons of petroleum, Indonesia's 22,800 thousand and Malaysia's 3,500 thousand metric tons. The Statesman Year Book 1964-65, p. XXV.
    Mr. Arnold C. Brockman writes, "Indonesia is the largest oil producer between the Middle East and California," Indonesian Communist, p. 303.
25. E. H. G. Dobby, Monsoon Asia, p. 18.
26. P. A. Narielwals, Trade Prospects with Southeast Asia" India Quarterly, Vol. 7, No. 1, 1951, p. 111.
    The Economic Weekly has also greatly exalted the importance of the Southeast Asian countries for India. It

mentioned: "It is rather an amorphous market consisting as it does of Malaya and Singapore on the one hand, and Indodonesia, Borneo and certain other territories on the other. For it is a centre of active entrepot trade and does a lot of re-exporting to the latter group of the countries." June 20, 1959, p. 707.

27. About the Sino-Indian postion in Southeast Asia, E. H. G. Dobby has remarked, "It is difficult to avoid supposing that, whatever the sentiment they profess, India and China in varying degrees may become involved with the control of Southeast Asia no less intimately than the colonial powers have been. Possibly this marginal, internally disrupted zone can only exist as an appanage and countries there may become the satellites of Asiatic powers rather than independence." E. H. G. Dobby, Southeast Asia, p. 397.

# CHANGES OF INORGANIC FRACTIONS OF PHOSPHORUS AND AVAILABLE PHOSPHORUS WITH EQUILIBRATION TIME IN FLOODED AND MOIST SOILS[1]

*Wilfredo G. Espada*[1]

The application of phosphate fertilizers to the soil seldom results in the recovery of more than 10 to 20 percent of the phosphorus. Fixation occurs simultaneously with the dissolution of phosphate from the fertilizer especially when the soil environment contains ions such as $Fe^{+3}$, $Al^{+3}$, $Ca^{+2}$, $K^{+}$, $NH_4^{+}$, and others. Several discrete mineral species or phosphate compounds were identified in solution supporting both phosphate ions and one or more of these ions [12, 13, 14]. The major portion of inorganic phosphorus in the soil is bound by calcium, aluminum, and iron; the relative abundance of each being controlled by soil reaction.

Several investigators [4, 6, 16, 22] have determined the chemical status of the different fractions and the fate of applied phosphorus under widely different soil conditions. Chang and Jackson [5] observed the formation of more aluminum phosphate (Al-P) than iron phosphate (Fe-P) upon addition of phosphate fertilizer. But as time elapsed, Fe-P content increased at the expense of Ca-P and Al-P [5, 6, 16, 18]. Volk and McLean [22] noted a tendency for applied phosphates to occur predominantly as ferric phosphate in soils of high fixing capacity and as aluminum phosphate in soils of low fixing capacity. The relative extent of fixation under identical soil conditions except for moisture status has not been examined.

Available phosphorus refers to the amounts of P which would be removed from soil by plans over a long period of

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time, i.e., an index of the capacity of a soil to release substantial amounts of P for crop growth [17]. A number of studies [2, 3, 21] have shown that it could be approximated by use of extracting reagents, but no one has shown universal application. So far these procedures have been mostly related to responses in crops grown under upland conditions. A more accurate prediction of available phosphate was obtained by Baker and Hall [2] using the Bray No. 1 reagent [3].

No method has been proposed to determine adequately the phosporus status of flooded soils. Air-dry soil analysis does not reflect the actual phosphorus supplying capacity of submerged soils [6, 7]. De Datta, *et. al* [7] found that air-dry soil with 2.03 ppm 0.02 N $H_2$ $SO_4$ extractable phosphorus yielded 10 to 20 times more extractable phosphorus after a crop of rice was harvested than before. This suggests conversion of a large amount of phosphorus into acid extractable form during the cropping period.

In view of the observations above and of inadequate information applicable to flooded soils, this study was conducted to examine the relationship between the inorganic fractions of phosphorus and the transformations of applied phosphorus in soils under moist and flooded conditions.

## MATERIALS AND METHODS

*Phosphorus fractionatin studies.* The experiment consisted of applying 90 parts of phosphorus to 2,000,000 parts of soil (90 pp2m) in four soils: Wooster silt loam (pH 6.3), Ripley silt loam (pH 5.75 and 6.15) and Crowley silt loam (pH 6.3, Arkansas paddy soil). Phosphorus was derived from ground rock phosphate, 20 and 100 percent acidulated rock phosphate, aluminum phosphate ($AlPO_4 .2H_2 0$) and iron phosphate ($FePO_4 .2H_2 0$)[3]. Each phosphate treatment was replicated three times and arranged in completely randomized block design within soil. Twenty grams of soil and the appropriate amount of each fertilizer

[3]The aluminum and iron phosphates were prepared in the laboratory according to the procedure described by Jackson (11).

were weighed into 125-ml Erlenmeyer flask and mixed thoroughly. Two moisture conditions were imposed on the phosphate treatments, i.e, flooded and most (field capacity). The flasks were stoppered with cotton and incubated at room temperature from 0 to 16 weeks. Distilled water was added as necessary to maintain the moisture conditions. The incubation was arranged such that for any date of sampling, the entire sample of incubated soil was analyzed. At the end of the incubation period, more distilled water was added to give a total volume of 50 ml in both flooded and moist conditions. The flasks were shaken in a reciprocating shaker at moderate speed for one hour, the contents transferred to 50 ml centrifuge tubes and centrifuged until the solution was free of colloidal particles. The soil residues were analyzed for the different fractions of phosphorus according to the procedure of Chang and Jackson [4].

*Determination of available phosphorus.* Pint-size waxed cups were filled with 100 grams of soils noted above, to which were added various phosphate materials at 90 pp2m of phosphorus. The phosphate treated soils were incubated for 1 and 8 weeks under moist and flooded conditions. The incubation scheme was arranged so that soil sampling was done on the same day with both times of incubation. Individual soil samples were taken from the 100-gram incubated soils for determination of available phosphorus by Bray No. 1 reagent (0.03 *N* $NH_4F$ + 0.025 *N* HCl) using a 5-minute shaking period in accordance with a procedure described by Jackson [11]. Approximately one gram dry weight was used for the analysis and the results were corrected on oven-dry weight basis from moisture content determined from each sample.

## RESULTS AND DISCUSSION

*Fixation of applied phosphate.* The relative concentration of applied phosphate recovered was calculated by substracting the value of the check from the value of the

phosphate treatments and expressing as percent of the total amount applied. The fractionation values for each two successive dates of incubation showed little variation justifying the grouping of the incubation dates into three periods: the 0 to 1 week incubation as the initial period; the 4 to 8 weeks as the intermediate period; and the 12 to 16 weeks as the final period.

The percent distribution of inorganic fractions from various sources are tabulated in Tables 1-3. Perusal of the data shows that the initial percent distribution generally reflects the relative concentration of constituent phosphates in the original materials. However, the 100 percent acidulated material was an exception. Evidently the soluble monocalcium phosphate in this material was imme-

Table 1. Percent Distribution of Inorganic Phosphorus from Different Sources in Limed Ripley Silt Loam Kept Moist or Flooded for the Indicated Periods.

| Treatments | Periods of Observations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0 to 1 week | | | 4 to 8 weeks | | | 12 to 16 weeks | | |
| | Ca-P | Al-P | Fe-P | Ca-P | Al-P | Fe-P | Ca-P | Al-P | Fe-P |
| | | | | *Flooded* | | | | | |
| RP[a] | 48 | 16 | 14 | 39 | 12 | 20 | 42 | 14 | 9 |
| 20%[b] | 38 | 18 | 18 | 30 | 11 | 19 | 27 | 24 | 28 |
| 100% | 7 | 40 | 36 | 2 | 25 | 54 | 2 | 24 | 49 |
| $AlPO_4$ | 6 | 45 | 14 | 0 | 39 | 31 | 2 | 36 | 33 |
| $FePO_4$ | 3 | 11 | 58 | 0 | 28 | 51 | 0 | 28 | 45 |
| Ave. | 20 | 26 | 27 | 14 | 23 | 35 | 22 | 25 | 33 |
| | | | | *Moist* | | | | | |
| RP | 52 | 16 | 19 | 46 | 10 | 25 | 48 | 12 | 21 |
| 20% | 38 | 21 | 13 | 38 | 10 | 21 | 36 | 11 | 24 |
| 100% | 8 | 44 | 42 | 4 | 23 | 53 | 9 | 24 | 41 |
| $AlPO_4$ | 10 | 44 | 21 | 0 | 43 | 43 | 3 | 44 | 34 |
| $FePO_4$ | 2 | 13 | 59 | 0 | 13 | 53 | 2 | 8 | 64 |
| Ave. | 22 | 28 | 31 | 18 | 20 | 39 | 19 | 20 | 27 |

[a]Ground rock phosphate.
[b]Percent acidulation of rock phosphate.

diately tied up chiefly as Al-P and Pe-P leaving an insignificant amount of P as Ca-P. This continued to be true even after 16 weeks of incubation. The phosphorus from rock phosphate remained largely as Ca-P throughout the experimental period in Wooster and unlimed Ripley soils. The 20 percent acidulated material behaved somewhat intermediate between the rock phosphate and the 100 percent acidulated material. The pure $AlPO_4.2H_2O$ and $FePO_4.2H_2O$ compounds were predominantly present in the initial period as Al-P and Fe-P, respectively. With time of incubation, more Fe-P formed from $AlPO_4.2H_2O$ treatment in soil originally relatively rich in reactive iron (unlimed Repley soil, and more Al-P formed from

Table 2. Percent Distribution of the Inorganic Fractions of Applied Phosphorus from Different Sources in Unlimed Ripley Silt Loam Kept Moist or Flooded for the Indicated Periods.

| Treatments | Periods of Observations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0 to 1 week | | | 4 to 8 weeks | | | 12 to 16 weeks | | |
| | Ca-P | Al-P | Fe-P | Ca-P | Al-P | Fe-P | Ca-P | Al-P | Fe-P |
| | | | | *Flooded* | | | | | |
| RP[a] | 61 | 7 | 0 | 50 | 7 | 2 | 57 | 0 | 12 |
| 20%[b] | 36 | 11 | 16 | 40 | 9 | 11 | 27 | 11 | 37 |
| 100% | 2 | 29 | 35 | 7 | 18 | 37 | 16 | 27 | 53 |
| $AlPO_4$ | 3 | 53 | 19 | 7 | 39 | 27 | 4 | 37 | 37 |
| $FePO_4$ | 0 | 19 | 44 | 3 | 20 | 40 | 1 | 22 | 54 |
| Ave. | 20 | 24 | 23 | 21 | 19 | 23 | 21 | 19 | 39 |
| | | | | *Moist* | | | | | |
| RP | 51 | 8 | 0 | 42 | 11 | 7 | 57 | 0 | 11 |
| 20% | 27 | 20 | 14 | 42 | 14 | 16 | 27 | 11 | 29 |
| 100% | 3 | 36 | 33 | 17 | 26 | 44 | 6 | 32 | 50 |
| $AlPO_4$ | 6 | 44 | 11 | 10 | 38 | 30 | 3 | 31 | 41 |
| $FePO_4$ | 1 | 29 | 42 | 5 | 26 | 43 | 2 | 19 | 44 |
| Ave. | 18 | 27 | 20 | 23 | 21 | 28 | 19 | 20 | 35 |

[a]Ground rock phosphate.
[b]Percent acidulation of rock phosphate.

$FePO_4.2H_2O$ treatment in soil originally relatively rich in reactive aluminum (Wooster soil). Liming the acid Ripley soil on the average caused the initial percent distribution of P fractions from these compounds to be maintained relatively constant after 16 weeks. However, the Fe-P increased somewhat where 20 to 100 percent acidulated and $AlP_4.2H_2O$ materials were added. The results indicate that the direction of the fixation reaction is controlled by the ion dominating the soil system, but all ions that are present which have affinity for phosphate exert a common ion effect [13]. In Wooster throughout the incubation periods and to a lesser extent in the Ripley soils initially, aluminum tied up more P than the iron both under moist and flooded conditions. This result agrees with the findings of Chiang [6] that P is initially fixed mostly as Al-P.

Table 3. Percent Distribution of the Inorganic Fractions of Phosphorus from Different Sources in Wooster Silt Loam Kept Moist or Flooded for the Indicated Periods.

| Treatments | Periods of Observations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0 to 1 week | | | 4 to 8 weeks | | | 12 to 16 weeks | | |
| | Ca-P | Al-P | Fe-P | Ca-P | Al-P | Fe-P | Ca-P | Al-P | Fe-P |
| | | | | *Flooded* | | | | | |
| RP[a] | 80 | 0 | 0 | 52 | 7 | 0 | 57 | 2 | 0 |
| 20%[b] | 37 | 20 | 17 | 20 | 32 | 48 | 31 | 33 | 21 |
| 100% | 2 | 40 | 37 | 0 | 42 | 53 | 4 | 40 | 27 |
| $AlPO_4$ | 1 | 52 | 8 | 0 | 64 | 24 | 1 | 57 | 20 |
| $FePO_4$ | 1 | 24 | 32 | 5 | 49 | 53 | 0 | 44 | 34 |
| Ave. | 24 | 34 | 23 | 14 | 29 | 36 | 19 | 35 | 20 |
| | | | | *Moist* | | | | | |
| RP | 67 | 0 | 0 | 59 | 0 | 11 | 53 | 0 | 1 |
| 20% | 35 | 34 | 0 | 36 | 33 | 13 | 31 | 29 | 17 |
| 100% | 4 | 42 | 18 | 0 | 39 | 28 | 3 | 51 | 31 |
| $AlPO_4$ | 4 | 55 | 7 | 0 | 48 | 22 | 8 | 43 | 25 |
| $FePO_4$ | 2 | 33 | 41 | 0 | 41 | 28 | 6 | 48 | 33 |
| Ave. | 22 | 33 | 14 | 19 | 30 | 20 | 18 | 36 | 21 |

[a]Ground rock phosphate.
[b]Percent acidulation of rock phosphate.

in flooded soil. In unlimed Ripley soil, there was a tendency for applied phosphate to be fixed as Al-P initially but for it to be fixed chiefly as Fe-P after 12 to 16 weeks of incubation.

Although there were differences with the various phosphates added, the average percent distributions of inorganic phosphorus fractions were little different whether flooded or moist. The average initial trends Fe-P> Al-P> Ca-P in limed Ripley soil did not change greatly after 12 to 16 weeks of incubation. However, the Fe-P increased noticeably with 20 and 100 percent acidulated and $AlPO_4 .2H_2O$ treatments. In the unlimed Ripley soil the average initial distribution as Al-P>Fe-P>Ca-P and the final distribution Fe-P $\geqslant$ Al-P>Ca-P. In Wooster soil the trend was Al-P $\geqslant$Ca-P>Fe-P with no perceptible change after 12 to 16 weeks. It is evident from these results that iron ultimately bound mostly the applied phosphate in Ripley soils while aluminum phosphate accounted for most of the phosphate applied in Wooster soil. The data for Crowley silt loam soil which is not reported here showed the same trends as the unlimed Ripley soil.

From the results above and in light of the findings of other workers [4, 5, 6], it can be concluded that aluminum and iron play a major role in controlling the concentration of phosphate ions in the soil even at pH as high as 6.3, the approximate pH of Wooster and Crowley soils used in this experiment.

*Dynamics of inorganic fractions.* The patterns of formation and distribution of the three discrete phosphate compounds in the soil are illustrated in Fig. 1-3. It is clear from the figures that the transformation caused decreases in concentration of one particular species of phosphate compound due to the formation of another species. The effect of moisture conditions is very evident in the case of Al-P and Fe-P fractions in Wooster soil. More Al-P fractions formed under moist condition while more Fe-P formed under flooded conditions. The Ripley soils exhibit the same trend although not significantly differ-

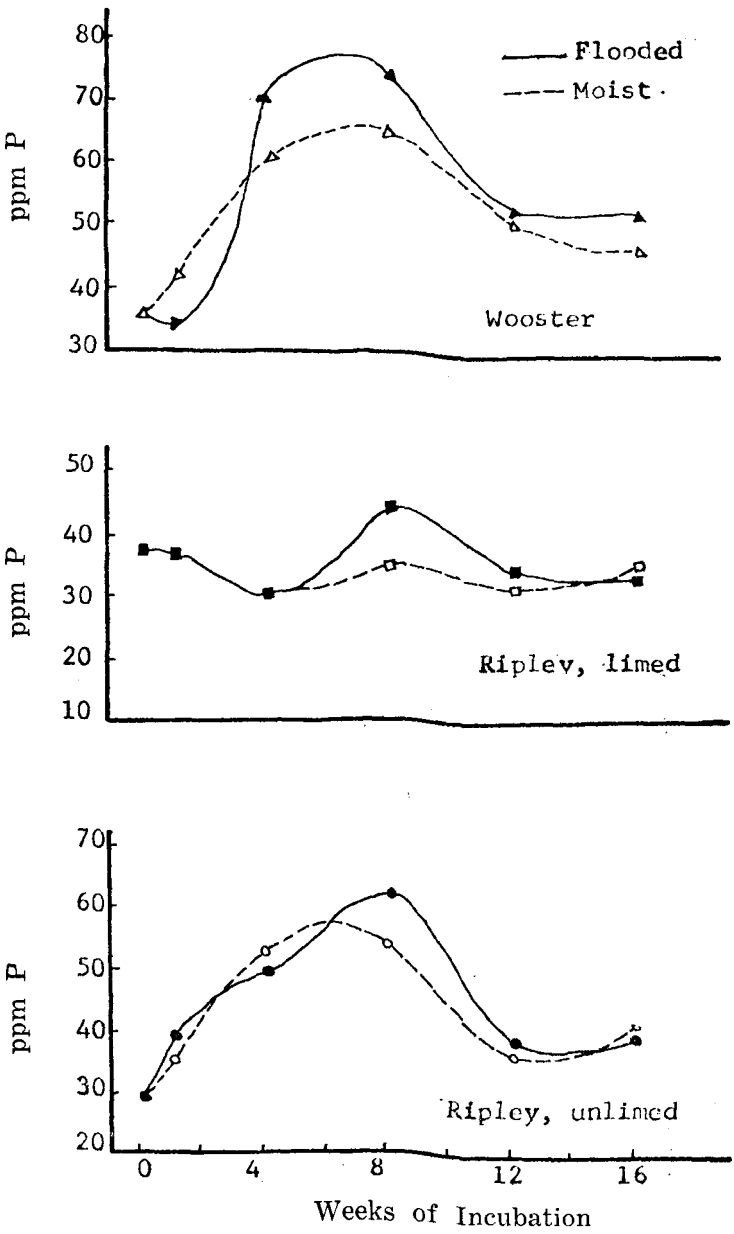


Fig. 1. The concentration of Ca-P fraction in three soils kept flooded or moist for various incubation periods.

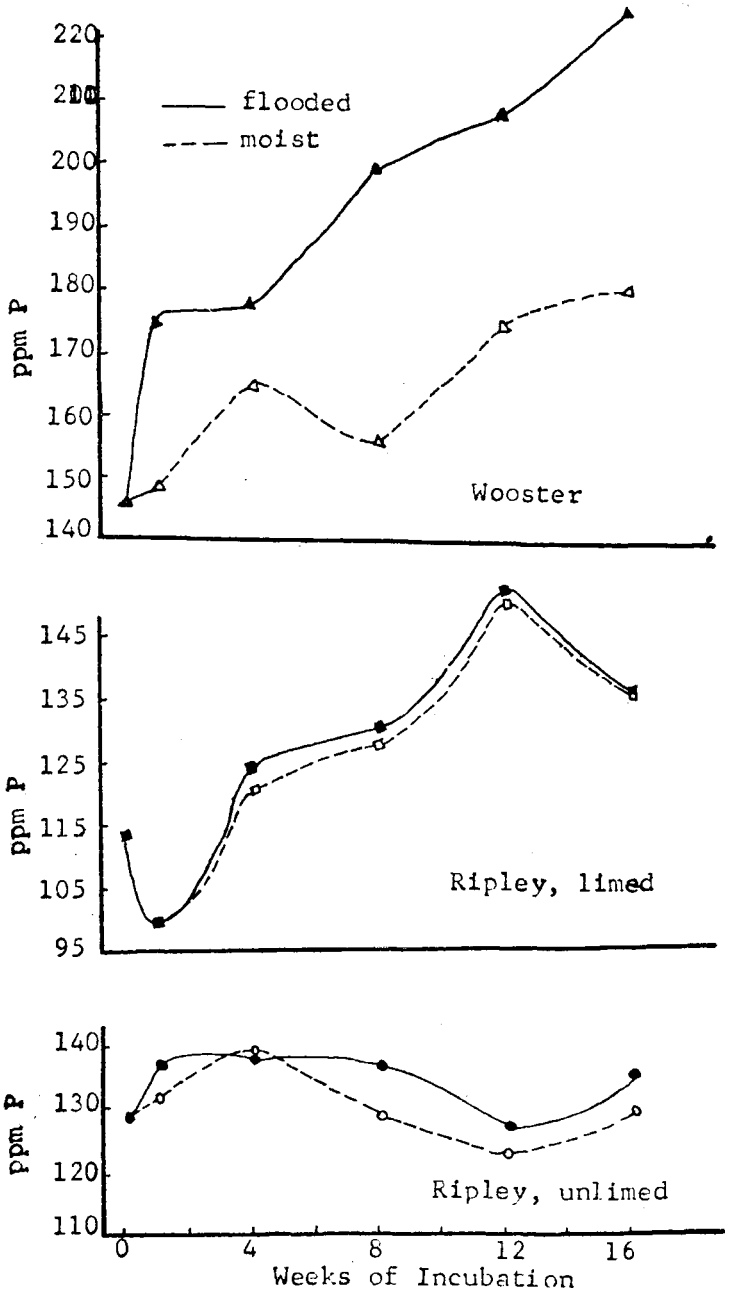


Fig. 2. The concentrations of Fe-P fraction in three soils kept flooded or moist for various incubation periods.

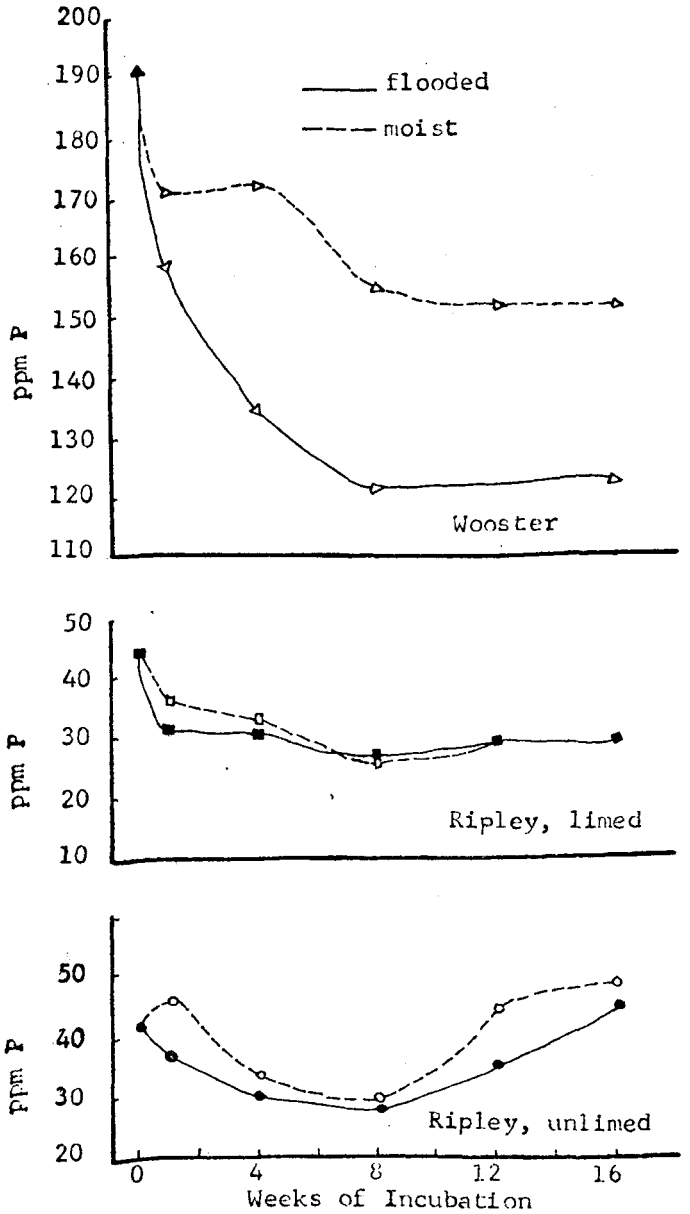


Fig. 3. The concentration of Al-P fraction in three soils kept flooded or moist for various incubation periods.

ent. As seen from Fig. 1, Ca-P fractions increased and reached maximum at the twelfth week of incubation which then attained quasi-equillibrium. The Fe-P fraction increasingly formed in Wooster and limed Ripley soils with time of incubation (Fig. 2). The Fe-P fraction in unlimed Ripley soil was not much affected by prolonged incubation. It is observed that Fe-P tended to decrease after 4 weeks and reached minimum at the 12th week, then picked up in concentration again at the 16th week. The Al-P fraction decreased with time of incubation in Wooster and limed Ripley soils, the extent of the change being more marked in the former (Fig. 3). In the case of the unlimed Ripley soil, the concentration reached minimum at the 8th week and increased thereafter until the 16th week.

In order to understand the kinetics of the transformation of these different fractions, the changes in concentration of the different species were examined. The results show that changes of inorganic fractions from phosphate treated soils paralleled those of the untreated (check). This indicates that the ratio of the different fractions is independent of the amount of soluble phosphate applied for any given period. The average concentration of all the treatments are illustrated in Fig. 4 and 5. The Al-P decreased significantly at the intermediate period. This was followed by increase in the Fe-P fraction in all soils and in Ca-P in Wooster and unlimed Ripley soils. The Ca-P in Wooster and unlimed Ripley soils then decreased after the intermediate stage while Al-P remained more or less constant. The Fe-P fractions continued to increase in all soils with time. It will be noted that Wooster and unlimed Ripley soils showed similar tendencies for change in Ca-P with time. On the other hand, the Wooster and limed Ripley soils showed more similar tendencies for change in Al-P and Fe-P with time. The Wooster soil was limed to pH 6.3 (original soil had a pH 4.5[4]), but with

[4]Data reported by V.V. Volk and E. O. McLean (22)

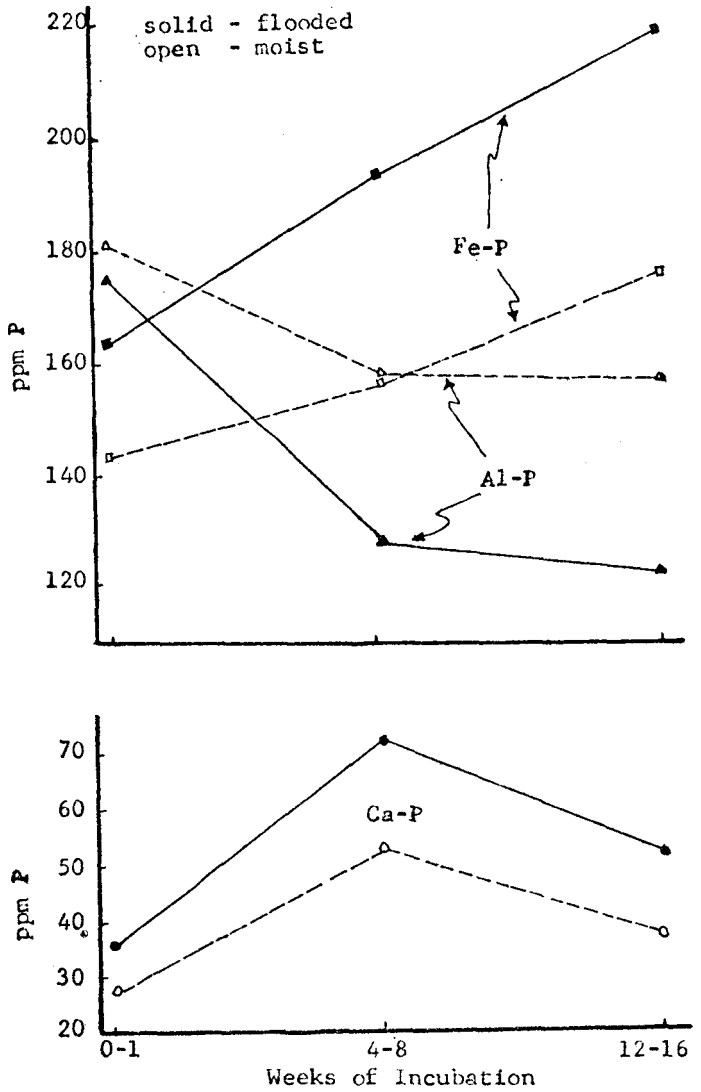


Fig. 4. Average concentrations of the inorganic fractions of phosphorus in Wooster silt loam kept flooded or moist for various incubation periods.

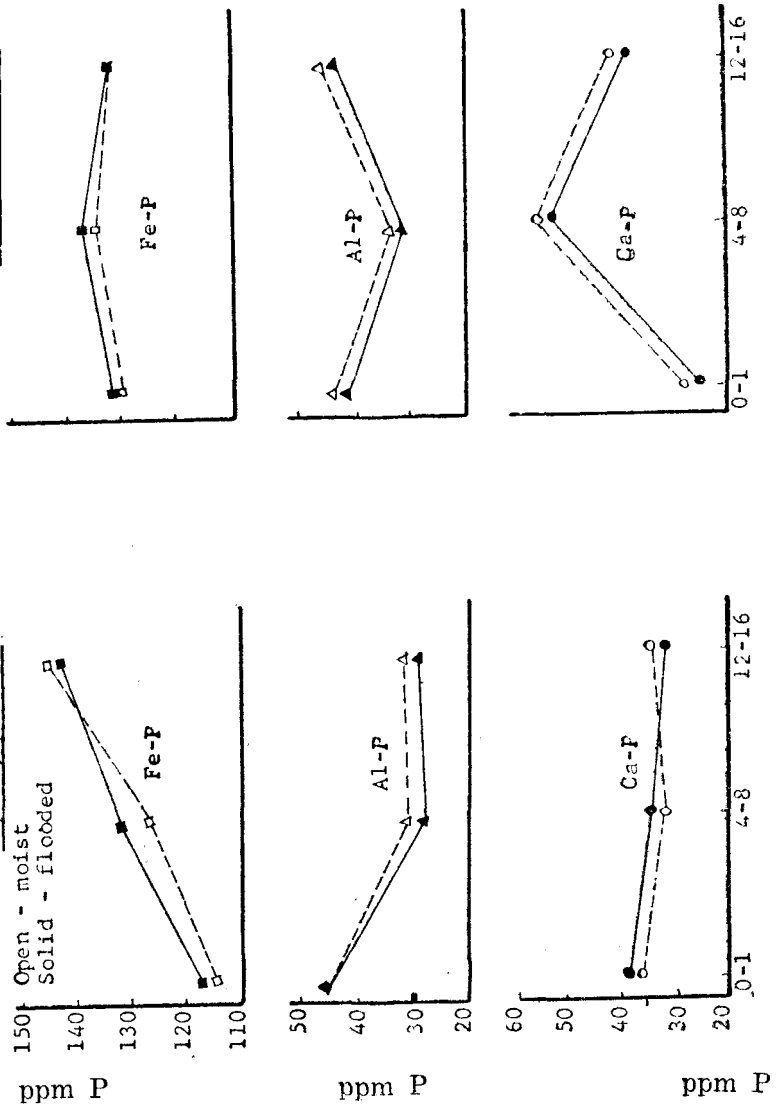


Fig. 5. Average concentrations of the inorganic fraction of phosphorus in limed and unlimed Ripley soils kept flooded or moist for various periods of incubation.

respect to changes in Ca-P, it behaved more like the acid Ripley soil. It should be also recalled from the previous discussion that the trend in initial percent distribution of the applied P bound by the different cations were similar in both soils. The initial concentration of Al-P (and presumably aluminum ion reactivity) in Wooster soil was high. Furthermore, aluminum ion was shown to be associated with acidity in the soil [15]. It appears that Wooster soil still retained some of the characteristics of an acid soil even if it was limed to approximately pH 6.3.

Further examination of the figures shows that Ca-P and Fe-P fractions were formed at the expense of Al-P fractions in Wooster soil and unlimed Ripley soils after 4 to 8 weeks. After this period Ca-P was mostly converted to Al-P in unlimed Ripley soil, the Fe-P fraction increased while Ca-P and Al-P fractions decreased after 4 to 8 weeks. The concentration of Ca-P and Al-P then remained more or less constant, but the Fe-P fraction continued to increase. No explanation could be given in the apparent increase in Fe-P fraction without concomittant change in Ca-P and Al-P fractions. It has been reported that the quantity of reductant soluble and concluded P in the soil could be significant [4, 16]. No report has been made under the conditions of this experiment about the changes of these forms with time of incubation. Glean, *et al* [8], however, reported that liming increased concluded phosphate at the expense of Al-P and Fe-P[5]. It is probable that the concluded or reluctant soluble P was formed to a form extractable by 0.1 Na-OH after the intermediate stage in this study, hence the higher rise in values of Fe-P in limed Ripley soil.

The final concentrations of the different inorganic fractions are summarized in Table 4. Regardless of soil properties, the discrete phosphate species that predominated in the soils at the end of the experiment is the Fe-P fraction both in flooded and moist conditions. Similar results were reported elsewhere [5, 9, 16] for the upland

[5]Unpublished data by K. Wada and M. L. Jackson reported by K. Wada[23].

Table 4. The Average Concentration in (ppm) of the Inorganic Fractions of Phosphorus in Four Soils Kept Flooded or Moist for Sixteen Weeks.

| Soils | Ca-P | | Al-P | | Fe-P | |
|---|---|---|---|---|---|---|
| | Flooded | Moist | Flooded | Moist | Flooded | Moist |
| Wooster | 51.5 | 44.0 | 121.3 | 175.0 | 218.0 | 174.0 |
| Crowley[a] | 43.7 | 37.5 | 29.7 | 38.0 | 122.5 | 113.0 |
| Ripley(u)[b] | 39.0 | 38.3 | 46.0 | 45.0 | 118.0 | 134.0 |
| Ripley (1) | 33.0 | 31.3 | 30.3 | 29.7 | 141.5 | 143.7 |

[a]Concentration at eight weeks of incubation
[b](u) — unlimed and (1) — limed

conditions. Hsu and Jackson [9] reported that reducing conditions promoted formation of Al-P instead of Fe-P, but Chiang [6] had shown that Al-P initially formed in paddy soils gradually converts to Fe-P with time of incubation which is in agreement with the results obtained in the present study. It should be mentioned that the moist treatment in his experiment was not allowed the alternate drying and waiting procedure as is usually done in P fixation studies. Whether this procedure affected the ultimate trends in Al-P and Fe-P fractions and masked the effect of flooded conditions needs some further investigations.

Based on the results obtained, the transformation of inorganic P favors the formation of Fe-P fractions both in flooded and moist soil.

*Available phosphorus.* The values of available P determined from four soils fertilized with various phosphates are graphed in Fig. 6. As seen from the figure, available P increased after eight weeks of flooding in both the check and phosphate treated soils. However, the available P in the 100 percent acidulated and $AlPO_4.2H_2O$ treatments decreased significantly in unlimed Ripley soils. Under moist condition the available P decreased at the end of the eighth week except in 100 percent acidulation in limed Ripley soils. The amount of P increased with increasing acidula-

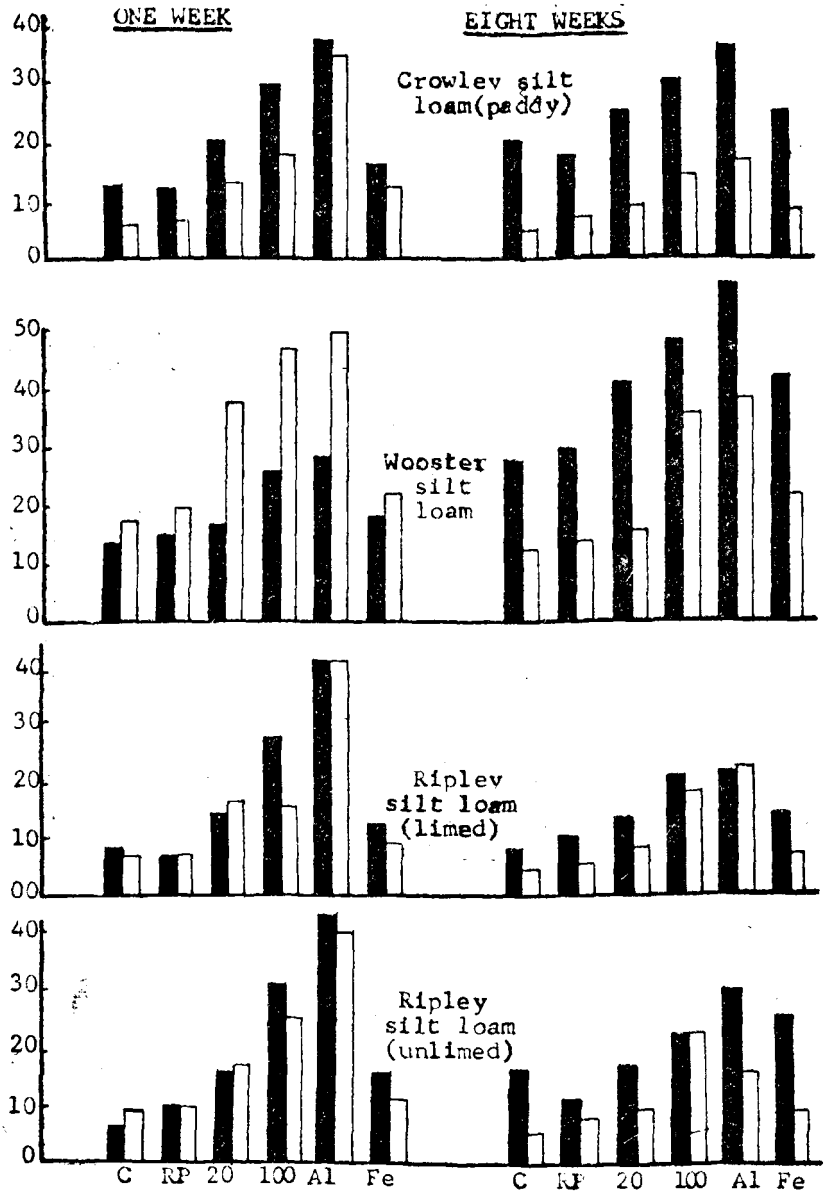


Fig. 6. Bray No. 1 extractable P in four soils as affected by source of phosphorus and time of moist or flooded incubation. C — Check; RP — rock phosphate; 20% acidulated; 100% acidulated; $AlPO_4.2H_2O$; and $FePO_4.2H_2O$.

tion (increasing solubility) and with $AlPO_4 .2H_2O$ treatments. Since the Bray No. 1 reagent extracts mostly Al-P [19], the results obtained in this study are to be expected. The fact that significant amounts of P were also extracted from the $FePO_4.2H_2O$ treatment indicates that the inclusion of acid results in the dissolution of some other forms of phosphate.

The effect of moisture on the concentration of available P varied initially and appeared to be related to the properties of the soils before incubation. Wooster soil showed more available P under moist conditions while tendency for available P to increase in the Crowley soil upon flooding is typical of a paddy soil [7]. In the case of Wooster soil, the difference in available P appeared to be the consequence of higher initial concentration or Al-P fraction in moist than flooded conditions. The initial effect of moisture condition was not evident in Ripley soils except in the 100 percent acidulation which tended to be higher under flooded than moist condition. Examination of the values of the various phosphate fractions for these soils did not reveal any difference in both moisture conditions. With prolonged incubation, however, available P increased under flooded conditions. This increased availability of P under reduced conditions has been associated with decrease in redox potential [6] and reduction of $FePO_4.2H_2O$ to the more soluble $Fe_3(PO_1)_2.8H_2O$ and increase in solubility of $FePO_4.2H_2O$ and $AlPO_4.2H_2O$ cause by the increase in pH accompanying the reduction of acid soils [10]. It has been demonstrated that with water extraction (a condition approximating flooding), iron and aluminum phosphates are slowly hydrolyzed with the release of soluble phosphorus [20].

It appears from the data that Bray No. 1 reagent extracted forms of F other than Al-P fractions. Thus, the increased availability of P with prolonged is not governed solely by the Al-P fractions but by several other factors.

Simple correlation studies relating various fractions of phosphorus to Bray No. 1 extractable phosphorus show a highly positive correlation among the Bray-P, Al-P and Fe-P fractions especially at the eight week of moist and flooded incubations. Ca-P fraction is negatively correlated with Al-P in one week flooded and with Fe-P in one week moist incubation. Multiple correlations further show that all three forms of phosphorus contribute significantly to the amount of Bray-P with Ca-P exerting a negative effect. The results indicate that available phosphorus might be more accurately predicted with longer incubation period and that both Al-P and FeP fractions are good sources of phosphorus for plants growing under the conditions of the experiment.

## SUMMARY

The fixation and transformation of phosphorus from ground rock phosphate, 20— and 100 percent acidulated rock phosphate, $AlPO_4.2H_2O$ and $FePO_4.2H_2O$ applied in four soils were investigated under moist and flooded conditions. Applied phosphate was tied up mostly as Al-P in Wooster silt loam and as Fe-P in Ripley silt loam soils and Crowley paddy soil. Phosphorus from rock phosphate remained largely as Ca-P while the soluble monocalcium phosphate in 100 percent acidulation was immediately tied up chiefly as Al-P and Fe-P after 16 weeks of incubation. Iron-P predominated in the untreated soils. Although there were differences with the various phosphates added, the average percent distribution of inorganic phosphorus fractions were little different, whether flooded or moist incubated. The distribution of the total inorganic fractions showed Fe-P to predominate in all soils at the end of 16 weeks. Fe-P formed at the expense of both Al-P and Ca-P. To some extent Al-P formed at the expense of Ca-P with prolongd period of incubation. More Al-P formed under moist condition and more Fe-P formed under flooded condition in Wooster and Crowely paddy soils. These changes were not evident in Ripley soils.

The Bray-P increased under flooded but decreased under moist condition with time of incubation. Correlation

studies showed strong positive association of Al-P and Fe-P with Bray-P especially at longer periods of incubation. It was suggested that Bray-P may be of more value in predicting P availability in flooded soils as long as the soil is subject to reducing conditions before effecting chemical analysis.

* * * *

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# THE RELATIVE EFFECTIVENESS OF THE TRADITIONAL METHOD AND THE MODERN METHOD OF TEACHING GRADE THREE ARITHMETIC ON THE ACADEMIC ACHIEVEMENT OF PUPILS[1]

*by Luis Escomes*[2]

## A. THE PROBLEM

The purpose of this study was to compare the effectiveness of the modern method and the traditional method of teaching grade three arithmetic on the academic achievement of pupils, through an experiment. An answer to this question was sought: Which of the two methods is more effective (effectiveness being understood to mean satisfactory outcomes in terms of achievement in arithmetic), the modern method or the traditional method?

At the start of the experiment, the null hypothesis adopted was: The modern method (method 1) is as effective as the traditional method (method 2) in teaching grade three arithmetic. If the difference in achievement in the teacher-made achievement test is significant at the .05 level of significance, the null hypothesis would be rejected and the method which produced the higher mean would be concluded to be the better method; otherwise, the null hypothesis would be accepted, that is, method 1 is as effective as method 2 in teaching grade three arithmetic as far as academic achievement of pupils is concern-

[1]A condensation of the M.A. thesis of Mr. Escomes, which was presented to and approved by the Graduate Committee, School of Graduate Studies, Central Philippine University, on June 24, 1968.

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ed. The null hypothesis converted into a formula says:

Method 1 = Method 2

## B. IMPORTANCE OF THE STUDY

In the learning-teaching situation, method is important since it may mean economy of time and effort both on the part of the learners and the teacher. It sometimes means a difference in learning-teaching outcomes. Methods and techniques are being tried by our educators, educational leaders, and educational scientists to discover those that would highly be useful in the arena of education.

Opinions and ideas about modern mathematics and the traditional method of teaching arithmetic have many limitations since most, if not all, have no scientific proof. In this experiment, an attempt has been made to measure the effectiveness of either the modern method or the traditional method in teaching arithmetic, on the basis of academic achievement of pupils as revealed by teacher-made tests.

The results of the investigation might prove useful to grade three teachers. Furthermore, it might be a good basis for further research by other teachers who are interested in the subject. It might also be a useful guide to the mathematics teachers. It would give a good idea in the choice of method and technique in teaching arithmetic in the elementary grades.

This investigation might be an eye-opener to the teachers who are more or less traditional and usually object to any innovation in the field of education. Taken with broadmindedness and a scientific attitude, it might serve as a motivation for further scientific investigation not only in the field of mathematics or methodology but also in some other fields of education which need further research such as individual differences, curriculum making and revision, administration and supervision of rural elementary schools, and other similar educational endeavors. It might awaken classroom teachers to the fact that research in education is not a monopoly nor the exclusive

function of the so called educational experts; rather, that classroom teachers should be the most potent, the most dynamic, and the most concerned in any educational undertaking since, in the last analysis, it is the classroom teacher that carries out the serious and sacred burden of educating our people. Furthermore, the result of the experiment will serve as a good reminder to our mentors that any educational program should be viewed with concern and earnestness, not as a mere fad; that they are dealing with the most sacred creation of the Almighty, the human being, and so they must strive to give only the best in education.

## C. PROCEDURES

In order to make the experiment possible, the subjects chosen were grade three pupils from Dalapitan Elementary School, Matalam District, Cotabato Second Division. There were 62 pupils involved, 30 girls and 32 boys, divided into two parallel groups, the person-to-person matching based on the following criteria: age, sex, and standard scores in the initial test, average in grade two and socio-economic status. Those pupils having almost the same or exactly the same points in the initial test, average in grade two, and socio-economic status, and with almost the same or the same age were paired. Initial test and average were each given a weight of two and socio-economic status was given a weight of one. No intelligence test was given because there were no facilities for this. To take care of imperfections in the grouping the statistical measure used was the analysis of covariance.

In the final person-to-person matching of pupils Group A seemed to have been favored in the total points in the initial test and average. Group B had an edge over Group A in the total points for socio-economic status of pupils. If individual pairing were scrutinized, it would be found that Group A seemed to be superior to Group B in both initial test scores and average in grade two. In the

over-all total points, the same situation seemed to obtain. Therefore the mean and standard deviation of each group in their initial test scores, average, and socio-economic status were taken. The differences of the means between the two groups were tested at .05 level of significance using the *t*-test. The following table shows the significance of the differences between the means of Groups A and B in the initial test, average, and socio-economic status.

TABLE I

MATCHING OF GROUP A & GROUP B

| | Initial Test | | | Average | | | Socio-Eco. Stat. | | |
|---|---|---|---|---|---|---|---|---|---|
| | M | SD | $SE_M$ | M | SD | $SE_M$ | M | SD | $SE_M$ |
| Group A | 28.95 | 14.26 | 2.56 | 79.64 | 4.28 | .77 | 6.42 | 2.98 | .54 |
| Group B | 28.30 | 15.14 | 2.72 | 79.13 | 3.91 | .70 | 6.65 | 2.83 | .51 |
| Diff. | | .65 | | | .51 | | | .23 | |
| SE | | 3.74 | | | 1.04 | | | .74 | |
| t-ratio | | .12 | | | .49 | | | .31 | |
| | df = 60 | | | *t* at .05 level = 2.00 | | | | | |

As seen from the foregoing table, there was no significant difference between Groups A and B in the initial test, average, and socio-economic status. The two groups were then presumed equated and parallel for the purpose of the experiment.

There was no intelligence test given to the subjects since there were no facilities for this. The pupils involved were nine- and ten-year old children who had not had any contact at all with modern mathematics prior to the experiment. In grades one and two these pupils were taught arithmetic the traditional way.

Method 1 was introduced in Group A and method 2 was used in Group B. Although the subject matter for the traditional method was taken from the Course of Study in the Elementary School Subjects [1:213-18] and the sub-

ject matter for the modern method was taken from the Curriculum Guide for Grade III Teachers [6:1] issued by the Bureau of Public Schools, the daily subject matter was made comparable insofar as possible. While Group B was working on the unit on Sets and Set Operations, Group A had a review on grade two work especially on the mastery of addition, subtraction, multiplication, and division facts which should have been mastered in grade two. The unit for set and set operations is absolutely necessary for modern mathematics since it is the very basis for the understanding in addition and subtraction.

For Unit II, the Group B pupils learned grouping of objects into twos, threes, fours, fives, sixes, etc. The corresponding lesson in Group A was learning to count by twos, by threes, by fours, and by fives. To understand place value, the place-value chart was used for both groups. After the knowledge development of place value with the use of the place-value chart and also the use of the simple abacus, Group A pupils were given more drills on how many tens are in a given number, how many fives are in a given number, and the like. The Group B pupils, on the other hand, were given manipulation exercises on grouping objects into tens, hundreds, twenties, and the like.

The work on Roman numerals was similar for both groups. Identification of even and odd numbers was one of the skills developed in the new math. There was also the knowledge of inequality, one which added more understanding in addition and subtraction.

Most of the time much self-activity was done by pupils in Group B while more teacher effort in guiding the learners was done in Group A.

In addition and subtraction, the development of skill in Group A was done first by mastering the addition and subtraction facts with sums and minuends from 12 to 18. The usual traditional method was utilized; from concrete to semi-concrete, then to the abstract concept. For Group

B addition, subtraction, multiplication, and division facts were developed through the use of sets, the number line, the commutative property of addition and multiplication, and the use of arrays and pairing for multiplication and for division. Addition facts with the sums from 12 to 18 were the ones mastered and subtraction facts with minuends from 12 to 18 were also the ones taught. Multiplication facts with products up to 45 and division facts with divisor up to 45 were mastered.

Higher addition was taught either by addition by complement or by expanded notation for modern mathematics. Ex. 49 + 26. The exercise can be solved this way: 49 + 26 = (50 + 25). The answer is 75. This is called addition by complement. This is easier addition because the pupils have already known that adding a number to zero equals the number. Another way of doing this is by expanded notation. It is done this way:

$$\begin{array}{rrrrl} 49 & = & 40 & + & 9 \text{ (renaming)} \\ + \ 26 & = & + \ 20 & + & 6 \text{ (renaming)} \\ \hline & & 60 & = & 15 \ (15 = 10 + 5) \\ & & (60 & + & 10) + 5 \text{ (regrouping)} \\ & = & 70 & + & 5 \\ & = & 75 & & \end{array}$$

Higher subtraction was taught also by expanded notation:

$$\begin{array}{rrrrl} \text{Example: } 43 & = & 30 & + & 13 \quad \text{(renaming)} \\ -28 & = & 20 & + & 8 \quad \text{(renaming)} \\ \hline & = & 10 & + & 5 \\ & = & 15 & & \end{array}$$

After these processes have been understood then the algorithm of the short conventional form is taught.

In the traditional method, addition with carrying is taught this way:

$$\begin{array}{r} 49 \\ + \ 26 \\ \hline \end{array}$$

9 + 6 = 15; write 5 in the column of ones; carry 1 to the tens place; 1 + 4 + 2 = 7; write 7 in the column of tens; the answer is 75.

The traditional method of teaching subtraction is like this:

$$\begin{array}{r} 43 \\ -28 \\ \hline \end{array}$$

We cannot subtract 8 from 3; 3 will borrow one 10 from 40; 3 + 10 = 13; 13 — 8 = 5; 3 — 2 — 1; the answer is 15. Much drill is done for the mastery of the process.

In multiplication and division, no higher problems were taught. Pupils were able to learn only the multiplication and division facts with products up to 45. This was because of the time element spent for the experiment. Anyway, the differences between the two approaches in these two fundamental processes can easily be drawn.

Problem solving was part of all the activities since pupils in both groups used their knowledge newly acquired in solving life-like problems. There were teacher-made problems as well as problems made by pupils themselves.

The textbook used was one intended for the traditional class since there were no textbooks yet for the modern approach. This same textbook was used for both classes when there was a necessity. Because of this situation, the textbook was used sparingly.

The tests used were all teacher-made tests. The initial test was composed of eighty items involving the recognition of missing numbers in a number series, writing numerals from words, addition, subtraction, multiplication, division, simple fractions, and problems having only one step. The test was worded in Pilipino since that was the language of instruction in grade two.

The test was compiled from the file of grade two tests coming from the grade two teachers of Dalapitan Elementary School. A copy of the test was shown to grade two teachers of the District of Matalam, Cotabato Second Division, to ask their judgment as to whether it was representative of the subject matter taken up in grade two. The opinion of grade two teachers was almost unanimous

in the decision that the test was suited to grade two and that the items included in the test were those taken from the grade two subject matter. As mentioned, the test result in this initial test was put under a t-test and it was found that the difference was not significant at .05 level. Group A and Group B were then considered as having come from the same population.

Since the experiment covered three grading periods, three periodical tests were given. The tests did not show any conclusive proofs that either group was better than the other since the differences in the means for each grading period was not significant at the .05 level, using the t-test. The only fact that the tests showed was that Group B was consistently getting a higher mean than Group A.

A final achievement test was given in the early part of December when the experiment was culminated. The test was made of more or less equivalent form with the initial test. The final achievement test was worded in English. It dealt with understanding place value, comparison of numbers, order of numbers, writing numbers from words, computations involving the four fundamentals, and some problems involving only one step. Only one form of the test was made, suited to both Groups A and B. It was constructed in the traditional arithmetic way. This was still all right for either group since those who were instructed in modern mathematics could easily understand tests oriented the traditional arithmetic.

The validity of the test was judged by comparing the items with the objectives of the course both in modern mathematics and traditional arithmetic. The test was shown to Miss Gregoria Gaudia, demonstration teacher in modern mathematics in grade three in Kabacan Elementary School, Kabacan District, Cotabato Second Division. It was also seen by Mr. Francisco Marcial, the Mathematics and Science Supervisor for Cotabato Second Division. The grade three teachers in Matalam District, Cotabato Second Division, were also asked about their opinion pertaining to the coverage of the test. (Incidentally, only two of the teachers were using the modern method in

arithmetic. Most were teaching using the traditional method.) A copy of the test questions was shown to Miss Enriqueta Griñen, Critic Teacher at the Laboratory School of the West Visayas State College, to Professor Emma Ortigoza, of the CPU Graduate School, professor in modern mathematics on the graduate level, and Mrs. Charlene Holmes, Peace Corps Volunteer, who was teaching modern mathematics at the West Visayas State College. These persons made some comments about the test items included in the final test. They are of the opinion that the test covered the important items of the course covered for the period of the experiment, both for the traditional group and for the modern group. The final test, though not a perfect one, can be considered valid for the purpose of the experiment.

The internal consistency of the test was computed in order to find out the reliability of the test. After the computation, the mean for Group A was found to be 29.25 and the standard deviation was 17.73. The Group B mean was 35.85 and the standard deviation was 13.84. For the whole group the mean was 32.55 and the standard deviation was 16.64. All of these data were subjected to statistical analysis using Garrett's formula [2:241].

The reliability coefficient of the test was found to be .95. To further test the dependability of this reliability coefficient, the standard error of the coefficient of correlation (SE of r) was computed and was found to be .012. At .05 level, the limits of the confidence interval are .93 and .97.

It is certain then that $r$ is as large as .93 and not larger than .97. Taking the .01 level of confidence, the limits of confidence of interval are .92 and .98. It is certain that the $r$ is at least as large as .92 and not larger than .98 [2:198].

To test the significance of this reliability coefficient, Table 25 of Garrett was used. [2:201] With df = 60, at .01 level of significance, the $r$ should be .33. The reliability

coefficient of .95 is therefore significant at the .01 level since it is very much larger than .33.

The internal consistency of .95 therefore, shows relatively high consistency and for the purpose of the experiment the final achievement test was presumed reliable.

## D. INTERPRETATION

After subjecting the data for the initial test and the achievement test to statistical computations using the formula of Garrett, [2:296] the mean of the initial test for Group A was 29.26 and for Group B it was 28.32. (There was a slight difference in this result with the previous computation because of the squaring method used in the latter.) The mean for the final test for Group A was 28.84 and for Group B it was 35.48. (There was also a slight difference with the previous computation due to the same reason as for the initial test.) The mean for Group A on the initial test and the final test combined was 28.79, while that for Group B it was 32.16. Further computations of the analysis of variance of the initial and the final test scores, taken separately, shows that the derived $F$ for the initial test was .06 while the derived $F$ for the final test was 2.67. By Table F [2:453] with df $= \frac{1}{60}$, at the .05 level of significance, the $F$ should be 4.00. Either of the $F$'s obtained was too small to be significant at the .05 level. This was another proof that there was no significance in the difference between Group A and Group B at the start of the experiment and so the parallel grouping was truly successful.

In the further computation for the analysis of covariance, the obtained $F$ for the combined means of the initial test and the final test scores for both groups was 5.39. From Table F, with df $= \frac{1}{59}$, the $F$ at .05 level must be 4.00. The obtained $F$ of 5.39 is significant at .05 level. But there was a need of the adjusted means of the final test in order to test the significance of the difference between the adjusted means of the final test. So an additional step was needed, the computation of the coefficient

of correlation (r) and the regression coefficient (b). The obtained $b^{within}$ was .68. Since $b^{within}$ is the most nearly unbiased estimate of the regression of the initial test scores on the final test scores, it is the one used in the computation for the adjusted means on the final test scores. [2:302] The obtained adjusted means of the final test scores ($M_{y.x}$), was 28.52 for Group A and 35.80 for Group B. There was a difference of 7.28 in the mean scores in favor of Group B.

With df $= \frac{1}{59}$, $t$ at .05 level of significance is 2.00. [2:449] This was multiplied by the $SE_D$ in order to find the $t$. In this connection, the obtained $SE_D$ was 3.09. The $t$ to be significant should be at least least 6.18 ($2.00 \times 3.09$). The difference of 7.28 as obtained from the computation of the adjusted means on the final test, is very much greater than 6.18. There is therefore a significant difference between the achievement of Group A and Group B in favor of the latter.

## E. CONCLUSIONS

In this experiment an attempt has been made to find out which of the two methods, the traditional method or the modern method, is better in teaching grade three arithmetic. The subjects at the start of the experiment were made parallel, and the tests for the criteria for pairing revealed that the equating of the two groups was successful. The final achievement test was reliable insofar as the statistical test for reliability was concerned, and it was valid as expressed by opinions of persons considered expert in mathematics. The result of the experiment as revealed by the difference between the means of the two groups was significant at the .05 level. The null hypothesis was therefore rejected and the modern method is considered a better method in teaching grade three arithmetic as far as academic achievement is concerned.

## F. RECOMMENDATIONS

Since the modern method is a better method in teaching arithmetic, it is recommended that:

a. The modern mathematics approach should be the method used in teaching arithmetic throughout the the elementary grades;
b. Teachers in the field now should be trained in the modern mathematics approach;
c. Teaching materials, textbooks, workbooks in modern mathematics should be made available in the hands of the teachers in the field;
d. Teacher-training institutions should include modern mathematics as one of the required courses in their education curriculum.

It would be useful to education if research can be done on the following:

a. An experiment of similar nature to this experiment, in other grades in the elementary school.
b. A longitudinal study of the effectiveness of either the modern or the traditional method throughout the elementary grades. (Pupils will be followed and taught by the same teacher throughout the elementary grades using either method and comparing results.)
c. An investigation of the attitude of pupils towards modern mathematics and traditional arithmetic (This could be possible in big elementary schools where pupils can be given the option of attending either the modern mathematics class or the traditional class.)
d. An investigation of the attitude of classroom teachers towards modern mathematics and the traditional method of teaching arithmetic.

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* * * *

...Looking back to 1936, few will challenge my use of the word "this troubled century."... My call for a community of scholars, however, may seem far too optimistic. For the world is deeply divided on ideological lines, and in just those new fields of advancing knowledge about man, the communications between the two areas of thought are few and far between.... It is the members of a tolerant international community of thinkers who must take up into themselves "all the hopes of the future." Man thinking about man as a part of nature for the benefit of *all* mankind, such is the scholar this and the next century demand!

—*Conant*, "MAN THINKING ABOUT MAN," from *American Journal*, Vol. V, No. 1, June 1965

# OPPORTUNITIES FOR DEVELOPING A SET OF MORAL AND SPIRITUAL VALUES BY WHICH THE STUDENT MAY GUIDE HIMSELF[1]

*Remedios D. Vaflor*[2]

1.0. *Introductory statement.* A look into the history of Central Philippine University shows that General-Education Objective No. 2, Developing a Set of Moral and Spiritual Values by which he (the student) Guides his life, is obviously outstanding among the statements of objectives. For many years the school bulletin, has carried this paragraph:

> Central Philippine University is a Christian institution and is, therefore, deeply concerned that each student shall have the opportunity to develop spiritually, as well as mentally and physically. ... Each individual should be given the teaching necessary to enable him to make an intelligent choice in the matter of his religious faith and practice.

The program of Central Philippine University includes helping the student to be aware that no man is educated who is ignorant of the history and teachings of the Christian religion. It also offers him the opportunity for spiritual growth and development.

1.1 *Importance of the objective.* The founders of this school must have recognized the importance of this objective because the preamble of the By-Laws of the Corporation states:

> This corporation... was founded, organized and registered under the laws of the Philippines

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(1)See *Southeast Asia Quarterly*, Vol. 1, No. 3, Vol. 2, No. 1, Vol. 2, No. 2, and Vol. 2, No. 3. This is the fifth of a series.

(2)Mrs. Vaflor is presently Chairman, *Student Personnel Services*, Central Philippine University. She was the chairman of the committee which did this investigation. Her committee members were Jesus T. Vaflor, Felisberta Ortigas, Alberto de la Peña, Lolita de Leon, Angelina Buensuceso, and Linnea A. Nelson.

> for the purpose of carrying on a program of spiritual, mental, and moral instruction, manual, industrial, technical and cultural training of young men and women under Christian influences which strengthen faith and build up character[1].

Isidro [2] upholds the importance of the objective in the following statement about religion in the educational program of the Philippines:

> Religion is a strong moral force in the community. It holds up high the ideals and motives which make for good citizens in a democracy. It is said that a devout religious man is a good citizen. Religion develops his faith and guides him in the understanding of the mysteries of nature which science has not yet explained. Amidst confused social relations and pressing social problems, man seeks refuge in faith and hopes for ultimate salvation in divine guidance.

2.0 *Statement of problem.* This study aimed:

A. To determine the more specific objectives which are relevant to the broad objective, Developing a Set of Sound Moral and Spiritual Values by which the Student may Guide Himself. It is obvious that this objective is too broad to be of value to the teacher in his daily teaching. What are some of the more specific objectives which should be the core of our instructional program and which, if implemented, would normally result in the implementation of the broad objective?

B. To investigate the relative instructional emphasis given to the broad objective by the teachers at Central Philippine University.

C. To find ways and means of further developing competence in moral and spiritual values among students.

3.0 *Procedure.* The procedure used in this study involved the following steps:

A. Survey of the literature on the subject to determine (a) the narrower objectives relevant to the development of sound moral and spiritual values and (b) the suggestions given by writers on the subject.

B. Preparation of a questionnaire in an effort to ask the teachers (a) how much emphasis they give on the narrower objectives and (b) whether in their specific courses they are making use of the suggestions gathered, and (c) to ask them to indicate additional narrower objectives and suggestions for the development of sound moral and spiritual values.

C. Tabulation of the responses according to subject divisions, like (a) Agriculture (b) Biological Science (c) Bible and Character Education (d) Business (e) English (f) Home Economics (g) Mathematics and Engineering (h) Music (i) Physical Education (j) Social Sciences (k) Spanish and Tagalog, (l) Nursing, and (m) Education.

One hundred and two teachers on full-time contract answered the questionnaire. This number represented about 96% of the total of one hundred and six full-time teachers who attended the workshop. That very many of them returned the questinnaire would seem to indicate a widespread interest and willingness on their part to cooperate in the pursuance of the study.

4.0. *Presentation of findings.*

4.1 *The narrower objectives.* After an analysis and a synthesis of the different narrower objectives which were thought relevant to the broad objective, the Committee arrived at the following:

In order to develop a set of sound moral and spiritual values, the student

(1) Believes in the existence of God, who, in former times revealed himself in fragmentary and varied ways, but finally and fully in Jesus Christ.
(2) Believes the Bible is the inspired word of God, a record of man's experiences with God, and of God's dealings with man.
(3) Knows that getting acquainted with valuable records of past racial experiences found in the Bible and other forms of religious literature helps

to build Christian character.

(4) Has a mind that perceives that in every human experience there is a spiritual meaning leading the person into vital relationship to Jesus Christ.

(5) Recognizes the dignity and individual worth of each human being regardless of religious persuasion, social status, or nationality.

(6) Understands that the Christian faith has a relevance to social, political, and economic life.

(7) Knows what he believes and has the courage to live by his beliefs, recognizing that each individual is responsible for his own acts.

(8) Is aware of the ideals of the Christian faith in his inner life, in his relationships within the family, in his work, and in his intellectual, recreational, and aesthetic pursuits.

(9) Uses time, talent, and possessions as a faithful steward of God's gift.

(10) Understands that science and religion complement and supplement each other if they are properly interpreted and understood.

(11) Participates in the Christian Church which is the manifestation of a growing Christian community that promotes personal development and enduring relationship of good will and service.

(12) Possesses a world-wide concern for peace and brotherhood among peoples of all nations, based on the belief in the Fatherhood of God.

One teacher suggested an additional narrower objective as follows: "The student must possess the proper scale of values, rights, and obligations, and the right principles of living." This suggestion was thought good, but it was felt that it is implied in the above narrower objectives.

4.2 *Relative emphasis on the narrower objectives.* The teachers were asked to indicate how much emphasis they give on the narrower objectives in so far as the courses they were teaching were concerned. They were asked to indicate their responses according to a five-point scale, as follows:

NONE: No relation to course as now given

LITTLE: Only indirect relation to course; occasional reference and comment when logical

SOME: Direct but limited relation to course; deliberately included as a significant though minor aspect

MUCH: One of several major aspects of the course; a planned and scheduled feature

MOST: The principal objective or aspect of the course

Table 4.2a, below, shows the consolidated responses of all the teachers who returned the questionnaire. Some did not indicate their answers to some items, which explains the discrepancy from the total of 102 respondees.

TABLE 4.2a

Amount of Emphasis Given on the Twelve Narrower Objectives

| Objective | None | Little | Some | Much | Most | Total |
|---|---|---|---|---|---|---|
| No. 1 | 6 | 28 | 25 | 25 | 14 | 98 |
| No. 2 | 17 | 20 | 24 | 27 | 12 | 100 |
| No. 3 | 16 | 29 | 20 | 22 | 9 | 96 |
| No. 4 | 15 | 32 | 20 | 24 | 10 | 101 |
| No. 5 | 8 | 15 | 28 | 27 | 17 | 95 |
| No. 6 | 7 | 16 | 19 | 37 | 17 | 96 |
| No. 7 | 4 | 16 | 20 | 35 | 11 | 86 |
| No. 8 | 8 | 19 | 24 | 24 | 15 | 90 |
| No. 9 | 8 | 18 | 28 | 28 | 14 | 97 |
| No. 10 | 11 | 22 | 21 | 29 | 16 | 99 |
| No. 11 | 16 | 17 | 23 | 30 | 12 | 98 |
| No. 12 | 3 | 27 | 12 | 31 | 20 | 93 |

The table reveals that, for the most part, teachers do find it possible to relate the twelve narrower objectives, in one way or another, to the courses they are teaching. Thus, No. 7, "The student knows what he believes and has the courage to live by his beliefs, recognizing that each individual is responsible for his own acts," could be related by 95% of the teacher responding, whereas only 5% find no way of relating it to their courses. Seventeen, or 17%

of the teachers responding feel that they could not relate objective No. 2, "The student believes the Bible is the inspired word of God, a record of man's experiences with God, and of God's dealings with man," to their courses, whereas 83, or 83% do find the objective relatable to their courses. The table also reveals that in some courses, one narrow objective is more easily relatable than in others, as shown by the variety of the number of teachers who cannot relate their courses to the objectives (Column "None"). This is to be expected.

Attention is invited to Nos. 2, 3, 4, 10, and 11. It is wondered why the percentages of teachers who cannot find ways of relating these objectives to their courses, are relatively high. It is to be noted that, No. 2 and 3 are oriented to the Bible. It is possible that these teachers do not have sufficient Biblical orientation to be able to honestly relate their courses to these objectives, or indeed their courses are not really germane to these. In the case of No. 4, because of the general Christian background in the Philippines, these teachers probably feel that the perception of spiritual meaning in every human experience which leads to a vital relationship to Jesus Christ is common to all so that they do not have to do any deliberate relating. It is not an easy matter for the ordinary teacher without background in science and religion to relate these to their courses. These probably explain why some of the teachers shy away from these.

That nearly 55% of the teachers give "much to most" emphasis on Objective No. 12 speaks well of the teachers as a group. With this wholesome outlook the educational program at Central Philippine University will become strongly and actively geared to all world-wide endeavors for good, such as the ecumenical movement of different Christian groups, the United Nations program and the programs of other bodies of similar purposes. This makes the student vitally involved in the vast concerns of the kingdom of God.

To the question, "Considering this broad objective as

a whole in its relationship to the other broad objectives[3] how much emphasis should be given to this objective?", the following table summaries the answers of the entire group:

TABLE 4.2b

Relative Importance of General Objective No. 2

| None | Little | Some | Much | Most | Total |
|---|---|---|---|---|---|
| 0 | 5 | 32 | 45 | 5 | 88 |

That more than one-half of the teachers who answered this question believe that the objective should be given "much to most" emphasis in relation to the other broad objectives shows that they are identified with the basic philosophy of the school. The implication is that they would wholeheartedly support the activities which are conducive to the development of a set of moral and spiritual values by which the student may guide himself. Seventy-three, or nearly 75% of the teachers feel that "much to most" emphasis should be given to the general objective in the co-curricular program of the school, a few of which are Religious Convocations, Vesper Services in dormitories on campus, Christian Emphasis Weeks, Student Religious Organizations, Barrio Sunday School, Gospel Teams, Campus Church guidance on spiritual matters. Sixty-three, or about 70% of the teachers who answered this question said that "much to most" emphasis should be given to this broad objective in the instructional program. Very few, however, would accept the suggestion that additional courses which directly aim to implement the objective be set up, but rather agree that "much to most" emphasis should be given on this broad objective in all courses presently offered. This is understandable, since the curriculum as such is already much too heavy to permit the offering of additional theoretical courses. Besides, for the most part,

[3]There are twelve broad objectives see *Southeast Asia Quarterly*, Vol. I, No. 3.

the Bureau of Private Schools has set up the number of units required in certain groups.

The implementation of this broad objective, then, does not seem difficult since there seems to be little or no opposition. The problem is *how* to implement it. The next section of the questionnaire aimed to gather suggestions from the teachers on how this may be done. First, they were asked (a) what, in their opinion, are the instructional blocks that might possibly hinder the implementation of the objective, and (b) what suggestions could they give which, in their experience and observation, would help implement the objective.

4.3. *Instructional blocks and suggestions for the implementation of the objective.*

4.4.31 *Instructional blocks.* To the question, "What are some of the instructional blocks to the adequate development of competence in this particular objective?", the teachers' answers are summarized in Table 4.3a, below. They were asked to check on the basis of a three-level scale, as follows:

LITTLE: Hinders a little the implementation of the objective.

MUCH: Hinders the implementation of the objective very much.

MOST: Hinders the implementation of the objective most.

TABLE 4.3a

Instructional Blocks on the Implementation of General Objectives No. 2

| | Little | Much | More | Total |
|---|---|---|---|---|
| 1. Concerned too much with teaching facts. ..... | 27 | 55 | 30 | 92 |
| 2. Not sufficiently aware of the importance of competence in the narrower objectives ..... | 39 | 40 | 8 | 87 |

| | Little | Much | Most | Total |
|---|---|---|---|---|
| 3. The use of objective, factual type of test questions | 33 | 45 | 24 | 102 |
| 4. Conflict in moral and spiritual values in homes of students | 19 | 63 | 15 | 97 |
| 5. Too little attempt to see students apply what they learn | 17 | 61 | 22 | 100 |
| 6. Not fully aware of particular moral and spiritual needs | 35 | 49 | 12 | 96 |
| 7. Conflict in moral and spiritual values within the teachers | 37 | 36 | 12 | 85 |
| 8. Lack of evaluative correlation of specific area of knowledge with other areas of learning | 34 | 59 | 4 | 97 |

We concur with the thirteen departments and colleges in their judgment with regard to Instructional Blocks Nos. 1 and 3 as big hindrances to adequate development of competence in this particular objective. We believe that complete and accurate facts must be given to students. However, if this is all that is done, we have fallen sadly short of our desired goal. Facts must be explained to bring out their spiritual meanings.

Instructional Block No. 2 is serious because this shows spiritual inadequacy. How can a teacher guide and inspire students to live a worthy spiritual life if he or she is not spiritually competent? "No spring rises above its source."

The problem student can be traced clearly to the sad picture presented by Instructional Block No. 4. How to solve this is a very difficult, complicated and delicate matter. However, the teacher can do something out of a genuine concern for the student.

Instructional Block No. 5 is probably the result of the failure of the teachers to go "the second mile" with the student. In the opinion of the writer, some of these teachers may be extremely interested in their disciplines to bother about their students. In other words, they could be teachers of subject matter, not teachers of people.

Moral indifference or weakness as indicated by Instructional Block No. 6 may be caused by the conflict shown in Block No. 1 or by a dangerous attitude toward life and things labelled "permissive." A teacher needs to develop a strong moral discernment and conviction. The personal problem in Block No. 7 must be resolved as fast as possible by the person concerned, if he or she is to be a reliable and wise mentor of the students.

Block No. 8 can probably be concerned by wisely guided reading and observation, further study in school, and the development of critical thinking. The greater the background of the teacher in the varied disciplines, the easier for him to relate specific areas of knowledge with other areas of learning.

It is disturbing to realize that some teachers themselves may be hindrances in one way or another to the effective development of a set of moral and spiritual values in the lives of students. The recognition of such a fact would make him humble and compel him to pray for more of God's grace that he might be a worthy example to his students and to others.

4.32 *Suggestions on how to implement the objective.* The teachers were asked to indicate the specific ways which they contribute to the fulfillment of this broad objective. They were also asked to add others which did not appear in the check list. Some of the suggestions are shown below:

1. By making clear the role of Christian religious beliefs in the building of Philippine tradition, by

| | Rank | No. |
|---|---|---|
| a. Evaluating the contribution of the Christian religion to our ideals, morals, or beliefs ..... | 61 | 10 |

| | Rank | No. |
|---|---|---|
| b. Pointing out the contribution of the Christian religion to our home life and in larger human relationships. | 75 | 3 |
| 2. By referring to the existence of God, the Supreme Being by | | |
| a. Presenting it as the idea that has always challenged the thoughts of men | 51 | 12 |
| b. Recognizing the core of the philosophic of creative work of thinkers is belief in God, the Supreme Being | 55 | 13.5 |
| c. Creating situations by which faith in God, the Supreme Being, can grow | 55 | 13.5 |
| 3. By furthering the concept of true worth in things moral and spiritual by | | |
| a. Using biographical material to illustrate the concept of personal discipline, acceptance of failure without bitterness or success with humility | 46 | 17 |
| b. Using Biblical material to illustrate the concept of fortitude, intellectual integrity and honesty | 43 | 18 |
| c. Teaching the necessity for being devoted to one's religious beliefs | 35 | 21 |
| d. Avoiding making light of honesty, duty, loyalty, and respect for excellence | | 65 |
| e. Providing for students to consider the aims of life, among them service to others, quest for happi- | | |

| | Rank | No. |
|---|---|---|
| ness as measured by the accumulation of personal satisfaction rather than by wealth ..... | 73 | 5 |
| f. Providing activities for students to consider the actual application of the lesson taught ..... | 59 | 11 |
| g. Using the experience of the Christians as they sought to interpret Jesus's way of life in terms of the conditions and problems of their world ..... | 26 | 22 |
| h. By helping the student to analyze as well as consider the many principles of Jesus at work today | 53 | 15 |
| 4. By emphasizing the moral and spiritual aspect of human relationship by: | | |
| a. Encouraging students to support activities exemplifying Christian brotherhood ..... | 64 | 8 |
| b. Extending the meaning of Christian brotherhood to include peoples of every race or creed .... | 65 | 6.5 |
| c. Maintaining a sincerely friendly relationship in the classroom ... | 85 | 1 |
| d. Developing a sincere desire to do unto others what others would do unto us ..... | 74 | 4 |
| e. Developing an interest and concern in making a better world through better human relationship ..... | 76 | 2 |
| 5. By helping the student to clarify his own beliefs by: | | |
| a. Helping to resolve the conflict which may exist between his home environment, religious and | | |

| | Rank | No. |
|---|---|---|
| spiritual, and viewpoints that may be entirely new to him .... | 52 | 16 |
| b. Clarifying the historical separation of the church and the state . | 36 | 19.5 |
| c. Testing his beliefs and conduct with Jesus' teachings ..... | 36 | 19.5 |
| d. Sharing with the students my personal Christian experience and point of view ..... | 63 | 9 |

Analysis of the response shows that the most common specific ways which teachers have done or are doing to implement the objective are No. 1 (b), No. 2 (a), No. 3 (e), No. 4 (c), and No. 5 (d). It is, of course, axiomatic that teacher who does not have much of a Christian background or a deep-seated religion cannot honestly point out the contributions of the Christian religion to one's home life and larger relationships. The selection of No. 1 (b) would seem to show a deep understanding of the role of Christian beliefs in the building of the Philippine traditions. The program of teaching is more comprehensive and more lasting in its results because it deals with the home, the basic unit of society. The choice of Specific Suggestion No. 2 (a) is fundamental for it emphasizes the true center of the life of man and of the world. This should be presented in such a way that the student will be led to love God with all his heart, soul, and might. No. 3 (e) would seem to be a very wise choice. "One's service to others is the heart of the living application of gospel of Jesus, and the "quest for happiness as measured by the accumulation of personal satisfaction rather than by wealth," is the highest meaning of Christian discipleship. No. 4 (c), which is ranked 1 among all the suggestions, would seem to be an excellent choice because of the emphasis it gives on the moral aspect of human relationship. No. 5 (d) is an appealing and potent method in changing young lives for the better. It should, however, be said that

one cannot share what one does not have. If used at all, it should be used with great finesse or it may become common and ineffective.

5.0 *Recommendation and possible uses of the data.* While these recommendations were given in the context of a particular school with its own philosophy and objectives, we sincerely believe that they have relevance to other schools with more or less the same purposes. Thirteen helpful recommendations were given by the teachers who responded to the questionaire, designed to make more effective teaching of moral and spiritual values among students. The substance of these recommendations is given below:

1. As teachers, we should always be aware of the relevance of the moral and spiritual values that we ourselves holds amidst the ever-changing conditions so that we may be worthy guides of students, to the extent that they, too, may master situations in the spirit of the Master Teacher whom we serve.

2. Teachers should be alert to employ every new method or technique for a most effective development of moral and spiritual values.

3. Teachers should endeavor to be winsome and consistent in character and daily practice of their own Christian convictions to the end that their influence will convince and encourage their students to develop moral and spiritual values with which to guide themselves.

4. With open mind and heart, teachers should seek constantly to give meaning to the content of the subject matter at hand that the students may have the opportunity to develop moral and spiritual values themselves.

5. Teachers should endeavor to read devotional and particularly the Bible books which enrich one's spiritual life, testimony and service.

The data presented should be useful in the preparation of teaching guides or syllabi in the courses which are relevant to the objective in question. They may also serve as bases of discussions about current issues in departa-

mental meetings, particularly at these times when there seems to be a decline of the moral integrity of peoples all over and an upsurge of violence. Civilization, it seems, is at the crossroads, and this is the time to guide students to make rational decisions. Such decisions, for one thing, can be made with the proper moral and spiritual values which are necessary in the making of all decisions.

Ruiz [4] says in this connection:

> We submit that the need in our country today is greater emphasis on the inculcation of moral and spiritual values. These values have yet to be supplanted by other dogmas or guides. ... We should give prime importance to the development of moral and spiritual guides because we are convinced that they lie at the core of the student's personal and social development, their professional effectiveness, their family lives, their competence as citizens in a democracy.

* * * *

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# HOW THE FREE GOVERNMENT OF PANAY AND ROMBLON CAME INTO BEING[1]

*Patricio V. Confesor*[2]

The machinery that Governor Tomas Confesor organized for the administration of the government and its various entities was more or less uniform through all of Panay and Romblon. There were at least seven departments which carried out the functions of supervision and control pertaining each of them. There were:

The Department of Municipal and Provincial Government
The Emergency Provincial Guards
The Health Service
The Food Administration Office and Relief
The Board of Information
The Finance Office
The Administration of Justice
The Special Services (Intelligence and Security)

## MUNICIPAL AND PROVINCIAL GOVERNMENT

The administration of municipal and provincial governments had to be done by remote control, it being physically impossible to undertake direct supervision of government activities because of lack of travel facilities and because also of the fact that the enemy, having occupied most of the important centers of population in the province, made it extremely dangerous for anyone to be seen around these places. This government by remote control consisted in the division of the provinces in Panay and Romblon into administrative districts with a deputy governor as chief executive for each district. Iloilo had ten such district, Capiz and Antique three each, and Romblon

(1)From C.P.U. collection of World War II Documents, Panay and Romblon. Continued from *Southeast Asia Quarterly*, Vol. II, No. 3, January 1968.

(2)Mr. Confesor was Executive Secretary (later Acting Governor), Guerrilla Government of Panay and Romblon.

one. The municipalities in a district retained their respective officials if they had not surrendered; otherwise, new ones were appointed. Wherever it was necessary to do so, Special Deputy Governors and Special Deputy Mayors were appointed or designated. In several cases, the number of municipal officials and employees was increased in consonance with the exigencies of the situation. For the purpose of keeping close supervision of government activities in the far flung administrative districts throughout Panay and Romblon, Supervising Deputy Governors were appointed for each province. Quick contact between the central office in Bocare and subordinate units in the field was made possible by a messenger centers scattered all over strategic points throughout Panay.

All municipal governments kept on functioning, inspite of tremendous difficulties occasioned by war conditions. Except for the City of Iloilo, which did not have a free government in the early days of the war, even municipalities garrisoned by the enemy kept its governmental machinery intact and functioning. As early as 1944, however, the free government of Panay and Romblon succeeded in organizing an underground civil government within the City of Iloilo, with Tomas Confesor administering it as Acting City Mayor, by remote control through a number of Deputy Mayors who resided in the City proper or in its suburbs.

### THE EMERGENCY PROVINCIAL GUARDS

The Emergency Provincial Guards a semi-military organization, was the strong arm of the Free Government of Panay and Romblon. Generally, each administrative district was limited to only one company (130-136 strong) of Emergency Provincial Guards under the Deputy Governor holding the rank of Captain; but in some special cases, several companies were organized in a district under different commanding officers with the Deputy Governor retaining over-all supervision and control in matters of administration. At first, these companies were loosely organ-

ized and each one considered itself more or less autonomous and independent, a state of things which could not be helped at the time because of difficulties arising from lack of adequate transportation and communication facilities. Later, the organization was centralized with Governor Tomas Confesor exercising more or less direct supervision through an Inspector General appointed by, and personally responsible tc, him.

### HEALTH AND SANITATION

With but a few changes, the health service in Panay and Romblon was organized along pre-war lines. There was a District Health Officer for every province, a President of the Sanitary Division for groups of municipalities, and a sanitary inspector for each municipality. Due to abnormal conditions, the need for the intensification of the campaign for sanitation and health was met by the appointment of additional health personnel, such as the First Aiders, in every municipality where it was advisable to do so. Hospitals, hastily improvised and mobile in character, were establish in a number of places throughout Panay. Medicine and medical equipments were smuggled in from Iloilo City and Manila by special agents. Civilian Emergency Refuge centers were established under doctors and nurses.

### FOOD PRODUCTION AND RELIEF

"Direct civilians to plant food crops." Thus President Manuel L. Quezon ordered Governor Tomas Confesor, in a radiogram the former sent from Washington D.C., on February 24, 1944. But a stronger order that—the threat of food shortage and famine that issue from war—led the government of Panay and Romblon to step-up its campaign for food production, which was begun even before the enemy landed in Iloilo on April 16, 1942. Teachers and other national employees and officials, who reported for duty in response to Governor Tomas Confesor's order, were used in the campaign. Barrio tenientes gave unstinted help in this respect. No effort was spared to made whatever land there was that was safe enough from enemy

penetration to cultivate, to yield food for the loyal inhabitants of the provinces of Panay and Romblon. The planting of short season crops as well as the raising of poultry and swine was encourage. The indiscriminate slaughter of large cattle was prohibited, so as to conserve work animals for farm use. At the beginning, the campaign for food production was not centralized, every mayor or deputy governor having been allowed a free hand in adapting procedures he felt best suited to existing conditions. But in 1944, a central office was created by executive order, from which rules and regulations were issued to synchronize food production policy or policies laid down by Governor Tomas Confesor as Food Administrator.

In this connection, Governor Tomas Confesor launched in 1943 an ambitious program of food production in which he put into execution his plan to place 150,000 hectares of land in Panay under cultivation (100,000 hectares for rice and 50,000 for corn). For this purpose, he set aside an appropriation of ₱1,000,000.00 to be distributed as crop loan to farmers at the rate of ₱10.00 per cavan and also to pay for the operation of merchandizing centers organized in the hope of stabilizing prices. This program was undertaken in view of "the necessity (to quote President Quezon) for maintaining agricultural production at any rate to insure adequate food for the people and sustenance for the military forces."

### INFORMATION AND PROPAGANDA

The Board of Information Office was created by Executive Order sometime during the early part of 1944 for the purpose of gathering information of all sorts, such as enemy movements, progress of the war on all fronts, health conditions, food production, civilian morale, etc. Before this, however, instructions had been issued for carrying out propaganda work in every municipality where ten teachers were picked to make (20) copies, in handwriting, or by any means, of all propaganda materials received by them, and to distribute them along key elements in the locality. These teachers were to conduct oral propa-

ganda work—whispering campaigns, in other words,—aimed at driving the following points in the minds of the people.

(1) The civil government did not surrender and would not capitulate to the Japs, the head thereof having transferred to Washington, the capital of the United States. "No Surrender" was our unrelenting battle-cry.

(2) The authority of the civil government remains intact and will continue to serve the public interests.

(3) The Japanese way, being totalitarian, is not suited to the temperament of our people. It is destructive of our time-honored institutions and national self-respect.

(4) The armed forces have been fully reorganized to cope with the situation.

(5) It is the sacred duty of every Filipino to side with America in this fight for the democratic way of life whose blessings he has enjoyed during the last forty years.

(6) Our victory is as sure as day that follows night.

(7) Each and everyone of us must gladly share the sufferings cause by war.

(8) The present sufferings and sacrifices of the people will be amply repaid in the end in terms of human happiness. It is treason for anyone to think, believe and act or do otherwise.

(9) It is the right of the civil government and the armed forces to demand loyalty and patriotism from everyone.

(10) The civil government and the armed forces must be morally and materially supported.

(11) The people must valiantly meet the test of the hour, with hearts purified with faith, with the will to win and to survive.

(12) Our Allies, the Americans, are certain to come back.

Radio receivers installed in the mountains and in places in the lowlands safe from enemy observation fur-

nished news from foreign fields while underground newsheet were printed and distributed everywhere. The most famous of the resistance newsheets that were put into circulation were the "Ang Tigbatas", "The Liberator" and "The Mt. Baloy Watchman".

## FINANCE

Perhaps one of the most difficult problems that confronted the Civil Government was that of financing itself and its varied activities. The first necessary step was to reorganize the fiscal branch of the government, which also suffered disentegration due to enemy invasion. A finance and treasury division was created to take care of the immediate financial needs of the Central Government in Bocare. Later, the office of the provincial treasurer for each province was organized and, finally, the office of the chief budget officer was established for all of Panay and Romblon.

While one of the objectives of Governor Tomas Confesor in his administration was "to continue the collection of taxes", the situation was so difficult that it was almost impossible to raise funds in that manner for the purpose or maintaining the Government. What little could be collected in the form of slaughter fees, market fees in certain places, and registration fees, was not enough even for the purchase of office stationery. In municipalities where there were no Japanese garrisons, it was likewise difficult to collect taxes because of the general evacuation of the people from such muncipalities to unknown hide-outs. It was impossible to collect taxes in the occupied areas, for to do so would have endangered the existence of the municipal governments. In certain barrios where the civil government was in regular operation, taxes were collected with a meager measure of success. But what was collected was a mere drop in the bucket in comparison with what was collected in these municipalities during peace time.

But appropriations were needed to pay for the immediate needs of administration. Something had to be done

for the officials who have never been paid since the Japanese landed in Panay on April 16, 1942.

The printing of Emergency Circulating Notes was resorted to as a desperate measure to meet the fiscal needs of the organization. But a misunderstanding with Colonel Peralta soon arose over this matter resulting in a deterioration of the relations between him and Governor Tomas Confessor, a state of things which had to be regretted because it did not in any salutatory manner advance the interests of either party, or that of the people for that matter, in so far as this specific problem was concerned. It should be stated here in passing, that of the estimated amount of ₱43,511,033.00 that had being printed in emergency circulating notes after Colonel Peralta had usurped fiscal powers from Governor Confesor, only ₱1,792,500.00 was disposed of in favor of the Free Government of Panay and Romblon.

## The Administration of Justice

One of the immediate results of the Japanese invasion of Panay was the complete breakdown of the administration of justice. The situation was aggravated by the application of martial law which Colonel Peralta proclaimed soon after the surrender of the USAFFE Forces on Panay on May 7, 1942. When conditions had eased down a little bit, justices of the peace were appointed in municipalities free from enemy control. The appointment of a justice of the peace in every municipality in the Province of Iloilo was authorized by Governor Tomas Confesor in an Executive Order dated November 2, 1942. Pre-war Justices of the Peace who did not surrender were, as a matter of policy retained.

Completely new judges were appointed for the Court of First Instance towards May of 1943, all the pre-war incumbents having either surrendered to the enemy or refuse to come from their hiding places and served as such. The new appointees to the Court of First Instance were Judges Florencio Vega, Juan C. Teruel, Miguel Salvani and Ceferino de los Santos and they had jurisdiction as Acting

Judges for the Court of First Instance of the 7th Judicial District. All these appointments were recommended by Governor Tomas Confesor and approved by President Quezon. Attorney Pedro R. Davila was appointed Judge of the Court of First Instance when Judge Teruel surrendered to the Japanese sometime in the latter part of 1943.

A new office, that of the District Attorney, was created so that the work of the Provincial Fiscals throughout all of Panay and Romblon may be coordinated and synchronized for the purpose of securing the speedy trials of those who have the misfortune of being brought before the bar of justice.

### SPECIAL SERVICES

The most exciting job in the administration of civil affairs in Panay and Romblon, fell to Special Service Unit. This is a department of administration which had charged of intelligence and security. This unit operated directly and exclusively under Governor Tomas Confesor and his brother Patricio, and its operators are marked "Top Secret." Many members of this Unit were sent on specific missions inside enemy territory in Panay. Five were sent to Manila and Baguio. Members of the unit operated in Albay, Mindanao, Leyte and elsewhere in the Philippines. Collecting dynamites, smuggling medicine, blowing up bridges, sniping spies, kidnapping puppets, helping prisoners to escape, conducting espionage work, providing security for headquarters of public officials, etc.—these were the work of the Special Services Unit.

So much for the mechanics of administration and the functions of government that had to do with the successful operation of the Free Government of Panay and Romblon. What follows next is an account of the activities and accomplishments of the said government for the furtherance of the Resistance Movement under the leadership of Governor Tomas Confesor. Four of some of the outstanding achievements of the Free Government of Panay and Romblon are herein submitted for purposes of record.

1. The eradication of banditry and other forms of lawlessness.
2. War against puppets and fifth columnists.
3. Food Production to the extent that stave off the threat of famine and starvation attendant upon the occurence of war.
4. The maintenance of civilian morale and as a consequent thereto, the preservation of the people's loyalty to the cause of democracy so that their faith remained unshakened in the ultimate victory of the Allied Nation and the eventual liberation of this country from Japanese bondage.

### THE MAINTENANCE OF PEACE AND ORDER

In June, 1942—immediately after the surrender of the USAFFE banditry rose to such an alarming pass the civilians were more afraid of them than of the Japanese themselves. Some Filipinos had taken advantage of the times and started plundering in places where there were not Japanese garrisons and in evacuation areas where there was no police force. They organized themselves into groups and harrassed the civilians who were living in the hills and barrios. In one administrative district alone eighteen (18) cases of robbery were reported by the Deputy Governor, ranging from petty larceny to robbery with murder. Work animals were stolen in broad daylight. Rice, corn, clothes, tobacco, money, jewelry, fountain pens—anything the notorious bandits could lay their hands on—were seized from civilian evacuees who were harmed bodily if they protested or bayonetted to death if they refused to yield their property. By June and July of 1942 banditry and other forms of lawless reached their peaks and the cold-blooded murder of Judge Vicente Mapa of Iloilo City and Mr. & Mrs. Sabas Gustilo, well known proprietor of Zarraga, by the bandits.

Acting upon orders of Governor Tomas Confesor, the Emergency Provincial Guards took the field against the bandits, and in two months of ceaseless operation carried on their task with great success. The band under one Jacinto Ceballos, cracked up on July 16, 1942, when this most

notorious of all bandits fell into the net laid for him by the Emergency Provincial Guards under Deputy Governor Aportadero and was killed.

Another band of bandits operating in the hills, composed of more than twenty armed men was broken up at about the same time. Other groups of lawless elements scattered all around the island of Panay were rounded up and captured. By September of 1942, the campaign against banditry and lawlessness was relaxed to a more mapping up operations against isolated cases of petty thefts and hold-ups.

## WAR AGAINST PUPPETS

Upon the arrival of the Japanese in Panay, one of their first measures of "pacification" so called, was the establishment of a puppet government. Mention has already been made of the fact that almost immediately after the occupation of Manila, the Japanese created the Executive Commission, which has ostensibly intended to help them re-establish peace and order. It is not hard to explain why the Japanese had to do this, if one takes into account the acts of Japan in Korea, Formosa and Manchuria. With the help of "recognized leaders" and "Constituted authorities", it would be much easier for the Japanese to foster their designs than without such puppets. Anyone can see that the former technique apparently would give the acts of the enemy legal sanction, especially in cases where he wanted to have something done, which would otherwise be illegal without the collaboration of some Filipinos who had at least some amount of influence with the people. Under the guise of cooperation with the "constituted" representatives of the people, the enemy would conceal his designs. Of course, it is an accepted fact that in war that a military occupant can take almost anything or do almost anything in the occupied areas and justify himself on the ground of "military necessity"; but such unwarranted procedure on the part of the Japanese would inevitably have resulted in the effectuation of a boomerang that would have

proved disastrous to them in the end. The Japanese realized this, and so did others invading hosts in history. And so it was that the enemy in Panay tried his best to establish a puppet government.

In Capiz, the Japanese appointed Gabriel T. Hernandes as puppet governor for the province; in Antique, they put up Tobias Fornier as puppet governor; and for Iloilo City they selected Vicente Ybiernas as their puppet mayor.

It is interesting to note now how puppet municipal government were generally established in the different towns during the early days of the Japanese occupation. In Barotac Nuevo, for instance, the puppet municipal government was established as early as the first week of June, 1942. A certain Japanese resident in the municipality, whose name was Miyosi Karaoka, in his capacity as civil commissioner charged with the mission of establishing puppet municipal governments, approached and urged Jose Bretaña, an old but influential man in the town to become puppet mayor. In Pototan, Tomas Ferraris was chosen by the Japanese as puppet mayor, both because of his ability to speak Niponggo and because of his influence in that town. He was installed in office after a rather pompous ceremony, in the plaza, on June 28, 1942. Cornelio Quidato, pre-war municipal mayor of Santa Barbara, was caught very early one morning in his hide-out near the barrio Omambong, Sta. Barbara and was later persuaded to become puppet mayor of that municipality. Carlos Mondejar was appointed puppet mayor of Ma-asin on July 4, 1942. Sometime in July of the same year Domingo Trompeta was appointed mayor of San Miguel. At about the same time, Jose Capalla, a political enemy of the incumbent mayor of Leon, was picked as puppet mayor of that municipality. In September of 1942, Buenaventura Aguilar was installed as puppet mayor of Passi.

At first, Governor Confesor and the deputy governors, did not launch a relentless campaign against the puppet officials, who were, for a time, just allowed to perform their duties as such inside the municipalities, as long as they did no harm.

But many of the puppets did not behave properly, and this the Governor could not tolerate. In the first place, they held public meetings in the town plazas or markets, and with all the oratorical eloquence at their command, attacked Governor Confesor and the Civil Government, including all those who were not in collaboration with the Japanese.

Not only did the puppet mayors or their minions act as mouthpiece of the Japanese in the latter's program of propaganda, but many of them also guided the enemy to the hideouts of the civil officials or outposts of the army. In one instance, a certain puppet official guided the Japanese to the hideout of a deputy governor but finding out that this official and his family had previously moved out, thanks to the due warning given him by his operatives, the Japanese failed in their mission.

* * * *

Letter of Tomas Confesor to his son:

"June 23, 1943

"To my son, Roberto:

"Today, you leave to join the army. Please bear in mind the following:

"Be loyal and respectful to your commanding officers.
"Be good, honest, and true.
"Be brave and courageous.
"Be active and alert.
"Don't be afraid to tackle hard and difficult jobs.
"Don't commit any immoral act.
"Always seek *divine* guidance in whatever you do.
"May God bless you always.

Signed TM"

This was written in Confesor's own handwriting on a memo pad, "From the desk of Tomas Confesor." The word *divine* was underlined.

— Editor

# ABSTRACT OF A THESIS

## THE ANTIQUE SCHOOL OF ARTS AND TRADES: ITS CONTRIBUTION TO THE DEVELOPMENT OF ANTIQUE

*by Teopisto S. Umpad*

*Dr. Linnea A. Nelson, Adviser*

The purpose of this study was to describe the organization and operation of the trade and industrial education program of the Antique School of Arts and Trades. It was undertaken in the belief that as a basis for beginning, extending, and improving the trade and industrial education program of the school, further information was needed on the status of the existing program. The study was based on problems presented by a great majority of the respondents, mostly prominent people in the community and teachers and instructors, office personnel and students of the school.

The method of conducting the study involved the use of direct observation, interviews, and questionnaires.

The sources of data are the following: Evaluative Survey of the Bureau of Vocational Education; Official Reports of the Superintendent to the Director of Vocational Education; Check list of the Bureau of Vocational Education on Guidance Services; Evaluative Report of the Committee of the Guidance Services of the School; Official Reports of the School Guidance and Coordinator to the Superintendent; Official Reports of the Head of the Ceramics Section of the Superintendent; Official Reports of the President of the Bari Ceramics Association to the Superintendent; and, Official Reports of the President and the Treasurer of the Sibalom Cooperative Credit Union.

The Antique School of Arts and Trades holds an important position in one of the most important fields of the community school program, that of stimulating on further economic progress. For by the very reason of its work, in

fact by the reason of its existence, it must extend its operation far beyond the immediate boundary of its campus, to the community that surrounds it, and to the province to which it geographically belongs. It has a mission to accomplish.

In the discharge of its mission, it has caused to be established a Pilot and Experimental Center at Bari; Sibalom, for the promotion of the ceramics industry. The members of the association of ceramics workers had made use of the training they got from the Antique School of Arts and Trades, and through the report of the President of their association, they would like to express their grateful appreciation for the help extended to them by the school for enabling them to increase their earnings fivefold.

The school has provided facilities for effective instruction, the phases of which have been found to be effective: (a) School Site, (b) Student Welfare, (c) Organization and Effectiveness of the Liaison Office, and (d) Community and Expansion Service. It has been found deficient in: (a) The Food Trades room is too small for the number of students enrolled in the course. (b) The school clinic is housed in a makeshift room, and many of the shop classes were inadequately equipped.

The measures undertaken to serve the education needs of youth as well as the development of community living and development were: (a) The school has contributed work experience which incidentally enables students to earn money while learning. (b) Students develop skills in handling tools they will need when they leave school. (c) Industry and independence which were developed as a result of the "earn while you learn" policy of the school. (c) The school has encouraged research and training in reflective thinking—where students in the performance of their projects and other activities made choices, set up objectives, plan and execute activities, and evaluate results in terms of these objectives. (d) It has promoted the growth of democracy through the use of group dynamics for accomplishing projects and activities in school and in

the community. (e) It has contributed to the human resources development of the province by helping in the physical and leisure time development of students and out-of-school youth and adults through athletic games and recreational activities. (f) It has contributed technical knowledge to the people through demonstrations in the different activities in arts and crafts which would greatly improve the standard of living of the people.

The school Guidance Services has (a) assisted students to secure adequate information and helped them to develop techniques that enable them to form such habits, attitudes, interests, and ideals as help them later in their choices; (b) helped students become adjusted to their present educational situation and to learn of their present opportunities; (c) has aided school leavers and students in training to learn of possible future educational and vocational opportunities; (d) has assisted them to plan wisely, both for their immediate present and for the future by stimulating them to relate themselves in their thinking to possible educational and vocational opportunities.

The school has conducted successful experiments on wood fuel that generates good heat, experiments to reduce the cost of production, experiments on stardardization, experiments to promote quality production, on the utilization of local raw materials, and development and improving designs.

The school has established the Sibalom Cooperative Credit Union, which is an inspiring lesson in cooperation and self-help. It has been the fervent hope of the school that this spirit of cooperation and self-help may spread to every town and barrio of Antique for the satisfaction and contentment of the people.

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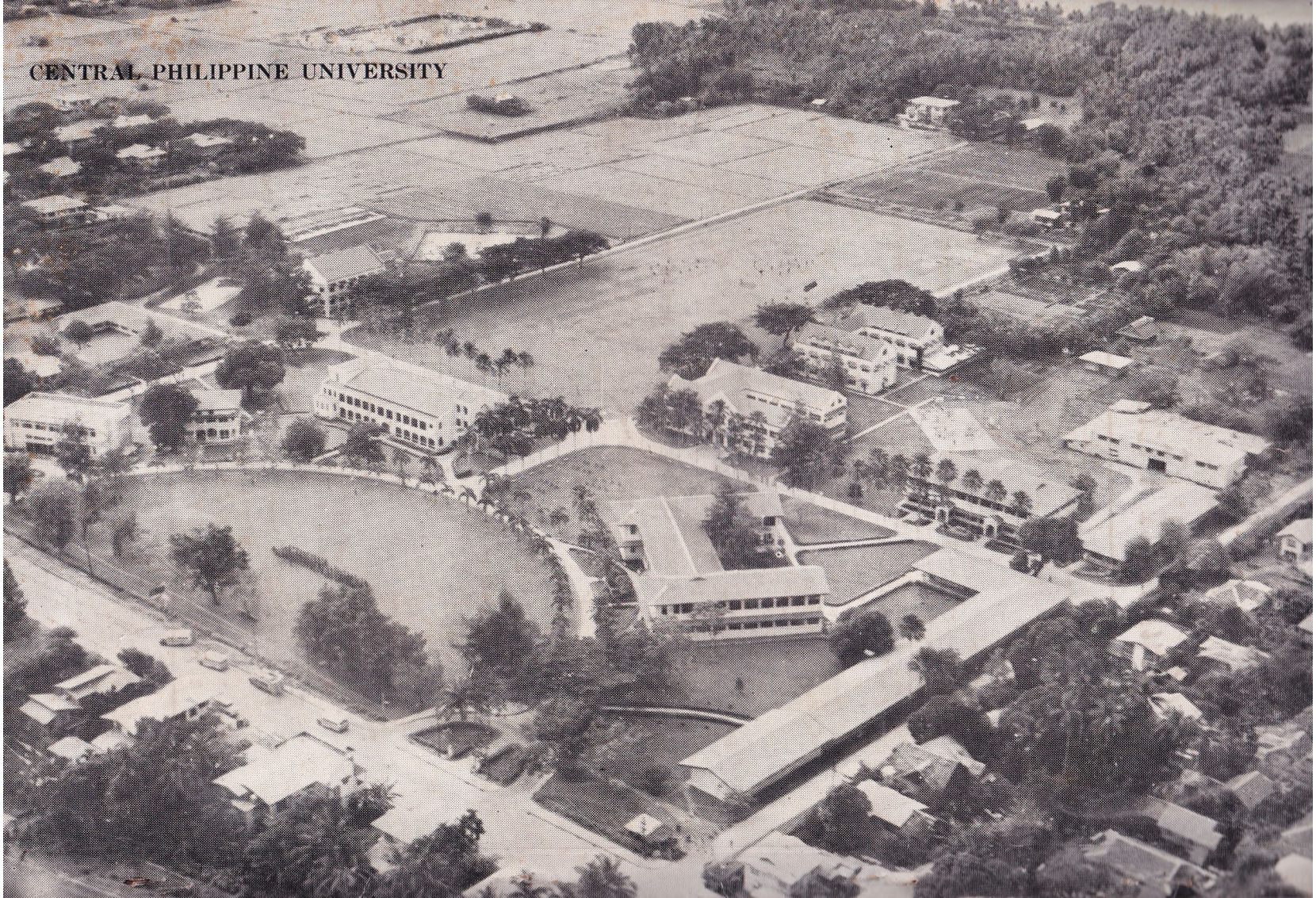
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