In this issue:

Malacañang
Manila

MESSAGE

Through this commencement issue of FORESTRY LEAVES, I congratulate with deep pleasure the graduates of the U.P. College of Forestry.

Your specialized training makes you better equipped to engage in a truly constructive endeavor: the protection of the wealth contained in our forests as you also see to it that our wood products are utilized in the best way possible. May you therefore make full use, in your chosen lifework, of your industry and individual capabilities. I am confident that as you faithfully execute your duties in the future, you will be gratified by the thought that your task is of considerable importance to the economic welfare of the nation.

I reiterate my congratulations to the Class of 1959, U.P College of Forestry, and wish them all success.

Carlos P. Garcia
President of the Philippines

Republic of the Philippines
Office of the
President of the Senate

MESSAGE

I extend warm felicitations to the members of the graduating class of the College of Forestry of the University of the Philippines.

I urge the graduates of the College this year to make their commencement exercises an occasion for a solemn rededication to the task of nation-building in which all citizens must participate. The graduates, specifically, have a very important role to play in nation-building, for on them rests the responsibility of preserving and at the same time utilizing the immense forest wealth found in our country. Emphasis now should be on preservation, considering the manner in which our forest resources are being exploited.

The graduates have been trained in forestry work. It is not for me to counsel them along technical lines. I only wish to urge them to do their utmost, utilize their knowledge very well, so that the Philippines may continue to be the richest country -- from the viewpoint of forest resources -- in the world for many more decades and centuries to come.

E. RODRIGUEZ, Sr.
President of the Senate

Manila, Philippines

H. R. No. 3

REPUBLIC OF THE PHILIPPINES
HOUSE OF REPRESENTATIVES
MANILA

OFFICE OF THE SPEAKER

M E S S A G E

I avail myself of this opportunity to convey my most heartfelt felicitations to the members of the graduating class of the College of Forestry, University of the Philippines.

I am particularly gratified that the graduates have chosen forestry as their life's calling, for the conservation and utilization of our forest resources is a continuing objective of our government that deserves the support not only of the general citizenry, but more particularly, of those especially trained in the highly technical work of deriving from our forests the maximum of utility with minimum cost and waste. This is a task which I know the members of the 1959 graduating class will perform with the highest efficiency and dedication and with full fidelity to the lofty ideals of their Alma Mater.

Needless to say, I have every hope for their success in the exercise of their chosen profession and in their unremitting endeavor to promote the national economy.

DANIEL Z. ROMUALDEZ

Republic of the Philippines
Department of Agriculture and Natural Resources
Office of the Secretary
Manila

M E S S A G E

Trees are man's best friend. From its fruits we draw our food; from its bark we derive our clothes; and its trunks yield lumber for our shelter. Indeed, very few of our natural wealth is so embracing in utility as our forests.

This patrimony however is being threatened to extinction not only by encroachment of kaingineros but by the more destructive practice of some concessionaires in cutting excess logs that are later left to rot in rivers and mountainsides. It takes scores of years to grow a tree to commercial girth and maturity. But an ambitious man in a hurry to make money could axe it down in a matter of five minutes at the expense of future generations.

The U.P. College of Forestry is the only one of its kind in the world which is located in jungle lands where students are in the midst of the knowledge they seek to imbibe. Basically, the training of our forestry students is geared towards the optimum utilization of our forest products and the reforestation of denuded areas. No doubt many alumni of the College have distinguished themselves in the proper management of our forest resources. In developing our forest reserves, the public, particularly the concessionaires, should gear their programs and activities towards its proper and wise utilization through the guidance of such leaders as the graduates of the College of Forestry.

I trust that this year's graduates of the College of Forestry will be better equipped to face the trials of their profession.

JUAN de G. RODRIGUEZ
Secretary of Agriculture and
Natural Resources

UNIVERSITY OF THE PHILIPPINES
QUEZON CITY

MESSAGE

You will soon step out of the University to practice your chosen profession. I know of no other group of graduates who are better prepared than you to render a definite service to our country. I say this not to flatter you but to impress upon you the value and the urgency of your assignment.

Our forest resources are rapidly dwindling. Responsible quarters say that our trees are being cut down at an alarming rate. Within a generation, these sources say, our mountains will be bare, unless we awake to the danger and take quick preventive steps. To replace our timber assets requires a long and arduous task. To guard them is a challenge to you. It will be your direct responsibility as trained foresters, rangers, and guardians of our forests to put a halt to the wanton destruction of natural resources. We earnestly trust that you perform your duty in this respect with devotion and courage.

V. G. SINCO
President

COMMISSION ON APPOINTMENTS
CHAIRMAN
COMMITTEE ON EDUCATION
MEMBER
COMMITTEE ON FOREIGN AFFAIRS
COMMITTEE ON JUSTICE
COMMITTEE ON CIVIL SERVICE
COMMITTEE ON MISCELLANEOUS

REPUBLIC OF THE PHILIPPINES
HOUSE OF REPRESENTATIVES
MANILA

Jacobo Z. Gonzales
CONGRESSMAN
FIRST DISTRICT OF LAGUNA

VICE-CHAIRMAN
COMMITTEE ON TRANSPORTATION AND COMMUNICATION
COMMITTEE ON FRANCHISES
MEMBER
COMMITTEE ON EDUCATION
COMMITTEE ON PUBLIC WORKS
COMMITTEE ON RAILWAYS

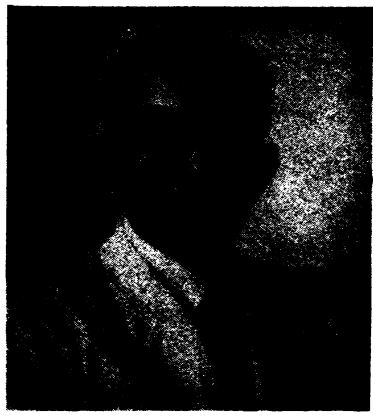
M E S S A G E

I am very happy to be able to extend a message to the graduating class, as I shall be able to extend to you, individually and collectively, my congratulations on your graduation and my earnest wish that you dedicate yourselves to the service of our country. The rise and fall of nations is just like the story of how their forest resources had been conserved, developed, and exploited. Realizing this, you can serve then our country with the benefit of the experience of the past. On my part, I shall cooperate with you in the making of laws to give life to the objective stated in our Constitituion "to establish a government that shall x x x conserve and develop the patrimony of the nation." Presently, I have presented H. Bill No. 2136 providing for the sale of the foreign exchange receipts in public auction with preference to Filipinos, and the profits on the sale of 30% of the foreign exchange receipts over and above the ratio of $1.00 to ₱2.00 is automatically appropriated for the promotion of agriculture and conservation and development of natural resources. This measure will solve our foreign exchange trouble; drive away influence feddlers and grafters, and is a sure boom to agriculture and the conservation and development of our natural resources.

Again, I wish you good luck in the future.

Jacobo Z. Gonzales

JACOBO Z. GONZALES



In Reply, Address
DIRECTOR OF FORESTRY
Manila, Philippines

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES
BUREAU OF FORESTRY
MANILA

Z - Message
(U.P., College of Forestry) March 20, 1959

M E S S A G E

Today, as I congratulate the graduates of the College of Forestry of the University of the Philippines, I wish to stress the importance of the forestry profession.

Human and natural resources are the two most important resources of a country. Human resources is the knowledge of the people to develop the country's natural wealth. Although forestry lacks the glamour found in other professions, it bears with it the dignity of being one of the bases of other industries that help bolster a well-balanced national economy. Your knowledge in forestry, therefore, adds importance to the many-faceted-programs of the government to harness human resources in developing our country's natural wealth for the benefit of the people.

Our forests is one of the most valuable resources of our country. And forestry means "continuity of production" for all time. As you leave the portals of the College, bear in mind that the same spirit and ideals freely imbued to you by the institution will carry you through.

The true significance of forestry does not lie in the successful termination of the quest for knowledge, but rather in the way the acquired wisdom is shared for the benefit of the country and posterity.

FELIPE R. AMOS
Director of Forestry

University of the Philippines
COLLEGE OF FORESTRY
College, Laguna

- M E S S A G E -

The prejudice against any profession that has to do with the soil dates back to Spanish times. Its force was so great that during the early days of American occupation the pioneer American foresters had to offer pensionadoships in order to attract young men to a similarly young profession.

Times have changed, and with them the pursuit of forestry and agriculture. Biological science and the managerial arts now illumine, enlarge, and increasingly displace the simple husbandry of a generation or two ago. Man becomes less and less a slave of nature; more and more he grows into an understanding partner. Still some from the higher walks of life cling to the old idea that only those from the lower social orders seek admission to the Los Baños campuses. Forestry, in this view, is a less dignified profession than law, medicine or engineering, all of which have great appeal for the young men of our country.

So dignity of man has a two-fold emphasis for the forester. If dignity be no external thing but the quality of heart and soul and mind that bears the stamp of nobility, perhaps forestry need not suffer in comparison with other professions. For here is a calling wherein men are compelled to think not only of the present but of the distant future. The dimensions of forest land management are measured in no small units but in kilometers and decades. Man's vision grows and his selfishness dwindles as he works with trees that were young with his granfather's father, when he plants or protects for people he will never see. He senses humanity as a continuing stream with each generation free to use the renewable resources of the earth but obligated to pass them unimpaired to their children. Though his own contribution may be humble his profession's task, in fulfilling that obligation, is not.

So much for the forester's own sense of dignity; what of the men he serves? Man--the common--is able to achieve human dignity only as he rises above the level of animal existence; when he has at least moments for contemplation and inspiration from his surroundings. Such escape is difficult, for example, in ruined landscapes where man tills parched fields, grubs roots from eroding hills for fuel, and shelters in miserable huts. Continued freedom from acute want, in many parts of the world, is closely linked with forest conservation. Again, the forest ranks with the sea as an object of man's contemplation and wonder; and greater knowledge only enlarges the opportunity for wonder. The forester looking up from his path sees it leading towards freedom and beauty for many men.

Gregorio Zamuco

GREGORIO ZAMUCO
Dean

World Forestry and Foresters[1]

By THOMAS GILL[2]

I am always very happy when I can speak to an audience such as this because then I can speak on my two favorite subjects — forestry and foresters. But this morning I would like to talk about forestry not as a job but as one of the world's basic professions. And I would like to talk to you about foresters not just as men working at different, seemingly unrelated tasks but as a united group which have grown into a kind of world brotherhood. To begin with, there is a general feeling that forestry is something new. Actually, it is quite old. There were forestry principles established in Ancient Greece. The Chinese had forestry laws 2,000 years ago. The Assyrians, the Egyptians had forestry laws and there were forest regulations among the Aztec Indians long before the Spaniards landed. Some of those forest regulations of the Aztecs were pretty rugged. One of them provided that if you cut down a tree protected by the government your head was cut off and placed on the stump, probably as a warning not to do again. And I think some of the Mexican foresters today wish that this regulation was still in effect.

In Germany in the days of the emperors and the kings, forestry was one of the few honored professions. The only three professional men that were allowed at the royal courts in those days were the clergy, the doctors and foresters. In modern times foresters have become prominent in the affairs of many countries. In Finland, a forester has been prime minister. Many college presidents are men who have had their early training in forestry. In Hongkong today, there is a man who was one year ahead of me in forestry. He is now President of Chung Chi College and in the United States I know at least two foresters who have been governors of states.

Now it is true that some aspects of forestry are new and others will be developed long after all of us are gone. A little later, I would tell you one of the new and promising developments. It is known as world forestry. But just now I want to emphasize that forestry is an old established and long recognized profession which in many countries plays a leading role in the national economy. But because forestry is well established and has taken its place in the national life, you must not believe that it has settled down into a conservative middle-age attitude and that there is no longer the thrill and incentive of new discoveries. Because that wouldn't be true. The growing of trees, the proper use of the soil, are very complex things. And there is no danger that we will answer all the problems about the best way to build forests and to use wood, if we work hard for the next thousand years.

We still have so much to learn. Even regarding our most important timber trees. There are great gaps in our knowledge today and very often nature seems to take delight in keeping her ways secret from us. For example, the British foresters in Trinidad near South America have been working for over fifty years to find out what conditions are most suitable for growing Spanish cedar, one of the valuable woods

[1] Address delivered at a special convocation held January 22, 1959 at the College of Forestry auditorium.
[2] Forest policy expert and executive director of the Charles Lathrop Pack Forestry Foundation.

of the world. But they have not found out yet. In the man-made plantations where they try to grow it, Spanish cedar either sulks and refuses to grow or develops diseases or suddenly springs up and twists itself into fantastic forms that have no commercial value. Teak is another wood that is giving endless trouble. Some years ago, foresters in South America imported seeds of teak from India. Now teak is a valuable tropical species and the hope was that it would do well in South America, and form a basis for a new export trade. Well for the first four or five years, it grew marvelously and everyone was enthusiastic over the possibilities. Then suddenly it stopped and no one knows why. It apparently did not like the ways foresters were treating it or didn't like South America. But the plants just stood still and the hopes for exporting high grade teak died.

And even where forestry has been long established, we have still much to learn. And in matters of the soil and products of the soil you usually learn the hard way In Germany, for instance, a country which for years led the world in forest practice and in forest research, foresters made the mistake of planting pure spruce for generation after generation. They would plant spruce and harvest spruce and plant more spruce and after a few generations the growth fell off and the quality deteriorated. Nature was rebelling against that sort of treatment and demanded a little variety. So those days the German foresters are planting beach and other species in with spruce and getting much better results but it cost them thirty or forty years of wasted work, before they learned that secret.

So there are new problems, new opportunities, always coming up to challenge the forester to keep him on his toes, to keep his interest alive and to point continually better ways of managing the forests. And that is even more true in dealing with the great forest product that we call wood. Never a year goes by, I suppose, that does not bring out some new use for wood. Wood already is the most versatile material in the world. There is no other substance on earth that gives food, fuel, fibers, chemical derivatives, and an endless number of structural materials. Some years ago, the forest products laboratories in my country tried to make a census of the different uses of wood. Finally, when they reached the count of forty-five hundred different uses and no end in sight, they gave it up. So if any of you who are going into forestry have fears that all the problems are solved, either about forest management or wood utilization, I think you can dismiss them. On the great attraction that forestry lies in that very fact. Ahead of us there is always a vast domain of the unknown, countless opportunities for new discoveries, better methods and better ways of making the forest serve mankind.

There is another misconception about forestry that I would like to talk of for I think it hurts forestry itself and may keep some men from entering the profession. And that is the belief held by some that forestry is a vague, mysterious and even impractical sort of thing. Actually, there is nothing mysterious about it and certainly nothing can be more intensely practical than a science whose goal and purpose is to make the forests of the world of the highest use to the world's peoples. Forestry is no more vague and mysterious than agriculture. Both have the same broad objective — the best permanent use of the soil. The main difference between them is in the time element and in the fact that they deal or should deal with different types of soil.

Nor should there be any conflict between agriculture and forestry. They are not competitive. And in many countries if agriculture is to permanently prosper there must be a reasonable balance between land for crops and land for forestry. Forests are the great ally of agriculture in regions where the stabilization of upland soil is necessary

to prevent the loss of agricultural land by erosion and flood.

One of the great tragedies of Mexico lies in the fact that tree cutting in the high upland forests has led to floods and erosion that bring down the silt and cover the croplands in the valley. So that each year Mexico has 600 thousand more mouths to feed and less and less agricultural lands to grow food on. Throughout the world and throughout the centuries attempts to establish and grow crops on forest lands have always ended in disaster. Disaster to the forest, to the crops, and to the soil itself. It has been one of the costliest errors man has ever made and is still making. For in some region it means death to the soil. It means the creation of man-made deserts. A permanent liability instead of a permanent asset.

I saw the result of this mistaken agriculture in Japan once where a wide strip had been cleared of all its timber from the bottom of the valley to the very ridge top. Nothing was left on that strip but the tree stumps. And among the stumps they had planted agricultural crops. Then as the years went by, men began to point out that the strip of land steep as it was and bare of all tree was just as stable as the forested areas on both sides. There was a little more erosion perhaps but the soil even though filled with rain to saturation showed no tendency to creep. So here apparently, was a contradiction of the need for trees as soil stabilizer. But seven years after that cutting, the ground again was soaked with one of Japan's torrential rains and suddenly the whole strip slid down into the valley while the uncut forested areas on both sides held firm. All the crops on that strip were destroyed, as well as much of the riceland, in the valley beneath. You may already have guessed what happened. The roots of the cut trees had been holding that soil in place all during those seven years. But when these roots finally disintegrated down came the landslide and nature had given another costly lesson in the proper use of land.

Some countries have learned this bitter lesson and have classified their lands according to whatever use is permanently best for the national life, and for the national economy. This generally, means that the better more fertile soils are devoted to agriculture and the upland steep shallow soils devoted to forestry. This in very simple form is the concept of integrated land use, a concept that the forester must learn and practice.

Now sometimes back, I told you that although the principles of forestry are old, certain aspects of it are new and I want to talk a little now about one of the newer and more promising aspects — world forestry. You know without my telling you that year by year the world is shrinking. And now with the coming of jets it is shrinking faster still. But forestry which is a universal science is not confined by national boundary lines. Indeed, there are many forestry problems that can only be solved by international action. Problems like mutual protection against forest fires or tree quarantine or trade compacts where it is absolutely necessary for the foresters of two or more nations come together and reach agreements.

And forestry is not concerned with race or national attitudes. One of the joys of the forestry profession is this community of purpose, this following of common ideals, all over the world, speak a common language, following a common cause. The forester's loyalty is to nature's laws. For we know that when we break them, trouble usually follows. So I think it is a great mistake when foresters allow themselves to be divided by politics or national rivalries. For as followers of a world profession, our allegiance is to the good earth. The forester should be guided by one principle, "How Can I Help Make the Forest Serve the Greatest Human Good?" It is this creed which in part has implemented the men who

are working today in world's forestry. There are men such as these in the ICA. There are men such as these in the United Nation. They are trying to bring together common problems in an effort to solve them on a world basis. To gather together the fruits of experience of different countries and put them at the disposal of all the others. They are working to increase international forestry by establishing foreign scholarships and in some cases they are forming teams of men from different countries so they can bring different points of view of widely separated backgrounds.

Now let me speak to you of just one more matter before I finish otherwise I would miss what I believe is of utmost importance to any group intending to make forestry a career. I want to emphasize the importance of good training. Nothing can take the place of thorough, competent technical training in this profession of forestry. There just is no substitute. Without solid, careful preparation in school you are handicapped from the very start and your work, too, will be handicapped. Any program of forestry may succeed or fail depending on the technical competence of the men who carry out that program. No matter how carefully the forest policy of a country may be written, no matter how complete the body of forest laws, all these will avail very little unless they are administered by a body of foresters well-trained technically and imbued with a sense of professional integrity. If throughout the world we are to raise our profession to the high level it deserves; if we are to give it the standing and influence that will enable us to do the most good, we must rely on trained, experienced men and that training must come from forestry schools. It is their responsibility to graduate men not only technically able but men familiar with conservation viewpoints. There is no end to the list of disasters or the waste of money due solely to lack of technical knowledge, or disregard of it.

Let me tell you what is happening in a great capital city because it failed to follow the warnings of its foresters and conservationists. The city I speak of is Mexico City. It is a very modern capital with millions of inhabitants and skyscraper buildings and traffic jams but one of the first things you notice when you get there are the broken irregular pavements, the wavy streets and the many buildings that are leaning at an angle instead of standing upright. Worse still is the fact that the city itself is sinking at the rate of ten inches every year. Now here are the reasons: The Mexican people years ago, cut down all the forests on the hillsides above the city. They allowed sheeps and goats to destroy all the grasslands that covered the slopes. Then they tried to raise agricultural crops on slopes so steep they are fit only for forests. Meanwhile, Mexico City you may remember, is in a huge crater of a volcano and rests on a semi-liquid mass that is being robbed of its liquid content by countless pumps that are taking the water out and because of the denudation of the land above it there is no chance for the water to come down slowly and seep in and renew it again. So the result is cracked buildings, broken pipes, sewers unable to function and floods and a problem that the men of Mexico are unable to solve. And all this might have been prevented just as forestry training could have prevented the wastage of building expensive dams and reservoirs and at the same time cutting the forest above them and starting silt and erosion to cover them up. Millions of dollars in my country and other countries have been thrown away in this manner because of technical ignorance, because the developments were not carried out by men with a thorough conservation viewpoint.

Once in Brazil, I saw the waste of thousands of pesos and hundreds of hectares of good forest land because the men who cleared that land were without technical training.

(Continued on page 8)

The University and Industrial Development*

By JOSE C. LOCSIN
Chairman, National Economic Council

Today I join you gladly in celebrating the 50th Anniversary of the University of the Philippines. It is no small honor to have been invited by President Sinco to be your convocation speaker.

I was asked to speak on "The Role of the University in Industrial Development." A discussion of this topic, however, requires an understanding of what a university is. What, then, is a University?

From the time man held the original concept of a University as a society composed merely of professors and students for the purpose of teaching and learning, much water have passed under the proverbial bridge. Today we hold that an institution is a repository of all the accumulated learning of many centuries to the present, a laboratory of investigation and discovery of new truths, a forge where the will is tempered and trained to action.

We had been a colony for over 400 years and it was unfortunate that due to the policies of the sovereign at that time, our only university, in spite of being Royal, Pontifical and a Tricentenarian, having existed since 1611, showed itself reluctant in teaching science to our youth. Our hero Jose Rizal, in his immortal novel ::El Filibusterismo" dedicated a chapter to describe the conditions of a class in Physics in the University of Santo Tomas during his time. Rizal said: "With the exception of a beautiful blackboard . . . no furniture, either useful or useless, was to be seen . . . The walls, painted white, were entirely bare, having neither a drawing nor a picture, nor even an outline of any physical apparatus. The students had no need of any, no one missed the practical instruction in an extremely experimental science . . . Now and then some little instrument descended from heaven and was exhibited to the clas from a distance, like the monstrance to the prostrate worshippers — look but touch not. One day in a year . . . there were seen to be quantities of brass and glassware, tubes, disks, bells and the like — the exhibition did not go beyond that . . . The students were convinced that the instruments had not been purchased for them . . . The laboratory was intended to be shown to the visitors and the high officials who came from the Peninsula." The same could be said of the classes in chemistry and the other sciences.

As a nation we were denied due access to the "endless frontiers of science" in order to substantiate our material progress. At the end of the last century, America and Europe were running factories by electricity, and incandescent lamps lit their houses and streets. In the Philippines we were still groping in the darkness of night with a "tinghoy" or a "quinque." And although ours is a tropical country, we had not even learned how to make ice to refresh ourselves with cool drinks.

Then came the Revolution of 1896. America entered the war, and the Philippines became a prize for the victor. Our demolished country entered the Twentieth Century as a territory belonging to the United States. Without arguing the motivation behind the Cooper Law and later the Underwood Law, the opening of the American

* Address delivered at a Golden Jubilee convocation sponsored by the College of Engineering on September 5, 1958.

market for Philippine products gave us an incentive to focus our interest in tilling our fields. The free exchange of products between our countries created prosperity here, and we paid well for the finished products imported from the United States. This prosperity and the lack of opportunities for vocational education in our country have made our people a consumer of imported goods, enjoying the comforts of an easy life.

We have to admit that engineering courses in the Philippines attained recognition only after 1920. It is true that on June 13, 1910 the College of Engineering of the University of the Philippines was founded, but it required over ten years of trial and error for the organization to achieve any degree of prominence. It was only in the school year 1921-1922 that the college offered courses in civil, electrical, mechanical and industrial engineering, with emphasis on the last. Dean Ortigas pointed out as an outstanding material accomplishment of the Reynolds decade — from 1920 to 1930 — the establishment of shop and laboratory facilities in the University of the Philippines, and public recognition of the importance of technical knowledge started during this period when men interested in setting up industries frequently sought the assistance of engineering faculty members for solution of their problems.

So vital is the University as an institution of learning of basic and applied sciences in the industrialization of any country, that it is the only source of technical manpower, of selected graduates to staff private research centers, and of leaders to organize business and bring about the application of research findings in the actual production fields. Of this, two component writers have said: "To assure continuing progress of fundamental knowledge in science, following the results from theoretical research efforts, there must naturally follow experimental verification. At this point new knowledge has become available but it is still sterile in so far as the economic implication is concerned. Applied research next is affected and proves that such new knowledge will and can accomplish a useful purpose. This stage in turn is rapidly followed by engineering application which is called development. This step finally reduces the original knowledge to a useful economic factor such as a new machine, a new material, a new process, a new product, or a new form of service. Out of such elements, the national economic potential is created."

The first engineer-graduates o fthe College of Engineering of the University of the Philippines found plenty of opportunities to work in the construction of roads, buildings, wharves and other public works projects. When the Commonwealth Government was established we became industrially minded. We founded the National Development Company. We saw the success of the promotional policy of the government on the construction of sugar centrals. We built a cement factory and a textile plant. We developed fishponds in Capiz and Pampanga to supply the material for a cannery. We gave facilities for the development of a pineapple plantation in Del Monte for a fruit canning factory. We developed the mining industry. We established electric and ice plants in big municipalities. This industrialization trend in our economic development followed our broadened knowledge in science because, as has been properly observed by John Gammell, "In the market plan for human skills the trend of hiring in industry overwhelmingly points toward science and engineering background at all levels."

But the little facilities that we had, to teach sciences and to move forward in our industrial enterprises, were destroyed in the last War. The war, however, gave a lesson to all peoples and nations, and it is this: "That creative science is a potent factor in winning a war."

After Liberation and the proclamation

of our political independence in 1946, a tremendous task of economic rehabilitation and readjustment confronted us. We realized that, being politically independent, we had perforce to bring socio-economic changes that would reshape the Filipino way of life. It became all too clear that only science properly applied could help us to manage and channel our energies to shape a new pattern of living and raise the standard of our people. Paul B. Sears pointed to the "imponderable potentialities of science for promtoing social stability." And Dr. Bush, in his report to President Roosevelt, stated: "Without scientific progress, no amount of achievement in other directions can insure our health, prosperity and security as a nation in the modern world."

In 1956, in the floor of the Senate, I said: "Nowadays, the silent but titanic struggle between the United States and Soviet Russia for world supremacy will be decided by their respective scientists working in their laboratories."

In this belief that science is necessary for a people to progress we in Congress were prompted to work for the formulation and approval of the First National Science Research Law in which we envisioned the University of the Philippines as an outstanding scientific research center.

I express the confidence that under the new law, Republic Act No. 2067 creating the National Science Development Board, this plan will be fully realized. In this University you have the factors necessary to advance the project. You have the members of the faculty, a highly qualified staff for research; the student body as material to be trained and inspired; the building and equipment ready and above all, the p r o p e r environment for meditation and study, the cloisters that will inspire you to a total surrender to Science.

Rockwell of General Electric Company, speaking of the interrelation of industry with science and technology in Russia, said that "most university professors hold positions in an industry or institute and devote considerable time to them. Thus, teaching cannot go too far away from the problems encountered either in research or industry. Plant managers and institute personnel also teach special courses in the universities."

Our government has given due recognition to the important role of the University of the Philippines in the industrialization of our country by extending aid to its physical rehabilitation and improvement, the development of broad training programs, establishment of new courses, more adequate teaching facilities both academic and practical. All these were done to enable this institution to be one among the best in the world.

Since the inception of the National Economic Council and the International Cooperation Administration, the University of the Philippines has received from the United States Aid Fund substantial assistance that reached a total of $8,162,506.75 of which $5,090,539.04 is in commodities and $3,071,-967.71 in technical assistance — while the peso support from our Government amounted to ₱14,332,200.25. Under Technical Assistance, a total of 158 participants have been sent to the United States for advanced training in their respective fields while 82 contract personnel have served with the University. Specifically, the Cornell-U.P. College of Forestry and the Cornell-U.P. College of Agriculture contracts had been entered into for technical assistance in agriculture and forestry. The Stanford-U.P. contract for the College of Education, Business Administration, Engineering and supporting fields ,the R.C.A.-U.P. contract for electronics training, and the Connecticutt-U.P. contract for labor education.

The peso assistance covers the cost of buildings, procurement of peso commodities, increasing and strengthening the teaching staff, contracts and contractual services, participant training and the transportation, housing and living allowance and clerical as-

sistance of contract personnel. Among the constructions undertaken for the program have been 47 buildings, including 18 houses for the faculty in the College of Agriculture, at College, Laguna, the Deck Roof and the alteration of the Institute of Hygiene Building, the renovation of the Department of Physics of the College of Liberal Arts and the General Purpose Pilot plant and Textile Laboratory of the College of Engineering.

These material and technical support brought the University of the Philippines toward the center of activity of the nation's program of economic development. Right now, your industrial Research Center is rendering technical services to companies, corporations and bureaus. Your Forest Products Research Institute conducts research aimed at developing new and profitable forest products industries based on residues and non-commercial species. In your School of Hygiene and College of Medicine laboratories you are conducting investigation and studies to promote health and sanitation. I acknowledge, also, your endeavor to raise the standard of the teaching of humanities and Fine Arts. Your goal shall be a creative science and technology. Remember these words of Dr. Bush: "A nation which depends upon other for its new basic scientific knowledge will be slow in its industrial progress and weak in its competitive position in world trade."

With these aids extended to the University of the Philippines, a lot of good things have been done. But we have to recognize that more assistance is needed and should be forthcoming from our Government, the International Cooperation Administration, the United Nations organization, the ECAFE, and philanthropic organizations like the Rockefeller Foundation, to accomplish continuing scientific research and development in this University. Furthermore, aid must be extended to this University to place it in a position to develop science as one of the most valuable natural resources we can have that will contribute greatly to the welfare of our people and to our national security.

WORLD FORESTRY . . .

(Continued from page 4)

They had intended to clear the land for agriculture. So they cut down every tree. A trained forester, or trained soils men could have told them what would happen. Once the protective cover of trees was taken away from that particular type of soil, the rain leached out the fertility and the sun baked the surface until it was brick-like in hardness. Not even trees, not even grass, not even a self-respecting weed will grow there for a long, long time.

It is preventable waste, like this that makes me want to emphasize as strongly as I can, the great need for adequate training so that the forester will know enough about biological principles to enable him to work with nature and not against it.

Now I don't want to oversell forestry as a career. As for myself, I have found it rich and rewarding. And there are times, too, when I have found it exciting, a little too exciting. It has taken me to many strange places, it has taken me around the world three times. Some of the places haven't been entirely pleasant. I have been ship-wrecked. I have been chased up mahogany trees by wild pigs and kept there for long hours while they dared me to come down. I have been run out of my own camp by army ants. But on the other hand, it has given me many friendships and many unexpected opportunities that have been pleasant, such as this opportunity to speak here to you.

Of course, whether you will like forestry or not depends on what you want out of life. If you want to make a lot of money quickly or if you want to spend your life close to the bright lights and the night

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A Scholarship Program for Forestry[1]

By AMANDO M. DALISAY
Undersecretary of Natural Resources

Ladies and Gentlemen:

I am deeply elated in coming here today as your guest speaker. There are two special reasons for this happy feeling. One is that the faculty and student body of this great College in inviting on this memorable occasion one of the officials of the DANR are following the direction of a tradition of close relationship and understanding between the College and the Department. I am one with you in praying that this tradition would be more significant and more binding as the years go by.

The other reason is that you have chosen from among your friends a fellow worker whose calling is lower than yours — in level as well as in aspiration — but whose services are essential in rounding out a comprehensive approach to land use and conservation. As an agriculturist and a graduate of your sister college down below, I have always looked up to the College of Forestry and its campus here on Mt. Makiling. Foresters I have always regarded as superior and more fortunate beings: they are closer to nature, insulated from the humdrum of farm or urban living, and perennially working at higher elevations — on the slopes or summits of majestic mountains that one views but with awe only at a distance — they are therefore always closer to God. My having worked at close hand with foresters and the forestry service has not diminished the regard and admiration I have for them.

Today, on this seventeenth anniversary of Forestry Day, a humble agriculturist joins hands with yours in paying homage to the great traditions of the forestry profession and in remembering gratefully those favorite sons who gave of their life that the service might be enhanced and that this country might be free and content. Today, more than ever, we are faced with the challenge of an efficient public service and the even greater challenge of economic progress, to the end that our people may live more fully and at peace with themselves and the rest of mankind. And in this undertaking, the foresters and agriculturists must join hands, not only to serve agriculture in a balanced manner, but also to make our own people ever aware that agriculture and forestry are one in the service of humanity.

If only for this reason, the tasks of the two sister institutions on the lower and upper campuses on this verdant slope of Makiling are doubly significant: training men and women for an agricultural service that is responsive to the needs and desires of our nation, and being the trustees or embodiments of a weighty and far-reaching responsibility, the development and conservation of our agriculture and natural wealth.

Role of Management in Development

Current development in the national economic scene have lately invited attention to the deplorable state of our finances and the rapid deterioration of our foreign exchange reserves. And many of our people are prone to blame this sad plight on the imbalance of our foreign trade and the lack of adequate government revenues. Few have apparently stopped to look into their own actuations nor into the real factors or forces at work and which have led to the present debacle.

[1] Address delivered during the 17th Forestry Day convocation on November 30, 1958.

If we only stop and think about the root causes of our present difficulties and analyze the situation critically and objectively, we shall be honest enough to admit that the greater blame lies in our shortcomings in economic management. I am one of those who deplore the inadequacy of our efforts and concentration in this direction. As a people we have not only failed, in the last ten years, to appreciate the importance of management in our economic and social affairs, but we have also not given proper encouragement to the people who have the capability, the initiative and resourcefulness as well as the demonstrated interest and application, in efficient and productive management.

For the proper handling of our fiscal affairs and the formulation of proper fiscal policies to stabilize government finances and balance our operating fiscal budgets, we need well-trained and dedicated financial managers. We also need good managers in the programming of development projects and measures and in the effective implementation of them. The government corporations and public development projects to which millions of government revenues are funneled each year must be run by capable managers if they are to succeed in their objectives and produce the commensurate income or services for every peso spent.

Capable managers or executives are indispensable for the effective prosecution of public works projects and other permanent improvements for which public funds are appropriated annually. Most important of all, a managed currency like ours can only function well if the operations of the Central Bank are efficiently managed, and if the credit operations of the banks as well as the dollar allocations to importers and to individual enterprises are properly supervised under proper management control.

Many of our local experts, and even foreign experts working with us, have come to the conclusion that our national economy is in the midst of a **dollar crisis;** that our economic ills today stem largely from a **dollar shortage.** I humbly and earnestly say that this is not exactly correct. To my mind, what we have today, apparently slowing down our current progress and threatening our future economic development, is a **crisis of management.** Our most serious difficulty at present is both the inertia and the inadequacy of proper management.

Management in Production and Marketing

Perhaps this crisis in management is more manifest in the field of production and marketing, particularly in agriculture. Our recurring national shortages in rice, corn and other foodstuffs, the utilization of scarce dollars for importation of rice and corn, and the endless debates on whether importation is to be resorted to because domestic production is still insufficient, (to mention a few among others) in the face of abundant local resources — these are nothing more than demonstrable ineptness of local management.

Our recent experience in the implementation of the President's rice and corn program is a good case in point. When funds can not be released when needed, the programming of fertilizer and pesticide distribution for effective results would fall short of its mark. The proper implementation of plans and programs completed in the previous year would be in vain, if funds are not available on time. The necessary follow-up and evaluation of a program in action would be short-lived, if not entirely pointless, unless the proper personnel are put on the job and the essential facilities provided them. In planning, implementation, and evaluation, which are the principal management responsibilities in a production program, good intentions and persistence are not enough; funds, personnel, and organization must be there to ensure success. Most important of all, there must be the capable administrator or executive who can make decisions at the right time and otherwise

assume full responsibility for the success or failure of the enterprise.

We need all of these for the most effective implementation of the rice and corn production program. More than funds and facilities, we need well-trained, dedicated and honest men who can plan and programme, execute and follow up decisions already made, evaluate progress attained, and make adjustment or changes as the project moves forward. In other words, we need good executives in the management and operation of our food programs. Good executives and administrators are the key to effective and successful management.

This type of men in our agricultural service will determine how well we could implement and coordinate our production programs. They are also the means by which our food crops could be properly willed or processed and then handled through the channels of trade, and whenever necessary prepared and handled for export. These men organize, operate, and manage the processing and marketing facilities. They also make possible the financing of these operations, through the government banks and private financing institutions. These capable executives will determine how well and how far our cooperatives would go in assisting the small farmers to improve their lot.

The Need for Thorough Training

However, the intricacies and the imponderables of good management cannot be learned overnight. Our national experience in the last decade emphasizes this point. And our individual experience attests to the fact that training in management requires arduous, back-breaking, temper-testing, and almost always a time-consuming process.

The presence of the State University and its sister institution in this country is an assurance that proper management training can be had. This is especially true in many aspects of production. There is nevertheless certain lacks or gaps in the type of management training available, largely perhaps in national economic programs and national development projects. In the field of agriculture, the College of Agriculture here in Los Baños and similar colleges in other parts of the country are filling the gaps by strengthened courses in farm management, agricultural marketing, farm credits, and economic policies. But more advanced courses in farm and business management, as well as in financial management, are now needed in order to keep up with the new developments in farm and community organization and the urgent demands of the cooperative associations and the rural banks.

The main thing that will ensure proper management training in our educational institutions is the observance of a high standard of scholarship, together with the incessant search and employment of high-quality teachers and researchers. To this may be added the tight screening of capable and outstanding intellects and the stimulus to demonstrable capacity and excellence through recognized incentives, such as scholarship aids, prizes, and other rewards for high merit.

Significance of Scholarships in the College of Forestry

This brings me to the problem of encouraging high scholarship in this College and of speeding up the training of a great number of men worthy of the forestry service. As an agriculturist with economics training, but with hardly any acquaintance with the forestry curriculum, I would like to present the problem this way: The country needs very badly men of sterling character and worth to reinforce the forestry service, for the proper utilization of our forestry resources and to safeguard our dwindling commercial forests. Unless we can do this, we cannot educate or reorient our people to the importance of our forests, and for lack of capable foresters, our forest resources will soon disappear, to the full detriment of our national life.

More than any other group, our audience today is aware of the dire shortage of foresters and how slowly we are replacing those who have grown old and have just faded away. Some people are wont to ask: Why doesn't the College of Forestry train more men? Perhaps this is preposterous to many of us who have seen how difficult it is to qualify for, **much more to complete,** a forestry education. And this is simply the answer to the fact that only a few graduate each year with the B.S.F. degree.

But the answer must really be sought in no other means than what the above query indicates: more men must be trained in this College. Inasmuch as lowering standards is out of the question, the approach seems to me one of enlarging the area of search and devising a method of finding talents.

On a number of occasions I have suggested to Director Amos that the number of Bureau scholarships in this College could perhaps be increased. The idea is not novel, I must admit, but the urgency of the problem is such that even old methods are worth repeating. The only difference this time is that all the high schools, including vocational, agricultural and trade schools, should be explored and that a campaign be waged to attract exceptional or deserving talents to the forestry service.

I am happy to report to you that a request has already been made in the next Fiscal Budget to provide ₱50,000 each year to strengthen the scholarship program of the Bureau of Forestry in this College. This should not preclude the advanced training or reorientation training for men already in the forestry service nor their fellowship training abroad. My hope is that more emphasis be given to seeking young men of high school age and through proper encouragement and assistance providing them forestry training in this College. It will not be too much to ask perhaps that the College and the Bureau join forces in this worthy undertaking.

In closing, I wish to thank you with all my heart for this opportunity to be with you today. The forestry service will march on confident in its task and hopeful of greater rewards in terms of service and accomplishments. My only hope is that more foresters are available in the proper management and utilization of our forests so in the next generation this scarce resource could contribute to our welfare and happiness and likewise to the coming generations. This hope lies now in your hands.

THANK YOU.

WORLD FORESTRY . . .

(Continued from page 8)

clubs, then maybe, forestry is not for you. But if you want to join a world brotherhood of men intent on a common goal, if you want to labor for fundamental realities in a profession that is old enough to know where it is going but young enough to have the lure of far-off horizons then by all means consider forestry.

For foresters in whatever land or in whatever branch of their profession they may be working, do have a common goal. Whether they are helping produce wood — that indispensable gift of the good earth; whether they are laboring to reforest barren, denuded regions; whether they are working in the forests or in the laboratory or the classroom they share in common one basic overall purpose — the purpose of helping the forests render their greatest permanent service to mankind.

Forest Land Vs. Agricultural Land

By RUFINO A. SABADO
Member, Philippine Bar

Introduction

In the land registration case of **Ramos vs. Director of Lands** (39 Phil. 175), the Supreme Court of the Philippines, although reiterating that indubitably there should be conservation of natural resources, surprisingly rules: **". . . The presumption should be, in lieu of contrary proof, that land is agricultural in nature."** In other words, the burden of proof is saddled by the law upon the shoulder of one who asserts that the land in question is forest land or timber land. This is illustrated in the case of Ramirez vs. Director of Lands et al (60 Phil. 114) wherein the Supreme Court rules that the land in question is forest land because the incontrovertible "evidence presented . . . shows that it is forestry land." In a long line of decisions our court of last appeal had sustained this presumption, so much so that among legal practitioners any land susceptible to cultivation is agricultural.

While this presumption is only **prima facie** (that is, it is susceptible of contrary proof), yet it has not only aided unscrupulous individuals to acquire wide tracts of forest lands in registration or in cadastral proceedings but also has encouraged speculators to destroy the forest "with the prodigality of the spendthrift who squanders his substance for the pleasure of the fleeting moment" on the mistaken notion that land once divested of trees becomes agricultural.

It is the purpose of this dissertation to show that the presumption should be: **Land of the public domain, unless otherwise shown, is forest or timber land in nature.**

Major Natural Resources

This write-up concerns itself with two of our most valuable natural resources — exclusive of human resources — forest and land. The following figures show how these resources stand among the five major natural resources of the country:[1]

Resources	Value	Percent
Forest	₱27,860,611,000	80
Land	4,387,773,000	12
Mineral ...	1,409,990,000	4
Animal ...	801,108,000	3
Fisheries ..	298,092,000	1

These are valuable assets which the Constitution enjoins us to conserve, protect and develop, the better that they may make their contributions to the promotion of the collective needs of the people and to the progress of the Filipino Nation. Observe that the forest resources is 80% of the total of the five leading natural resources as against 12% of the land resource. And for the disparity in value — if for no other reason — the number one natural resources, the elements of which are forest vegetation, forest soil and wildlife, must perforce be benefited by a **prima facie** presumption of law favorable to its protection and conservation.

Review of Pertinent Forest Laws

The antecedents of our present forest laws show that forestry has been a government concern since the Spanish regime in the Philippines. This government activity

[1] Arbor Week Issue, July, 1955 — Philippine Forestry — Sol H. Gwekoh Publication, Manila.

was given impetus when the Philippine Forest Service, then known as **Inspeccion General de Montes,** was organized by Royal Order of the Spanish Sovereignty in June, 1863 with the instructions from the Superior Government to the **Inspector General de Montes** to intervene in the concessions of mountain lands and transactions or affairs related to lands and forests. Under the said Royal Order, constructive laws and regulations were promulgated; investigation work was undertaken and the foundation of forestry in this country was thereby established.

The Spanish regime originated the policy that a part of the public domain must be favorably passed upon by the Bureau of Forestry before it could be disposed of to private control. This policy was reiterated in the Royal Decree of June 25, 1888; in the Royal Decree of August 31, 1888; and in the Royal Decree of February 13, 1894, otherwise known as the Maura Law. These decrees, among other things, further emphasized the proper protection, delimitation, conservation, and wise utilization of timber and timber lands.

The principle laid down by the **Inspeccion General de Montes** had grown and developed rather slowly in line with European forestry practice. No wonder, the Spanish laws were exceedingly conservative and comprehensive. They contained provisions far reaching in scope particularly in the way of forest delimitation, conservation and protection against destruction and unwise utilization — all anchored on the time-honored principle of conservation by wise use.

The Americans came to the Philippines. They were impressed by the Spanish laws then in force in the newly acquired territory. Unlike the forests of the United States, occasioned by the natural attitude of its sagacious citizenry, which pursued the policy to "have large public domain come under private ownership," the Americans found the Philippine forests practically all under state ownership. So the Spanish forest laws and the forest policy laid down and followed since 1863 were adopted in the organization of the Philippine Forest Service in 1900 under General Order No. 50 issued by the then Military Governor of the Philippines. The same were re-stated in the Act of Congress of July 1, 1902, otherwise known as the Philippine Bill. Sections 13-18 of this Act mention three classes of land, namely: (1) Public land or public domain, (2) Mineral land, and (3) Timber land. Section 18 laid down the principle which had been consistently re-echoed in subsequent Philippine laws, to wit:

> "No timber land forming part of the public domain shall be sold, leased or entered until the Government of said Islands, upon certification of the Forestry Bureau that said lands are more valuable for agricultural than for forest purposes, shall declare such land so certified to be agricultural in character."

Observe that it is the agricultural character of the land that must be shown and certified before it can be disposed of.

The American Government, under the great conservationist, President Theodore Roosevelt, Sr., did not wish to have large chunks of forest lands of the public domain of the Philippines pass away haphazardly to private ownership. What it would have wished to do for its own land, and which it failed to accomplish, would be followed in the newly acquired Philippine territory. It sent its chief forester of the United States Forest Service, Gifford Pinchot, to the Philippines, and on his investigation and report the reorganization of the Bureau of Forestry and the original forest law of 1904 and regulations were largely based. Act No. 1148, otherwise known as the Forest Act, approved on May 7, 1904, was the first forest law passed by the Philippine Commission. This Act and its subsequent amendments were incorporated in Chapter 47 of Act No. 2711, otherwise known as the Revised Administrative Code of 1917.

This chapter forms the backbone of our present Philippine forest laws.

The philosophy of all the foregoing laws is anchored on the principle that no part of the public domain can pass to private ownership without a showing and a certification as to its agricultural character. No deviation has been made from the sound forest policy laid down and followed since 1863, pressures from selfish vested interests and narrow-minded, self-seeking politicians notwithstanding. In effect, the policy places the Bureau of Forestry as a sort of a clearing house for the Department of Agriculture and Natural Resources because the former is charged by law to classify lands of the public domain with a view to set aside agricultural lands for administration by the Bureau of Lands.

The Constitution of the Philippines (Section 1, Article XIII) classifies lands of the public domain into agricultural, timber, and mineral. The State is the owner of all lands of the public domain as well as all other natural resources. And by virtue of the constitutional mandate contained in the above mentioned section, all natural resources, with the exception of public agricultural land, shall not be alienated.

FOREST OR TIMBER LAND

Definitions: In Ramos vs. Director of Lands, 39 Phil. 175, the Supreme Court holds that the word "forest" has a significant not an insignificant meaning, and that it does not embrace land only partly woodland. It is a tract of land covered with trees, usually of considerable extent. It is very apparent that the word is taken in its popular usage, not in its technical signification. For lexicographers define "forest" as a dense growth of trees and underbrush covering a large tract of land. Used as an adjective, it is synonymous to "sylvan," which is "characteristic of, concerned with, or suggestive of forest, especially as distinguished from the field or town."

At this juncture, it becomes necessary to state herein some pertinent definitions to give more light to the theme of this write-up:

1. In technical or scientific parlance of universal acceptation, "forest" is "an extensive plant society of shrubs and trees with a closed canopy, and having the quality of self-perpetuation (in which case it is a climax forest) or of development into a climax."

2. From a purely technical and scientific standpoint, B. E. Fernow in his "Economics of Forestry," states:[2]

> "A forest in the sense in which we use the term, as an economic factor, is by no means a mere collection of trees, but an organic whole in which all parts, although apparently heterogeneous, jumbled together by accident as it were and apparently unrelated, bear a close relation to each other and are as interdependent as any other beings and conditions in nature."

3. In English Law, a "forest" is a tract of woodland and waste, usually belonging to the sovereign, set apart for the keeping and hunting of game, etc., and having its peculiar laws, courts, and officers. It is curious to note, however, that in England a forest is read to imply a great tract of woodland but in Scotland the reverse is actually the case, where a treeless area is viewed as forest.

4. B. R. Baden Powel in his "Forest Laws of India" states:[3]

> "Every definition of a forest that can be framed for legal purposes will be found either to exclude some cases to which the law ought to apply, or on the other hand to include some with which the law ought not to interfere. It may be necessary, for example, to take under the law a tract of perfectly barren land which at present has neither trees, brushwoods,

[2] Cited. Ramos vs. Director of Lands, 39 Phil. 175.
[3] Cited. Ramos vs. Director of Lands, 39 Phil. 175.

nor grass on it, but which in the course of time it is hoped will be "reboise"; but any definition wide enough to take in all such lands would also take in much that was not wanted. On the other hand, the definition, if framed with reference to tree growth, might (and indeed would be almost sure to) include a garden, shrubbery, orchard, or vineyard, which it was not designed to deal with."

From the foregoing quotation, it appears that no legal definition of forest is practicable or useful.

5. In Philippine forestry parlance, trenched upon the aspect of forestry as a business, a forest is an area the principal crop of which is trees; it includes both the stand and the soil beneath it.

6. In general, "forest land" is synonymous to "timber land." In specific term, "forest land" is any land not devoted to, or unfit for, the growing of agricultural crops. In the case of public land, it refers to any portion thereof which has not been declared by competent authority as alienable and disposable under the Public Land Laws. (Glossary of Lumbering and Forestry Terms). On the other hand, "timber land" embrâces all public land delimited, classified and declared as such under Section 6 (b) of Commonwealth Act 141. Its character may be temporary or permanent depending upon forest exploitation or soil condition. The intention is to establish such land in the future as forest reserve after excluding therefrom the area which, having been exploited, can be certified as alienable and disposable under the Public Land Act (Caption 2 (b), Forestry Administrative Order No. 11).

7. Section 1820 of the Revised Administrative Code defines, " 'public forest' includes, except as otherwise specially indicated, all unreserved public land including nipa and mangrove swamps and all forest reserves of whatever character."

8. The Director of Forestry of the Philippines, in an opinion cited by the Supreme Court in the aforementioned case of Ramos vs. Director of Lands, said:

> "During the time of the passage of the Act of Congress of July 1, 1902, this question of forest and agricultural lands was beginning to receive some attention and it is clearly shown in Section 18 of the above mentioned Act; it leaves to the Bureau of Forestry the certification as to what lands are for agricultural or forest uses. Although the Act states timberlands, the Bureau has, in its administration since the passage of this Act, construed this term to mean forest lands in the sense of what was necessary to protect, for the public good; wastelands without a tree have been declared more suitable for forestry in many instances in the past. In many cases, in the opinion of the Bureau of Forestry, lands without a single tree in them are considered as true forest lands. For instance, mountain sides which are too steep for cultivation under ordinary practice and which, if cultivated, under ordinary practice would destroy the big resources of the soil by washing, is considered by this Bureau as forest land and in time would be reforested."

Forest Lands Get First Consideration:— Since the organization of the **Inspeccion General de Montes** by the Royal Order of the Spanish Sovereignty in 1863, forest lands, mountain lands, or **zonas forestales,** have been given first priority consideration in any transaction or matter relative to classification of lands belonging to the Crown. Even the Spanish Mortgage Law and the Royal Decree of February 13, 1894, commonly known as the Maura Law, gave emphasis to the fact that before lands could come under said laws, the same were not part of the **zonas forestales.** The Spanish Government emphasized that for land to come under the protective aegis of the Maura Law, it must be shown that the land was cultivated for six years previously, and that it was not land which pertained to the **zonas forestales.** As a matter of fact one of the conditions for the validity of any

land title obtainable during the Spanish regime was that said title must bear the dry seal and rubric of the **Inspector General de Montes** (Ramirez vs. Director of Lands, et al, 60 Phil. 114). When the public land involved was more than 30 hectares, occupied by private individuals bounded at any point thereof by other lands belonging to the State, Royal Decree of August 31, 1888 provided that adjustment title (**composicion con el estado**) could not be had without the intervention of the **Inspector General de Montes.**

Pertinent provisions of the Royal Decree of August 31, 1888 are as follows:

> **Article 1**—All public lands occupied by private individuals in the Philippine Islands, which are subject to adjustment in accordance with the Regulation of June 25, 1888 shall be divided into two groups: The first shall comprise those which at any point adjoin other lands belonging to the State, and those which, although entirely bounded by private lands, have a total area of more than 30 hectares, and the second shall comprise those having an area of less than 30 hectares and adjoining only lands of private ownership.
>
> **Article 2**—Adjustment of lands of the first group shall continue to be made in accordance with the proceedings prescribed in the Regulation of June 25, 1888, that is with the intervention of the Inspector General of Forests, under the supervision of the General Directorate of Civil Administration.
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> x x x x x x x
>
> **Article 4**—The different divisions of field personnel (**brigadas facultativas**) shall be under the immediate supervision and control of the Inspector General of Forests, and the chief of each division shall forward to the Inspector General the records of all cases and the plans drawn by the personnel directly in charge of the work on each piece of land, accompanied by his report thereon. Said Inspector General, in turn, shall make his recommendation as to the action to be taken in each case to the General Directorate of Civil Administration.[4]

Forest Lands of the Public Domain Include Unclassified or Unreserved Public Lands.—Under the State ownership theory (Regalian theory in Spanish jurisdiction), all lands, be they agricultural, timber or forest, or mineral lands, belong to the State, unless otherwise shown. The Philippine Government has maintained its ownership to 75%, more or less, of the forest lands within its territorial jurisdiction. This is attributable to the early Spanish land laws which required any transaction involving lands to pass the investigation conducted by the **Inspeccion General de Montes.** Spanish forest laws were reputed for their conservatism, and such conservatism was reflected in the action of the **Inspector General de Montes** who saw to it that land under adjustment or subject to transaction for alienation was not part of the **zonas forestales.** The Spanish forest laws gave a clear assumption that land, unless the contrary was shown, formed part of the **zonas forestales.** It should be emphasized, in this connection, that Section 1820 of the Revised Administrative Code includes all unclassified or unreserved public lands as part of the public forest. Pending classification by the Bureau of Forestry, all unclassified or unreserved public lands are treated and deemed as part of the public forest. On this doctrine revolve the activities of the Department of Agriculture and Natural Resources incident to the disposition of lands.

AGRICULTURAL LAND

The Meaning of Public Land.—In a general sense, "public land" and "public domain" are synonymous. In the Philippines either is the generic term for the natural resources belonging to the State under the

[4] Cited. Ramirez vs. Director of Lands, et al, 60 Phil. 114.
[5] 50 Corpus Juris, p. 886; 22 Ruling Case Law, p. 249.

specific nomenclatures of agricultural, timber, and mineral lands (Section 1, Article XIII, Constitution of the Philippines).

In the United States, the term "public land" is habitually used to designate such lands as are subject to sale or other disposal under general laws, and are not held back or reserved for any special governmental or public purpose. It does not include lands to which rights have attached and become vested through full compliance with an applicable land laws.[5]

In acts of Congress of the United States the term "public lands" is uniformly used to describe so much of the national domain under the legislative power of Congress as has not been subjected to right or devoted to public use.[6]

Agricultural Public Lands Under Act of Congress of July 1, 1902.—Section 18 of this Act gives an almost precise definition of "Agricultural public land" when it makes the determination of whether the land is more valuable for agricultural than for forest uses the test of its character. Under this section, which is quoted earlier in this paper, no timber land of the public domain shall be sold, leased or entered until the Government through the Forestry Bureau has certified that said land is more valuable for agricultural than for forest purposes, and shall declare such land so certified as agricultural in character.

Agricultural Public Land Under Act No. 926.—Under Act No. 926 the phrase "agricultural public land" means "those public lands acquired from Spain which are not timber or mineral lands." It can thus be gleaned that public agricultural land can only be determined by a process of exclusion — by first determining whether the land is forestal or mineral. But this implication was nullified by the provision of Section 1827 of the Revised Administrative Code.

Agricultural Land Under the Revised Administrative Code.—Section 1827 provides:

> "Lands in public forests, not including forest reserves, upon the certification of the Director of Forestry that said lands are better adopted and more valuable for agricultural than for forest purposes and not required by the public interests to be kept under forest, shall be declared by the Department Head to be agricultural lands."

Agricultural Land Under Commonwealth Act 141.—Observe that in the foregoing quotation there are two steps to be taken in the assignment of forest land for agricultural purposes, firstly, certification of the Director of Forestry and, secondly, declaration (in the form of Forestry Administrative order) by the Department Head. The "lands in the public forests" so certified and declared from the public lands (Alienable and Disposable) in contemplation of Commonwealth Act 141, otherwise known as the Public Land Act. They are lands being open to private appropriation and settlement by homestead, sale, free patent, lease, etc.

Public Agricultural Land as Construed By the Supreme Court.—In the famous case of Krivenko vs. Register of Deeds of Manila (44 O.G. 471), the Supreme Court, among other things, ruled:

> "When Section 1, Article XIII, of the Constitution, with reference to lands of the public domain, makes mention of only agricultural, timber and mineral lands, it undoubtedly means that all lands of the public domain are classified into three groups; namely, agricultural, timber and mineral. And this classification finds corroboration in the circumstance that at the time of the adoption of the Constitution, that was the basic classification existing in the public laws and judicial decisions in the Philippines, and the term "public agricultural lands" under the said classification has always been construed as refer-

[6] Cited. Montano vs. Insular Government, 12 Phil. 572.

ring to those lands that are neither timber nor mineral, and as including residential lands. It may safely be presumed, therefore, that what the members of the Constitutional Convention had in mind when they drafted the Constitution was this well-known classification and its technical meaning then prevailing . . ."

SUMMARY AND CONCLUSION

Summary and findings of facts.—This dissertation reveals the following:

1. In Philippine jurisprudence there is a **prima facie** presumption that land, unless the contrary is shown, is agricultural in nature.

2. The five major natural resources of the country, exclusive of human resources, are, in the order of value, forest, land, mineral, animal and fisheries. With their values reduced to percent, forest is 80; land, 12; mineral, 4; animal, 3; and fisheries, 1. The most valuable resource — forest — is being dissipated with ruthless abandon on the mistaken notion that land once divested of trees becomes agricultural.

3. The Royal Order of 1863 charged the **Inspeccion General de Montes,** among other things, with the duty to **intervene** in concessions of mountain lands and transactions or affairs related to lands and forests. Thus originated the policy that land must be favorably passed upon by the Forestry Bureau before it could be disposed of or subject to private control.

4. Royal Decree of June 25, 1888 and Royal Decree of August 31, 1888 prescribed proceedings on land cases subject to adjustment title (**Composicion con el estado**). Adjustment title could not be had without the intervention of the **Inspector General de Montes.** Royal Decree of February 13, 1894 (the Maura Law) and the Spanish Mortgage Law gave emphasis to the fact that before lands could come under the said laws, the same were not part of the **zonas forestales.**

5. The Spanish forest laws and forest policy were adopted when the Philippine Bureau of Forestry was organized in 1900. The same principles of the Spanish forest laws were restated in the Act of Congress of July 1, 1902.

6. The Bureau of Forestry was reorganized in 1904 after the completion of the investigation and report by Gifford Pinchot, Chief of the U.S. Forest Service. The Forest Law of 1904, Act No. 1148 of the Philippine Commission, and the regulations promulgated thereunder were largely based on said report. The same spirit of the laws enforced by the **Inspeccion General de Montes** was breathed into said Act No. 1148 which formed the basis of the present basic forest law contained in Chapter 47 of the Revised Administrative Code.

7. Forest lands, under a land policy sired and bred as it were by the **Inspeccion General de Montes** along conservative European forestry practices, get first priority consideration. Before land could be declared as not a part of the **zonas forestales,** its agricultural character must be shown and certified. As a matter of fact one of the conditions for the validity of any land title obtainable during the Spanish regime was that said title must bear the dry seal and rubric of the **Inspector General de Montes.**

8. Forest land does not necessarily mean **forested** land. In England it includes wasteland. In Scotland even a treelss area is viewed as forest land. In the Philippines it is any land not devoted to, or unfit for, the growing of agricultural crops. For legal purposes the meaning of "forest land" can be gleaned from Section 1820 of the Revised Administrative Code, quoted earlier in this paper.

9. Under the Spanish forest laws then applicable in the Philippines, land, unless the contrary was shown, formed part of the forest zones or forest lands (**zonas forestales**). The royal orders and decrees cited earlier in this write-up established the policy of land classification which was adopted in Section 18 of Act of Congress of

1902. The identical provision in our present forest law is Section 1827 of the Revised Administrative Code. The former (Section 18) used the phrase "timber land forming part of the public domain" and the latter (Section 1827) uses "lands in public forests." Considering that "public forest" under Section 1820 of the Revised Administrative Code "includes, except as otherwise specially indicated, all unreserved public land including nipa and mangrove swamps and all forest reserves of whatever character," **any land of public ownership whether it is timbered or not** must be certified as more valuable for agricultural than for forest purposes by the Director of Forestry before it can be declared as agricultural land by the Department Head. The intention of the legislators for the change in the phraseology of the law looms clearly manifest: **That land of the public domain unless it is certified and declared as agricultural land by competent authorities is forest land or forestry in nature.**

10. A portion of land in the Philippines is a part of the public domain unless the contrary is shown. One who alleges private ownership must come with incontrovertible proofs.

11. A portion of unclassified or unreserved public domain is part of the public forest. (Sec. 1820, Rev. Adm. Code).

12. Public forest land or public forest is much greater in scope than public agricultural land. As a matter of fact, the rationale of all the pertinent laws emphasized that there is no agricultural public land unless the same has been classified and delimited from the public forest and certified and declared as more valuable for agricultural than for forest purposes. (Sec. 1827, Revised Administrative Code).

Conclusion.—Our forests are being recklessly destroyed on the mistaken notion that land once divested of trees becomes agricultural. Illogically, too, it is generally believed by legal practitioners that any land susceptible to cultivation is agricultural in nature. The forest resource of the country is 80% of the leading five natural resources and the land resource, 12%. Eighty percent (80%) of the total of five of the most valuable natural resources is something to reckon with in the economy of the country; and with more reason if the stability of that economy is geared to those natural resources. Destroy them and the economy of the country goes down with them. Considering only the actual value of our forest resource which is 80% as against 12% of our land resource — which of these resources should be benefited by a **prima facie** presumption of law, the better to effect its protection?

After delving deep into the wisdom of the pertinent laws enforced during the Spanish regime, rationalizing as to the intents and purposes of said laws not only as a Member of the Philippine Bar but also as a technically trained forester in his own right, this writer believes and so holds that the doctrine, "the presumption should be, in lieu of contrary proof, that land is agricultural in nature," is a fallacy. It is repugnant to the intents and purposes of the laws which have been carried forward from the **Inspeccion General de Montes** and obnoxious to the conservative land policy of the Department of Agriculture and Natural Resources.

On the other hand, the infallible ways of nature under Philippine silvical and ecological conditions; the spirit breathed into the provisions of the pertinent laws supported by contemporaneous construction, public policy and actual practice by the Department of Agriculture and Natural Resources; and the rational optimum use of our natural resources dictated by economic necessity — the presumption under this jurisdiction should be: **Land of the public domain, unless otherwise shown, is forest land or forestry in nature."**

Kraft Papers from Philippine Fibrous Raw Materials[1]

By MANUEL R. MONSALUD[2]
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ABSTRACT

A preliminary study was made on the production of wrapping and bag papers from Philippine raw materials. Thirty one experimental kraft papers were made from Philippine woods, bamboos and agricultural waste fibers, using standardized processing details.

Acceptable wrapping and bag papers were produced from many of the species used. No attempt was made to refine the processing details to overcome shortcoming observed in the properties of some of the species although it is believed that much can be done in this direction. Enough was accomplished to demonstrate that it is technically possible for the Philippines to produce all the bag and wrapping papers it needs from its own fibrous materials.

INTRODUCTION

The Philippines urgently needs to develop its own pulp and paper making industry, using local woods and other fibers. Importation of pulp and paper products into the Philippines has averaged around 50,000 tons per year in recent years but it is increasing at a rapid rate. Industrial developments such as the manufacture of cement and fertilizer require more paper for shipping bags. Prepackaging of foods is on the increase, as a sanitation measure and as an aid to marketing. Increasing population, increasing literacy, improvements in health and sanitation standards and the general advancements in living standards all call for more paper.

Here in the Philippines it is a common sight, especially in small towns and rural areas, to see leaves of plants and old newspapers used for wrapping food and other items purchased from local markets and stores. Such wrappings are not only unsightly but also unsanitary. They are resorted to by sellers primarily because of the scarcity and high price of paper bags and wrapping paper. And yet the country has abundant supplies of raw materials from which a great variety of papers can be made. Research on practical methods of converting these raw materials into marketable papers is urgently needed. It is appropriate, therefore, that the production of pulp and paper constitutes one of the principal fields of investigation at the Forest Products Research Institute.

There are many processes for making pulp, of course, and literally hundreds of kinds of paper can be produced. No study program can cover them all at once. The investigation described in this report was confined to the production of wrapping and bag papers from pulps made by the "kraft" or sulfate process.

The kraft process, which was invented in 1879 by C. F. Dahl, a Swedish citizen, is a chemical process in which wood chips or other fibrous materials are "cooked" at fairly high temperatures and pressures in

[1] Prepared for presentation at the meeting of the Philippine Institute of Chemical Engineers on December 13, 1958.

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a solution of sodium hydroxide and sodium sulfide. The cooking operation dissolves away a large part of the lignin and other unwanted materials, leaving the fibers in condition for washing and other processing into the finished paper. The yield of finished pulp depends in part upon the raw material used and in part upon the processing details but, with hardwood chips, yields of unbleached pulp of about 44 per cent (oven-dry basis) are commonly obtained.

The kraft process produces strong pulps that are especially suitable, in the unbleached condition, for wrapping paper, grocery bags and even the extra strong bags used in shipping cement, fertilizer and other commodities. The pulps may also be bleached and converted into a wide variety of other high-quality papers.

In this investigation pulps have been made thus far by the kraft process from some 24 species of wood singly or in mixture and also from abaca waste, sugar cane bagasse and bamboo. Other species will be included later, as the study continues.

Pulp Preparation

The woods and bamboos were chipped and screened to produce chips about 5/8-inch in length. The abaca waste was cut to about 1/2-inch lengths but the bagasse was used as it came from the bale, without further cutting. Part of the bagasse was first run through a depithing process in a hydrapulper to remove fine particles, pith, and dirt but part of it was pulped directly, without depithing.

The pulping chemical consisted of a solution of sodium hydroxide and sodium sulfide, the amount of chemical used being based on the oven dry weight of the material being pulped. With bagasse, the solution was as follows:

NaOH (calculated as Na_2O) 8 percent of dry weight of material.

Na_2S (calculated as Na_2O) 4 percent of dry weight of material.

With wood chips, abaca and bamboo, the percentages were 15 percent and 5 percent respectively. With abaca and bagasse the ratio of pulp liquor to dry solids in the digester was 6 to 1, while with wood chips and bamboo it was 4 to 1, including in each case the moisture in the material as a part of the liquor.

In the pulping process for all these materials the temperature of the cook was raised from room temperature to 170°C. over a period of 1-1/2 hours and maintained at 170°C. for another 1-1/2 hours, making a total pulping time of three hours.

The pulping was done in a small pressure digester that was steam jacketed and was rotated at about one R.P.M. during the pulping period. About 2-1/2 kilos of chips or fibrous raw materials were used per charge. The moisture content of each charge was determined and its oven-dry-solids content was computed and this was used as the basis for calculating the quantity of chemicals and pulp liquor required.

At the end of the 3-hour digestion period the pulp was discharged into a screen box provided with a 100-mesh, stainless-steel, screen-wire bottom which retained the pulp but allowed the pulp liquor to flow through. After draining out the pulp liquor, the pulp was thoroughly washed in the box with softened water and then passed through a vibrating screen to remove the coarser particles and fiber bundles. After screening, the free water was pressed from the pulp, its moisture content was determined and the yield of pulp calculated on the oven-dry basis. The pulp was not bleached because that is not required for most grades of bag and wrapping paper.

Paper Making

The pulp, after adequate beating, was made into paper on a "Midget" fourdrinier experimental paper machine which produces a continuous sheet of paper 8-1/2-inches wide. For each paper machine run, from 1 to 1.5 kilos of unbleached pulp, oven-

dry basis, was utilized. The pulp was placed in a 5-lb. pulp beater and beaten to from 300 cc. to 400 cc. Canadian standard freeness in accordance with TAPPI Standard method (T-227 m-50) (9).

When the above mentioned freeness value was attained, the beater roll was raised but the circulation of the slurry in the beater was continued for a few more minutes. The pH value of the pulp slurry in the beater was then brought down to 6.0 with sulfuric acid.

One percent rosin size, based on the oven-dry weight of the pulp used, was added to the slurry and mixed thoroughly therein. Next, 2% paper alum (aluminum sulfate) on the oven-dry weight of the pulp was added with agitation and the whole stuff discharged from the beater into the machine chest where the slurry was diluted to about 0.5% consistency with softened water while being thoroughly agitated by means of a high speed agitator. The addition of alum reduced the pH value further, to between 4.5 and 5.0.

The mixture was next pumped to the stuff box of the paper machine and made into unbleached kraft or wrapping paper the thickness of which ranged from 2.6 to 5.5 mils, according to the rate at which the pulp slurry was fed onto the machine wires.

Paper Testing

The rolls of wrapping papers made in this study were cut into 8" x 10-1/2" sheets and conditioned at 73°F. and 50% relative humidity in the Institute's paper-testing room, usually overnight, until the sheets reached constant weight. The tests on their physical properties, such as thickness, ream weight, density, tear, burst, tensile, folding endurance, etc., were made on each experimental paper in accordance with standard methods promulgated by TAPPI (9).

Table I shows the official common names, scientific names, and average lengths of fibers of the fibrous raw materials dealt with in this study. The fiber measurements were made by the Wood Technology Division of the Institute.

Table II shows the proximate chemical analyses of the different species investigated while Table III shows the results of the physical tests made on the papers.

Discussion of Results

From Table I, it can be seen that acacia (**Samanea saman**) exhibited the shortest fiber length (.87 mm.) of this group while almaciga (**Agathis philippinensis**), the longest (5.31 mm.). This table shows the well-known fact that, as a group, softwoods have longer fiber than hardwoods although there may be individual exceptions. The abaca fibers were quite long and the bamboo and bagasse fibers exceeded in length most of the hardwoods included in this study.

In technical literature, it is mentioned that there exists a simple straight-line relationship between fiber-length index of pulp and the tearing strength of the paper made from it. Casey (4) wrote: "In general, it might be stated that tearing resistance and, to a lesser extent, folding endurance are basically dependent upon fiber length . . . In comparison, bursting and tensile strength are more affected by fiber bonding than by fiber length."

Vincent and White, as cited by Casey, believe that fiber length, in the case of chemical pulps, plays an important part only when the fibers are greater than 0.3 mm. in length. They believe that the bursting strength, tensile, and folding endurance tend to increase as the average fiber length is increased from 0.3 to 0.9 mm., and then to decrease with further increase in fiber length. "However, tearing strength tends to increase with fiber length indefinitely."

Table II shows that in holocellulose content, abaca gave the highest result (71.6%) and tuai, the lowest (51.3%). In lignin content abaca shows the lowest (14.8%) and tuai, the highest (42.0%). In silica content, buho was highest (7.45%). For pentosan,

abaca registered the highest percentage (34.3%) while almaciga, the lowest (0.4%).

In considering the data of Table III it should be remembered that there is still much that can be done in producing pulp and paper to influence the properties of the finished product. The papers made in this survey were all first trials. No attempt has been made, as yet, to improve the properties of the papers from the individual species. Work of that kind still lies ahead of us. The values given in this paper, therefore, are not necessarily final values.

None of the paper samples being shown around can be considered a finished product ready for the market. Much experimental work will be necessary to determine the processing conditions required for best results. These samples, however, have the distinction of being the first papers (to our knowledge) made on a paper machine in the Philippines from locally made pulps of Philippine woods, bamboos, and agricultural wastes.

It can be seen from Table III, that in bursting strength African tulip exhibited the highest (1.06 pts. per lb. per rm.) while agoho, the lowest (0.371 pts. per lb. per rm.). In tensile strength, expressed as breaking length in meters, malakalumpang registered the strongest (8480 m.) while almaciga, the weakest (4180 m.). In tearing resistance, almaciga showed the highest (3.00 grams/lb./rm.) while anabiong the lowest (0.849 gm./lb./rm.).

Table III also shows that the kraft paper made from the pulp of a mixture of nine hardwoods and one softwood, cooked together in equal proportions exhibited fair strength characteristics.

Conclusion

The results of this study show that compared with U. S. Federal specifications or with the kraft paper made from imported kraft pulp, or with fertilizer bags imported from Sweden and Japan tested in this Institute (6), fair to good kraft papers for making wrapping or bags can be made from the sulfate pulps of many local fibrous raw materials such as agricultural wastes, bamboos, softwoods and hardwoods.

If specifications are not too rigid, the sulfate pulp of practically any local fibrous raw material can be made into serviceable kraft paper for use locally.

The pulping in one digestion of a mixture of several hardwoods and a softwood is feasible.

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Table I. Average fiber measurements of the species of Philippine fibrous raw materials used in this study

	COMMON NAME	SCIENTIFIC NAMES	AVERAGE FIBER LENGTH (mm.)
		AGRICULTURAL RESIDUES	
1.	Abaca	**Musa textilis** Née	3.15
2.	Sugar cane bagasse	**Saccharum officinarum** L.	1.67
		BAMBOOS	
3.	Bayog	**Dendrocalamus merrilianus** (Elm.) Elm.	2.07
4.	Buho	**Schizostachyum lumampao** (Blanco) Merr.	2.42
5.	Pole-vault bamboo	**Phyllostachys nigra** Munro	1.86
		HARDWOODS	
6.	Acacia	**Samanea saman** (Jacq.) Merr.	0.87
7.	African tulip	**Spathodea campanulata** Beauv.	0.92
8.	Agoho	**Casuarina equisetifolia** L.	1.04
9.	Anabiong	**Trema orientalis** (L.) Blume	1.20
10.	Apitong	**Dipterocarpus grandiflorus** Blanco	1.56
11.	Balakat-gubat	**Sapium luzonicum** (Vid) Merr.	1.27
12.	Balobo	**Diplodiscus paniculatus** Turcz.	1.50
13.	Gubas	**Endospermum peltatum** Merr.	1.62
14.	Ipil-ipil	**Leucaena glauca** (L.) Benth.	1.01
15.	Kaatoan bangkal	**Nauclea horsfieldii** (Miq.) Salv. (comb. nov.)	1.43
16.	Lanipau	**Terminalia crassiramea** Merr.	1.41
17.	Lisak	**Neonauclea bartlingii** (DC.) Merr.	1.40
18.	Malakalumpang	**Sterculia ceramica** R. Br.	1.57
19.	Paper mulberry	**Broussonetia papyrifera** (L.) Vent.	0.95
20.	Red lauan	**Shorea negrosensis** (Foxw.)	1.59
21.	Tangile	**Shorea polysperma** (Blanco) Merr.	1.28
22.	Tangisang-bayawak	**Ficus variegata** Blume	1.26
23.	Toog	**Petersianthus quadrialata** Merr.	2.36
24.	Tuai	**Bischofia javanica** Blume	2.19
25.	White lauan	**Pentacme contorta** (Vid.) Merr. & Rolfe	1.37
		SOFTWOODS	
26.	Almaciga	**Agathis philippinensis** Warb.	5.31
27.	Benguet pine	**Pinus insularis** Endl.	3.45
28.	Mindoro pine	**Pinus merkusii** Jungh. & De Vr.	4.00

TABLE II. PROXIMATE CHEMICAL ANALYSIS OF THE PHILIPPINE FIBROUS RAW MATERIALS USED IN THIS STUDY

SPECIES	Ash	Alcohol benzene extract	Solubility in hot-water after alcohol benzene extraction	Solubility in hot-water w/o prior leaching	Lignin	Holocellulose	Pentosan	Silica	Solubility in 1% NaOH
	VALUES IN PERCENTAGE OF OVEN-DRY WEIGHT								
AGRICULTURAL WASTES									
1. Abaca	5.7	2.8	5.1	5.6	14.8	71.6	34.3	1.42	39.8
2. Sugar cane bagasse (undepithed)	2.39	2.8	3.1	3.8	20.5	71.2	23.7	1.41	35.0
3. Sugar cane bagasse (depithed)	0.8	1.8	—	4.5	22.3		19.2	0.47	28.6
BAMBOOS									
4. Bayog	4.2	3.6	3.4	6.1	24.4	66.5	23.8	2.1	26.1
5. Buho	9.5	1.7	4.4	5.6	20.6	65.9	21.5	7.45	28.1
6. Pole-vault bamboo									
HARDWOODS									
7. Acacia [a]	2.0	7.1	4.6	8.6	25.3	63.8	17.9	1.19	26.7
8. African tpulip [a]	1.8	3.7	4.5	8.3	27.1	63.1	16.1	0.07	17.7
9. Agoho	0.8	2.5	2.2	4.1	26.1	68.4	19.4		13.0
10. Anabiong	1.5	2.1	3.4	4.5	22.1	70.9	20.6	0.04	18.6
11. Apitong	1.5	8.1	2.1	6.3	28.9 [b]	60.3	16.5	1.02	21.1
12. Balakat-gubat	3.8	4.1	2.4	6.7	23.2	66.5	17.0	2.2	17.0
13. Balobo	3.9	6.0	3.5	8.9	27.7	58.9	16.2	—	21.3
14. Gubas [a]	1.3	1.9	2.9	4.2	27.7	66.3	16.6		15.4
15. Ipil-ipil	0.8	7.8	2.7	5.7	25.6	63.2	17.9		18.6
16. Kaatoan bangkal [c]	0.8	3.8	2.6	5.9	23.8	69.0	21.2		20.2
17. Lanipau	0.7	1.5	4.0	3.4	30.5	63.3	17.1		13.9
18. Lisak	0.7	6.6	2.3	8.5	31.4	59.0	15.2		15.1
19. Malakalumpang [a]	2.8	2.9	5.6	7.3	22.3	66.5	12.8	0.20	21.5
20. Paper mulberry [a]	1.5	3.5	2.4	5.2	19.8	70.0	20.0	0.21	21.1
21. Red lauan [c]	0.3	3.9	2.2	4.3	33.7	59.9	10.7		18.3
22. Tangile (veneer core)	0.4						6.2		11.8
23. Tangisang-bayawak [a]	4.4	4.2	4.8	9.4	27.3	60.0	15.2	0.06	21.4
24. Toog	2.5	3.5	0.9	2.5	37.4	55.7	12.7	1.8	17.9
25. Tuai	1.1	1.4	4.2	5.8	42.0	51.3	9.7		29.4
26. White lauan [d]	1.0	3.6	1.7	2.8	29.4	64.3	14.3		13.9
SOFTWOODS									
27. Almaciga	0.3	1.5		2.1	34.2		0.4		14.3
28. Benguet pine	0.3	2.0	1.4	1.5	33.3	63.0	12.0		11.4
29. Mindoro pine	0.5						11.3		17.5

[a] Average of 2 samples
[b] Lignin including ash
[c] Average of 3 samples
[d] Average of 4 samples

TABLE III. TEST RESULTS ON EXPERIMENTAL KRAFT PAPERS MADE FROM SOME PHILIPPINE FIBROUS RAW MATERIALS

Machine run No.	Test No.	(100% each species) Pulp furnish	Ream weight (25 x 40-500)	Thickness	Density	Bursting strength	Average tearing resistance	Average tensile strength	Average folding endurance [1]
			Lbs.	Mills	Gm. per cc.	Pts./lb. per rm.	Gms./lb. per rm.	B.L. in meters	Double folds
		AGRICULTURAL WASTES							
127	112	Abaca	55.2	3.84	0.795	0.732	1.32	5970	886
63	87	Sugar cane bagasse (undepithed)	38.4	2.7	0.787	0.759	0.920	6419	284
116	105	Sugar cane bagasse (depithed)	82.4	5.38	0.848	0.800	1.17	5640	475
		BAMBOOS							
6	6	Bayog	38.5	3.70	0.576	0.729	1.63	5560	323
19	12	Buho	48.0	3.70	0.718	0.515	1.58	5050	136
129	115	Pole-vault bamboo	61.1	4.96	0.681	0.546	1.01	5580	51
		HARDWOODS							
53	46	Acacia	42.7	3.05	0.774	0.752	1.03	6500	103
57	92	African tulip	68 7	4.20	0.905	1.06	1.01	7800	986
125	113	Agoho	47.0	4.07	0.639	0.371	0.979	4260	8
142	126	Anabiong	41.9	2.6	0.891	0.778	0.849	6980	441
10	13	Apitong	61.4	5.50	0.617	0.518	1.25	5590	61
26	21	Balakat-gubat	36.7	2.60	0.781	0.772	0.866	6830	271
8	18	Balobo	30.7	3.30	0.514	0.743	1.46	5840	174
140	123	Gubas	50.2	3.54	0.784	0.552	1.26	5740	248
93	80	Ipil-ipil	52.8	3.90	0.749	0.702	0.956	5310	71
141	125	Kaatoan-bangkal	50.3	8.3	0.843	0.697	0.964	6902	161
4	5	Lanipau	54.5	4.00	0.754	0.870	1.73	6940	433
118	109	Lisak	45.7	3.37	0.750	0.776	1.68	6000	234
62	68	Malakalumpang	40.0	2.74	0.807	1.04	1.27	8480	326
42	49	Paper mulberry	43.2	2.98	0.802	0.935	0.915	8050	328
60	67	Red lauan	39.6	2.80	0.782	0.724	1.55	6030	97
138	124	Tangile (veneer core)	40.4	3.1	0.721	0.488	1.20	5831	303
49	56	Tangisang-bayawak	44.4	3.20	0.767	0.945	0.877	7290	369
2	1	Toog	56.2	4.80	0.648	0.672	1.83	5930	250
111	98	Tuai	53.4	3.80	0.777	0.630	1.53	5840	226
89	86	White lauan	41.6	3.96	0.581	0.450	1.55	4490	48
128	114	Wood mixture (10 species)	41.8	3.52	0.657	0.479	1.20	5030	36
		SOFTWOODS							
124	110	Almaciga	47.2	3.75	0.697	0.443	3.00	4180	650
35	36	Benguet pine	55.8	4.30	0.718	0.656	1.99	6040	1260
137	119	Mindoro pine	52.6	3.93	0.740	0.472	2.29	5080	424
		U.S. FEDERAL SPECIFICATION REQUIREMENTS FOR WRAPPING PAPERS — GRADE B	46.32	—	—	0.6049	1.619	—	—
114	101	Commercial kraft pulp[2]	59.3	5.05	0.649	0.553	2.320	3937	466

[1] Since the papers were not all of the same thickness and the results were not calculated to a uniform base, these data on folding endurance are not necessarily characteristic of the species and have limited usefulness.

[2] This pulp came from Canada and was said to have been made from western fir and hemlock. The kraft paper from it was made and tested at the Forest Products Research Institute.

An Introduction to Photogrammetry

By BERNHARD SEND
Engineer, Zeiss-Aerotopograph

Introduction

Measuring, and hence surveying, is an old art, an art which has been developed and practised in all civilized countries of the world. It is now being practised to an even greater extent than ever before. What was formerly an art which concerned only a comparatively small group of persons, has now become a general practice for governments. Now-a-days, surveying is an indispensable pre-requisite for all technical progress, development of natural resources and the exploitation of the products of the earch. Surveying also provides the basis for the development of the communication system of any country. It permits planning and construction of roads, highways, railroads, bridges and power plants, human settlements. It facilities economic exploitation of the land and the definition of property boundaries.

As early as the turn of the century it was realized that this huge job could not longer be done with classical methods: i.e., with tape and theodolite. In this age of engineering and technical progress, the surveying of a territory had to produce accurate and useful results at a much faster rate than before. Obsolete maps have little use, good figures and measurement are not valuable, if the projects that were surveyed have been changed long ago.

Reliable results in a minimum of time must be achieved in any surveying project. In accordance with his requirement, photogrammetric methods have been increasingly utilized. A special advantage of photogrammetric procedure is its speed. The photograph, especially in form of the aerial picture is, therefore, valuable aid in surveying.

In the forestry branch it is absolutely necessary for planning, to know the inventory of your forest. The aerial photograph can be used for forest road construction, for logging, for taxation, surveys, for calculating the forest areas, for timber survey and for many other purposes.

Photography

Single photographs.—Each photograph can be interpreted and if we have used as mapping camera where the focal length is known, we can determine distance on the photograph. With a correct vertical photograph taken from an airplane, we can obtain a copy of the earth's surface.

The scale of the whole photograph is equal or uniform if the terrain is plane. If there are differences in heights, the scale is unequal, because there are radial displacements in the photograph due to the central projection. (See Figures 1 and 2.)

A top of a mountain will have a greater scale in the picture than a valley because the top of the mountain is nearer to the camera lens. (Figure 9.) If during exposure the came has had an inclination (tilt or tip) the scale in the photograph will differ. (projective deformation.) (Figure 4.) The scale in the photograph can be calculated, when we compare a true distance in the field with the distance in the picture.

Stereoscopic photographs. — Interpretation is much better, however, if instead of a single photograph, we have a pair of photos taken from two different point and view them stereoscopically. These two photo-

graphs must be placed and oriented in such a manner that we can see the details in the left photograph with the left eye, and those in the right one with the right eye. (Figure 5.) This observation is known as stereoscopic vision. We can see the objects in space, in three dimensions. Not everybody can see stereoscopically. The observer has to fuse the two photographs into one.

A very good aid to see stereoscopically is the Stereoscope. If we include two measuring marks in the observations, it will be possible to determine dimensions of the photographed objects. These two measuring marks can be fused by means of stereoscopic vision into one spatial mark. We call this "floating mark" in technical terms. Many instruments are available for measuring purposes beginning with a simple parallax bar and extending to high precision instruments, for instance the Stereoplanigraph C 8.

Aerial Photography.—For photogrammetric works we have special aerial survey cameras. The lens in such a camera should be practically distortion-free, with high speed and of maximum resolving power. There must be strict determination of the geometric relations between lens and negative plane. The shutter must be between the lens and permitting short exposure times for the elimination of image movement due to the speed of the aircraft. The camera has to be fool-proof and highly automatic in operation.

The aerial photograph is the basis of all aerial photogrammetric processes. Precision cameras are required for the economic production of topographic maps for large-scale cadastral surveying and for engineering and forestry projects.

This brief description has provided a general idea of photogrammetry. A much longer statement would be required to provide a working understanding of the many technical tasks that are made easier by photogrammetric methods.

Figure 1

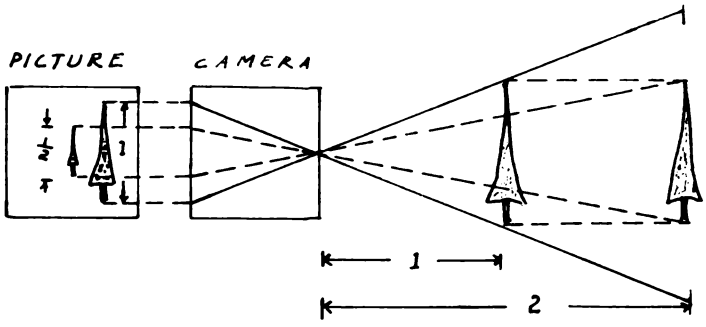


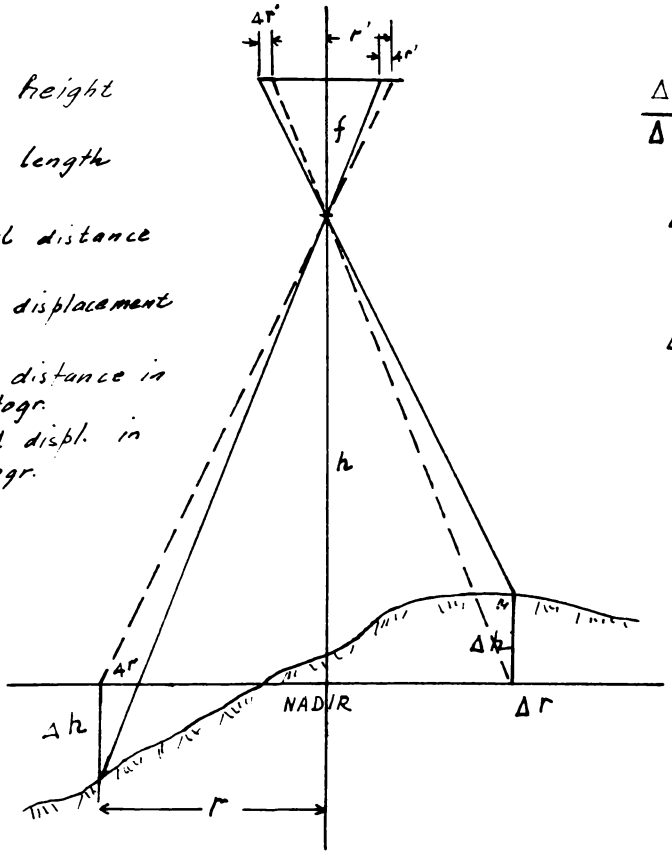
Photo-scale = m_b

$$m_b = \frac{\text{distance}}{\text{focal length}}$$

$$m_b = \frac{\text{true distance}}{\text{picture distance}}$$

$$M_b = 1 : m_b$$

Figure 2



h = flying height

f = focal length

r = radial distance

Δr = radial displacement

r' = radial distance in photogr.

$\Delta r'$ = radial displ. in photogr.

$$\frac{\Delta r}{\Delta h} = \frac{r}{h} = \frac{r'}{f}$$

$$\Delta r = \Delta h \frac{r'}{f}$$

$$\Delta r = \Delta r' \frac{h}{f}$$

Figure 3

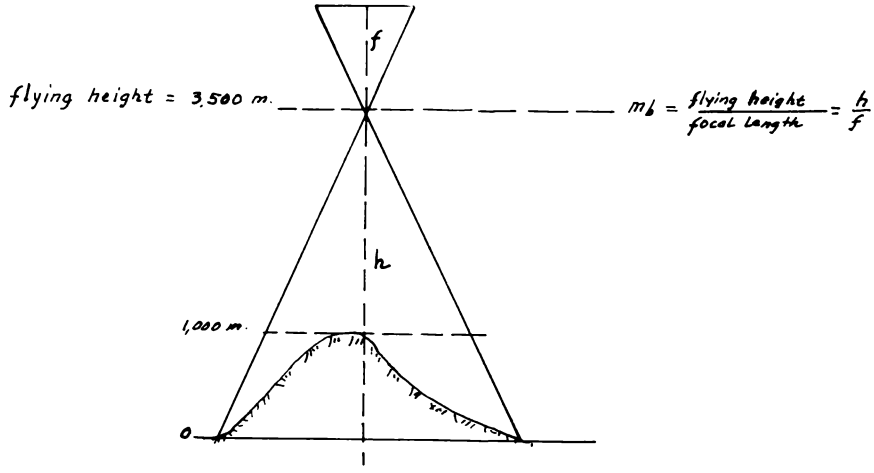


Figure 4

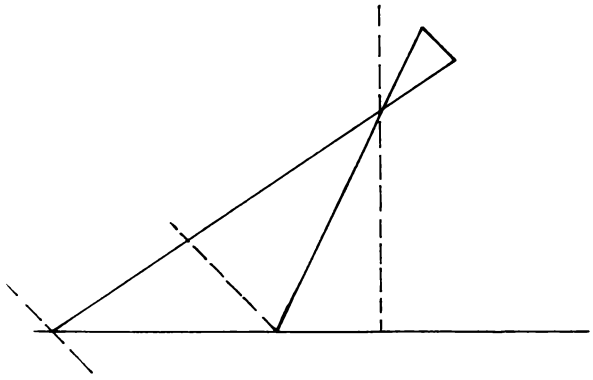
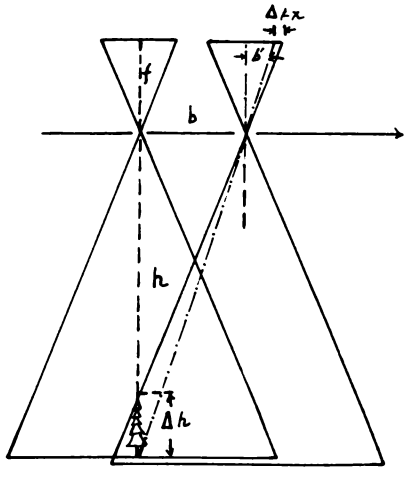


Figure 5



$$\Delta h = \frac{h}{b} \cdot \Delta px$$

$$\Delta px = \frac{b'}{h} \cdot \Delta h$$

$$b' = \frac{b}{m_b}$$

$$c = \frac{h}{b'} = \text{constant}$$

$$\boxed{\Delta h = c \cdot \Delta px}$$

Why Not Seedlings from Selected Seeds?

By ROSALES A. JUNI

A cursory examination of the form and growth of Benguet Pine (**Pinus insularis**) in the City of Baguio will show that there are groups or small stands which are more or less homogenous in character — exhibiting characteristics very similar to a seed tree nearby. This would show that the group are the offsprings of a certain mother tree. Other groups would differ from adjacent stands — tending to exhibit the characteristics of their respective mother trees.

Several young Benguet pine groves naturally growing inside Camp John Hay in Baguio, are good examples of the influence of mother trees on their offsprings. A group of saplings are limby and are not self-pruning; another group have malformed boles; another group are short-boled; and another group are tall-stemmed, vigorous, with straight and little-tapered boles and self-pruning clearly obtaining.

The last group is desirable from the forester's point, but yet these well-formed and vigorous Benguet pine saplings and poles constitute a minority in the natural regeneration stands in Baguio.

Let's get a look at the Bureau of Forestry's artificial Benguet pine plantations in Bukidnon, Cebu and Bohol: In the older Benguet pine stands, one can readily see that the short-boled, limby, malformed, large-crowned trees are more numerous than the well-formed, vigorous, tall-boled and self-pruning trees.

Why are these plantations like this? The answer to this would require a series of studies. But one can conjecture: It is but natural for most tree seed collectors to gather seeds from short than tall trees. Limby trees are easier to climb than tall, and branchless trees. It can be suspected therefore, that the Benguet pine seeds from Baguio which were planted in Bukidnon, Cebu and Bohol, were mostly gathered from short and limby trees.

If this seed gathering is true to Benguet pine, it could also be true to Narra (**Pterocarpus sp**), Molave (**Vitex parviflora**), Largeleaf Mahogany (**Swietenia macrophylla**) and other species used for reforestation.

That the majority of the narra, molave, mahogany and other species in our reforestation projects are of poor form, may be largely attributable to non-seed selection. Because we collect seeds for planting unmethodically and without regard to the form and vigor of the seed trees, the result is we plant more poorly-formed trees than the good-formed.

It is high time that the Filipino forester keep pace with the horticulturist who has achieved great strides in farm and orchard crop improvement. The foresters of Europe, United States, Australia, Japan and India are now actively engaged in forest tree improvement, for the last fifty or twenty years. Here in this country, we have not even started with the most fundamental step to tree improvement — seed selection.

Indiscriminate collection of seeds for reforestation purposes results in mongrel trees which are generally of average and inferior qualities. Some failures in establishing forest plantations may be due largely to poor seed sources, and not from other causes or factors.

At the present, forestry in this country is at the crossroads. Important policies and decisive plans have to be formulated to erect firmer foundations for future forestry prac-

tice. Some things have to be done now or else it would be too late.

We have got to start seed selection right now. Even if it means lesser amount of planting stock raised in our forest nurseries for planting areas to be reforested. We can not afford to continue the past and present practices of planting indiscriminately-collected seeds of assorted and dubious quality. It certainly would be much better if we plant 1,000 each of narra, molave and mahogany of good quality, rather than plant 10,000 each of the same species of poor quality seedlings.

Present trends in forestry point to production of more volume and better quality of wood per unit area. This goal is dictated by economic demands which forestry cannot disregard. If we expect the Filipino forester in the next few decades to meet the challenge of producing more and better wood volume per unit area, then we have got to start seed selection now — and not later!

Once we start seed selection work, we also have to recognize and choose trees of superior or "plus" qualities for seed sources. This would necessitate extensive and intensive surveys in the location of high quality seed trees.

The next step would be to conduct tests of the behavior or development of progenies from these selected seed trees under field conditions, for the recognition of what characters are hereditary and which are due to environment.

Other work in tree improvement as cross-pollination, recognition of geographic races and strains, chromosome count, resistance to pests and disease, and many other technical phases have to be done, but these things will have to be dealt with later on, while seed selection has got to be done right now.

We have procrastinated too long in starting seed selection which has held the advance of forestry in the Philippines. Let's roll our sleeves this time and start on this job of seed selection at once!

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Show me a man who can do things, and
I will show you a man worth knowing.
— H. Wellington Wood

* * *

It matters little where I was born,
Whether my parents were rich or poor,
Whether they shrank from the world's cold-scorn
Or walked in the pride of wealth secure,
But whether I live an honest man
And hold my integrity firm in my clutch
I tell you, brother, plain as I am,
It matters much.
— From the Swedish

Transporting Logs by Splash Dams in Agusan

By BERNARDO C. AGALOOS
Timber Inventory Party, Carrascal, Surigao

As a boy of six, it was my favorite pastime to float match sticks down the gutters of our neighborhood after it rained. In my young mind's eye, those tiny sticks were a fleet of ships under my command. To create enough propelling force, I usually dug some clayey soil and built miniature dams on the concrete gutter; when enough water accumulated, I broke the dam, releasing the water to carry away my flotilla in a swift, adventuresome voyage which ended at the corner drain. I never dreamed then that some eighteen years later, I was to meet my boyhood diversion again in faraway Agusan, where a man's worth is measured by the string of tractors or the sawmills he owns.

Instead of a concrete gutter, I had a fair-sized stream; for match sticks, there were huge merchantable logs. My clay dam stood nearly four meters high and almost as thick, built by a snorting, growling D-6 caterpillar tractor equipped with a dozer blade. Water depth at the dam site was a deep 3 meters, gradually becoming shallower farther upstream until logs barely floated. In much the same way as I used to sail my match sticks, hundreds of logs are transported from the interior of the forests, riding on a surging flash flood to log ponds and collecting stations. This novel way of log transportation is commonly practiced in the logging areas of Upper Agusan where there are numerous streams ideally fitted for splash dams. It is resorted to during the relatively dry months of July to October when rains cannot be depended upon to flood the streams and bring down logs from the interior.

The use of splash dams is a simple and comparatively cheap system of log transportation for short distances from the cutting areas to log ponds which abound along Agusan river and some of its bigger tributaries. It minimizes road construction, maintenance, truck hauling, fuel consumption and equipment upkeep. There is, however, more than the dam up-float logs-release water routine. For instance, not any old stream which strikes your fancy may be utilized for the job. Certain requisites have to be met, not unlike a private high school graduate seeking entrance in the College of Forestry. To be sure, stream width, depth of embankment, presence of obstructions and water flow have to be considered. Streams measuring between 5 and 8 meters across near its outlet commonly make the grade. Deep embankments are a must, to hold the water accumulating after the earthen dam is constructed. Otherwise, the water would merely spread around the surrounding terrain in a flood that is deep enough to create artificial lakes where grade school tots would love to splash and frolic in, but I doubt that the logging foreman would feel the same. Big boulders, fallen trees, slash and debris are obstructions which have to be cleared to allow free passage for the logs when the water is released. A steady flow of water, even if the volume is not much, is of prime importance so that a large amount of water may be held back by the dam, large enough to float and carry scores of logs along with it when released.

About 3 to 7 days are needed to collect the desired amount of water, depending on the volume of flow and size of the stream.

The dam is built by continuously piling loose earth in gargantuan amounts, clear across the stream channel and is ideally done with a bulldozer. No stone or wooden reinforcements of any kind are placed since the clayey nature of the soil obtaining in those places obviates their use. Besides, I have been told that experience has shown that discharge or release of the water held back by the dam is much easier and faster without the reinforcements. On the average, a tractor can perform the job of completely blocking a stream channel in a day's time. While water is accumulating inside the dam, logs are yarded and dumped into the stream, usually by tractors but some of the more modest logging operations employ teams of powerful carabaos for yarding and manpower to roll the logs in. A crew meanwhile tackles the task of clearing the water course of stumps, debris, slash and logs wedged between the banks and boulders.

In some places, extra cleaning is done although not necessarily because our logging foreman is ambitious to cop the Certificate of Merit in a Clean-up Week drive, but for more valid reasons. Overhanging branches of trees, shrubs and bushes, tangles of vines and dense growths of talahibs are cleared from both banks to prevent snags and hitches which cause the floating logs to jam the channel, preventing the rest of the on-coming logs from passing through, while the flood waters soon recede. When enough water has collected and of course enough logs have been dumped in, a slight wedge-shaped opening is made on the top of the earthen dam with a spade or a similar tool, allowing the imprisoned water to escape in a strong gush; water friction and pressure first cut a wider gap in the dam and in a very short while later, sweep the entire earthen structure away in a great splash and roar which reminds me of Molawin Falls during the rainy season. A hundred to about twice as much logs ranging in sizes from 60 cms. and more, bucked into lengths of 5 to 8 meters, are carried away in a matter of 30 minutes and less from the felling areas to the log ponds, traveling a maximum distance of more than a kilometer along the waterway.

Not all the logs reach destination for the rapidly receding waters leave behind logs that become stranded on the lee side of bends and sharp turns. It is not unusual to station men on these points to push "laggard" logs into the main current with long poles. Stranded logs are either carried by the natural flooding of the stream due to rains or in subsequent splash dams that may be constructed for more payloads. Sometimes, where conditions are favorable, a staggered series of dams are constructed on the stream or its tributaries. Water and the logs they may carry are discharged whenever the lower dams require additional water. In this manner, the effective distance of the system is extended. This is not frequently done, however. The following are the necessary equipment and personnel involved in the operation of splash dams: 1 tractor with dozer blade, 2 axes, 1 bucking saw, 6 sharp bolos, 2 crow bars, a dug-out or baroto for the clearing crew which is composed of a foreman and 6 laborers; 4 to 6 men serve as lookouts to prevent logs from being stranded. A tractor operator-mechanic has an oiler-helper to assist him operate the machine and keep it purring like a good caterpillar tractor should. The clearing crew does its job in three days at the most, while the lookouts stay on their posts for the duration of the flash flood. Immediately prior to the discharge of the splash dam, a warning is issued to all bancas and small water craft plying the vicinity of the stream's mouth since the on-rushing waters and their load of logs present a temporary menace. A single log hitting a frail banca can crush it with a power akin to a sledge hammer's blow on an orange crate. And it doesn't take much to imagine what can happen to the banca rider. (*Continued on page* 54)

A Dynamic Meaning of Forestry In The Light of Human Evolution

By NGUYEN HOANG DAM

"What a light of an oil lamp makes visible is easily overlooked; many more things we can see by torchlight but infinitely more in the sunlight. The lighter it grows around us, the more unknown things become apparent, and it is a sure sign of shallowness, if anybody believes he knows it all." [1]

Heinrich Cotta
("Anweisung zum Walbau,"
Dresden, 1817)

Man's relation to the forest dates back to prehistoric times. Since then forestry in one form or another has been practiced for centuries. Only at the end of the nineteenth century did it come into being as a definite science in some European countries such as Germany and France. But for most Asian nations like the Philippines and Vietnam, formal forestry education has just begun a few decades ago.

As a beneficial aftermath in the recent impact of the West upon Asia, we owe much to the pioneers of Western forestry science inasmuch as they introduced it into our countries, and we still borrow and adapt the experience gained by them. That is why our practice of forestry lacks unity and consistency, that is to say, that our general public finds it intricate not because their minds remain impervious to its dictates but because their evolutionary state needs instillation with due regard to our patterns of culture.

However, the movement of opinion is slower than that of events and experience tells that we are out of gear with the modern requirements for progress. The Western standards came about after centuries of painful, gradual evolution. Within a span of a few years we emerged into the present status after a period of ferment when most of our national attention was concentrated toward the struggle for independence. In "retooling" for the future we are prone to turn any universal panacea even at the price of sacrificing the country's potentialities for ready-made, blue-printed solutions.

In forestry, such an illusion, aggravated by the neglect of the people with regard to their forests, makes difficulties which the government has to cope with in gearing forest conservation to agricultural and industrial programs.

The picture an ordinary man construes of the forest is that it is a dangerous place haunted by spirits or a threat to men because it gives refuge to his dangerous enemies. Not widely known is the fact that the forest constitutes a source of food, fuel, clothing, paper, and timber for construction besides acting as a sponge to rainfall. "Kaingineros" or nomadic farmers still fell and burn the forest to make room for farm crops and they ignore the forest as a crop by itself and a valuable crop at that. Nor is it well understood that forest lands are unfit for agriculture and their reckless use exposes them to erosion when swept by rain and wind as shown by the gully-scarred landscapes of the Ilocos region.[2] In spite of that forests are now vanishing under excessive agricultural expansion. People do not realize fully the manifold value of a

[1] Frederick J. Baker, F.E., *Principles of Silviculture.*

[2] Northern part of the Philippines.

forest to a community in terms of beneficial influences; oftentimes, even the supposedly superiorly educated citizens ignore the less obvious functions of the forest. How would we expect the less enlightened man not to remain indifferent in the recognition of forestry as other learned professions. Besides, overoptimism in the inexhaustibility of timber resources results in mining out the present forest despite history's reminding us that lands with rich extensive forests before had soon perished under mountains of sand together with the disappearance of fifteen civilizations and empires of North Africa and the Middle East; other countries, victims of their fathers' wanton forest destruction, are now faced with timber famine.

It is said that this underestimating of the importance of forest exists where only a low degree of civilization has been attained; in spite of that, highly developed countries have suffered seriously the penalty of carelessness and the lack of foresight in disposing of their natural resources. Some attribute it to the backwardness of the country in science and technology, others to unsound economic planning and lack of forest education of the masses. Forest history all over the world declares that forest consciousness is best displayed by citizens who abide by the forest laws and help directly or indirectly to promote the national forest policy.

The meaning of forestry is dynamic in that the history and development of the factors leading to the present state will continue their evolution beyond it, for better or for worse, depending on our perspectives. "Biological mechanics by which forests of diverse sorts have been able to persist inspite of many geographic and often catastrophic climatic changes which have overtaken the face of the land in more than 300 million years they are known to have existed before the advent of man."[3]

[3] W. H. Camp "The Forests of the Past and Present" in *The World Geography of Forest Resources.*

Nature, if left by itself, would remain undisturbed in repeating its slow process. Only the interference of human beings, from man, the wandering hunter, the food gatherer to man, the citizen, has altered the composition and distribution of the forests. To seek remedial measures against the strong inroads on forests, the cognizant, responsible and able people have had recourse to as many devices as there have existed forms of political institution and social organization depending on the country's needs as well as incentives, capacities and disciplines.

Following is a modest attempt to correlate the above motivations of man's predominant thoughts and actions as well as perspectives in relation to forests, based on a comparative analysis of human evolution.

To understand evolution ask what life is. Life did not exist in our planet before according to some cosmogonic theories. From where did it come then? Was it supernaturally created? During the Middle Ages it was believed that it started from some seeds of life (**rationes seminales**) deposited by God; Divine interference is illogical to scientific knowledge here. Then came the hypothesis of "spontaneous generation" or formation of living beings from non-living matter which was later refuted by the experiments of Pasteur, succeeded by the theory of importation—life is eternal and is carried from one planetary system into another in the form of minute living spores inside meteorites or by the pressure of luminous solar radiations; the freezing to death and the radiation of ultra-violet sunrays that would have killed these germs of life during the long interstellar voyage was the objection to this theory. Stanley L. Miller succeeded in 1953 in producing amino acids in the laboratory under presumed primitive earth conditions. Another modern experiment — protein plus nucleic acid give virus — conceived the notion that life evolves from lower substances of less complexity, abandoning the old inert matter of the nineteenth century for the "alive" and "indes-

tructible" matter of Huxley. The transformation of inorganic into organic substances is real when the tree, by the process of photosynthesis makes its sap and tissue out of the chemicals from the soil through the energy of sunlight.

Suffice it to say that all living organisms are a mere state of matter, an "externality of energy." Take again the tree for instance; its chemical composition is similar to that of our body except that the atom of magnesium in the chlorophyll molecule replaces the atom of iron present in our blood. However, from that state of matter man has risen into the highest form of organization of matter and energy through a continuing process of evolution while other animal and vegetable forms have changed but little over long periods being what Huxley termed as "persistent types."[4] The biologist explained furthermore that only man has emerged successfully out of this cosmic process. He alone knows he evolves and is conscious of this destiny. He shows qualities which make him unique and superior to all other animals. He has senses which enable him to enter into contact with the external environment. As a compensation to his frail body he is endowed with a large, complex brain; he is the "thinking reed." He knows how to use his intelligence for a purpose even in the abstract, reasoning out things speculatively and bringing his reflexion above all physical contingencies. His ambition extends beyond the harnessing of natural forces, to the conquest of outer space. His liberty permits him to decide, determine, and exercise deliberately his choice. The conscious knowing, the setting of a purpose to his knowledge, and the freedom of selecting his targets involve the responsibility for finding truth in order to regulate his actions accordingly. As Simpson has it, "man is a moral animal."[5]

With the above privileges invested in man, he adapts better to the existing conditions of his environment and is more capable than any other living organism in the struggle for existence as understood by the Darwinian theory of "natural selection."

Man has the power to control as well as to orient the course of his evolution by virtue of his status; the possibilities for future are inherent in the human present condition; and not being able to determine the next phase of evolution according to Bergson is a sign of our ignorance rather than the impotence of evolution.

On the other hand, while the organic evolution still continues, a new form of evolution has been invented based on learning and inheritance of knowledge. It operates on the social structure and, to quote Simpson again, "its possibilities arise from man's intelligence and associated flexibility of response. His reactions depend far less than other organisms on physically inherited factors, far more on learning and on perception of immediate and new situations."

Now we are ready to let forestry analyze itself, compare itself, and justify itself throughout the master traits of man's social evolution.

There is a parallelism of accretion between forestry and human progress. Man vindicated his adaptability for survival in the struggle for life by a series of technical steps. Forest history records that man's first reactions toward the forest had been urged by his instinctive quest to satisfy his basic needs: by gathering food, hunting, obtaining coats of skin and wool, and using wood for fuel and weapons besides seeking shelter against the elements. Then he succeded in the control over food supply followed by the domestication of animals. At this manifestation of the Neolithic Revolution, he learned how to sow and reap. Next, he modified his environment to suit the requirements of agricultural expansion. Since extensive forests were difficult for him to conquer, considering his primitive tools, he used fire to beat them back in clearing

[4] J. Huxley; *Evolution in Action.*
[5] G. G. Simpson, The *Meaning of Evolution.*

lands for farming and grazing. Strong rainfall soon leached the soil of its mineral nutrients; these areas becoming unproductive, he left them at the mercy of erosion and transferred to other localities (a form of shifting cultivation which is still practiced today — the "kaiñgin" making in the Philippines or the "ray" making in Vietnam).

When man could produce more than enough food he enlarged the field of his activities. Civilization began with the switching from village to urban life; soon it flourished with the growth of industry and commerce. From the dawn of civilization, wood had assumed many important technical functions. Men weighed with wooden balances, rode on wooden wheels, sailed on wooden ships, lived in wooden houses, worshipped in wooden temples, carved wooden statues, played music on wooden instruments. At the Economic Revolution of the West in the nineteenth century, expanding technologies made exacting demands on wood and other forest products as raw material and fuel (even coal is but another form of wood the lignin of which is the chief parent material).

Under this intensified exploitation of forest resources without being replaced, the omnipresent, inexhaustible timber disappeared with dangerous rapidity. This was particularly true for Western countries where improved cutting tools accelerated the extraction.

Most distinguished of all stimuli to civilization has been the invention of writing. Here again wood found its use in the manufacture of paper, an important medium for the recording and diffusion of literate learning. The latter induced the organization of thought and creative expression, the pursuit of knowledge, and the scientific method of inquiry by the spread of reason. Man was not complacent enough about his superiority over the barbarians. He wondered about himself, his relation to the universe, the meaning of life, and about what is worth doing and what could be done on earth. Reason for some time had been suppressed by prejudice and atrophied by traditional passivity; at last it dawned upon man's mind that he should control nature by cooperating and regulating his behavior in accordance with her — a scientific outlook which the West prizes and "now gives readily to the East." It led him to discover her mysteries, rationalize them, and to apply the accumulated knowledge of her laws to practical purposes.

The attribute that the forest is universal, abundant and renewable permits science to launch into many important discoveries in the multiple use of the tree. Living, it reduces erosion, regulates stream flow, protects watersheds and wildlife, improves the soil, tempers the climatic extremes, and provides a source of recreation and inspiration; dead, it decomposes into coal. Felled trees are used as fuel or as poles, posts and piles; sawn, they are transformed into railroad ties or mine timbers or remanufactured into innumerable articles which we have contact with in our daily life. Logs can be unrolled into veneer sheets to be bonded into plywood; adhesives solve the problem of utilizing low-grade material besides diversifying the innovation of wood use in the ply and laminated construction. Wood also is broken down into molecules of cellulose to be processed into paper and plastics or resynthesized into rayon. Wood waste can be reconstructed into hardboard or other insulating materials. The tree yields chemical substances from wood, bark, roots, and leaves like yeast, sugar, alcohol, wood gas, naval-stores, rubber, dyes, tannin, etc. An endless list of useful products from the tree is not so important here as the desire to inform the average knowledge that wood is more than fuel and lumber. Whoever you might be — a conservator of natural resources, an intelligent farmer or any rational citizen — you will appreciate the protective value of the forests; in the same manner a socialist, an economist, an industrialist or a businessman will realize that

forestry offers a great deal of opportunities for the efficient employment of land and labor and the profitable investment of capital. "If wood were put at the service of man," E. Glesinger assured us, "it could eliminate want. Utilization of the full resources of the forest will constitute a major, bloodless, beneficient world of revolution." [6]

However, in embarking into forest utilization one often forgets that it takes years for a tree to grow and natural regeneration cannot compensate for the loss by accelerated extraction. As a result two thirds of the forest cover of the globe have been destroyed. Statistics[7] show that more than one half of the forest capital of the earth is estimated to be under exploitation for commercial use. The notion of "inaccessible" forests constituting about 55 per cent of the total forest areas in the world gives us the idea of inexhaustibility of these untapped reserves. For tropical forests characterized by numerous species among which few have outlets and by their scattered distribution, maybe their exploitation is economically infeasible now, but, as soon as the means of transportation will reach them and more commercial uses and substantial markets will be found, the modern logging methods will speed up their liquidation in the long run if no control over cutting is made to ensure their sustained yield. So, in the yearning for our forest wealth, let us be reserved. We are misled in the expression of this wealth in terms of real units instead of annual net growth although growth has a higher rate in tropical regions because of higher temperature and long growing season; Erhard Rostlund pointed out that "the tropical forest potential is high, but it is well not to exaggerate it, considering its composition and commercial value." [8] What about the frequent burning over forests to plant farm crops, a means of livelihood which some native inhabitants have clung to generation after generation, the existing acts of trespass into the forest domain, the reclamation of lands for agricultural expansion, and the devastation of forest products by fire, insects, diseases and pests introduced by man; these are actual factors that diminish our forest wealth. Besides we are not sure yet as to how efficient we can regenerate the cut-over virgin stands of our tropical forests.

Today, pressure of people on natural resources does not stop at the satisfaction of their basic needs but extends to the aim of catching up with more advanced countries and by so doing gratifying their national pride on economic and therefore political progress. As William James said, "without too much we cannot have enough of anything." By mining their forest not only man defeated himself in his purpose for freedom from want but he brought about timber famine to the many to come ."A grave error has been made in the past, an error which it is important not to repeat, namely, to separate the study of timber utilization or trade from problems relating to the source, that is, the forest itself." [9]

Consequently the meaning of forestry onwards has reached an ever increasing magnitude of significance in human welfare and progress. "Man is not a conservationist by nature" wrote J. W. Sisam. Only now, afoot to save the forest from this mistake, he sounded the keynote of his reformed attitude in regard to forests by deciding to establish an equilibrium between production and utilization of forest potential through timber cropping and regulated cutting, and by insuring the climatic, protective, economic and social influences of the forest to safeguard the community's welfare and progress.

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[6] Glesinger, *The Coming Age of Wood.*

[7] *Unasylva,* Sept., 1953.

[8] Erhard Rostlund, *A World Geography of Forest Resources.*

[9] Address by Marcel Leloup, Director, Forestry & Forest Products Division FAO to the International Timber Conference held in Marianske Lazne, Czechoslovakia.

At this stage of evolution, man enhanced the meaning of forestry by embodying it in a sixfold definition: a science, an art, a business, a policy, a profession and a way of life.

Forestry as a science searches for the knowledge of forests and the laws governing their development, and of the method for their multiple use.

As an art it seeks for the efficient utilization of the above body of scientific knowledge. At least in forestry concern, there is no other safe way of applying the knowledge gained by the West than through forestry education; then, to adjust the borrowed techniques is not enough; we have to develop our own for the present and the future generations. In the analysis of evolution "acquired culture," as Lippman puts it, "cannot be transmitted through our genes; good life though attainable is never attained and possessed once and for all. So what has been attained will again be lost if the wisdom of good life is not transmitted." And man has devised means for transmitting and recording knowledge external to himself so that the preservation of the acquirement by society with the process of transmission is assured by education.

To go further in our definition of forestry, profits in terms of pecuniary gains make forestry a business. Since forestry serves also the public interest by providing service and employment to the people, by assuring the welfare of the society and by contributing to the survival of civilization, it is approved and demanded by man thus becomes a policy. There have been many controversies regarding forest ownership, from the royal forest absolutism which placed the forest under the control of a central authority, to the laissez-faire brought about by the Economic Revolution which recognized the rights of the individual to dispose of forest resources. In the middle of the twentieth century we witnessed the social trends toward more state enterprise and regimentation of the forest into its national economy. Greeley[10] wrote: "Forest history has repeated itself many times in the methods and devices adopted by one nation after another. But the forest policy of every country is something of its own making, hammered out of the dominant forces in its own environment, incentives, and disciplines. It is often an expression of national character." Thus the conservative German people who consider forest as a necessity to the community and national life have systematized their forest practice. The French having a tenacious hold on individual ownership, who have never formalized their forestry, consider that to conserve and manage their forest wealth is a part of national health and pride. The practical and capable people of Switzerland form for themselves a forest education and strict policy based on the "realistic acceptance of the inter-relation of mountain, soil, water and trees. Russia, urged by the drive for industrialization of the country, uses the power of the state to nationalize completely the forest and forest industries. The instinctive practice of conservation of the Japanese facilitates the popular acceptance of their forest land. Farmers in Scandinavian countries, conscious that forest is a necessary environment and valuable crop, group among themselves into cooperatives and succeed in this way more by individual initiative and education than by law enforcement. The disadvantage of not having timber supply "at home" during the last two world wars has taught Britain the lesson of lack of forest policy and the necessity of including it into national planning in order to be prepared for the next emergencies. In the United States and Canada where free enterprise and competitive private forest industries play the dominant role the political movement works as a pressure toward state regulation of private forest lands for the public interest as seen by the "New Deal" of the Roosevelt and Truman administra-

[10] W. B. Greeley, *Forest Policy.*

tions and the reassertion of "Crown Ownership" by the Dominion. "Handling of its forests, range lands and other natural resources is therefore possible only when the central government has complete authority to dictate courses and methods to be followed by both public and private agencies." [11]

From this brief survey of some trends in the forest policy of the more advanced countries, it would be hazardous to venture into any assertive course in forest policies, because, as Arnold Toynbee said, experience gives us enigmatic hints, not blueprinted instructions.

For the behoof of the effect of social evolution on the meaning of forestry, here is an illustration as to how closely forest policy is related to the social and economic development of the people.

It has been noted that there is a characteristic anomaly common to some Far Eastern countries which are liberally endowed with rich forests.[12] Increased literacy and rising standard of living correspond to an increased and diversified demand on forest products, especially pulp; together with the early stages of industrialization, these call for heavy imported supplies of forest products while the current exploitation in these areas is "export-oriented and selective" resulting in unnecessary wastes.

On the one hand the forest policy in this region was mostly patterned along the line of other Western nations with different conditions and outlooks. Sometimes, though a good policy was made, its implementation was and is still today hampered by an indifferent mentality and an inadequate degree of education in the public. On the other hand it did not evolve from the racial capacities and national initiative toward a country's forest resources. These clarify enough as to the reasons why the forest policy seldom meets the necessities and incongruities of the respective economic development of each country. This problem has sprung from the lack of coordination in the national planning and of social, economic and technical aptitudes.

Another unexpected by-product of forest policy is the negative attitude of the people when it is created and imposed by the government. But human nature is malleable. An attitude is formed by education of experience. In some manner the public forest education must aim at a more conscious habit of social judgment of forest policy. Then the public would be enlightened, being better informed, and stop to look at forestry from sheer passion and prejudice.

Forestry develops with social evolution. Human beings have learned to conserve and manage the forest by domestic experiences happening in their own countries in the same manner as a man realizes that he needs air to survive only when he is deprived of it. But the maintenance and enlargement of the benefits of forestry practice would not be insured unless we attempt to perpetuate it.

The goal is set but there must be means to reach it as well as competent persons to handle them. This is particularly true for most young Asian nations whose national recovery and immaturity do not permit them to realize the phase of "settled forestry regime" yet.

The West and the East now possess men who have attained a higher stage of evolution. In forestry, these men, cognizant of the vital role of forests to human progress and survival, feel their high duty to fulfill and orient the human behavior for better conservation and use of the forest productiveness, which sometimes approaches the scale of a crusade.

For the Western World, "foresters have followed the pattern of 'the three learned professions,' namely law, theology and medi-

[11] S. T. Dana, *Forest and Range Policy.*
[12] *Unasylva*, Vol. 12, No. 3, 1958.

cine in its standards of education, service and devotion." [13]

Evolution teaches us that usually the responsibility of an individual extends to the necessity of looking for help from men when his personal resources limit his capacity.[5] It is also true for foresters to make available and sufficient such help for those who seek it. In such way forestry profession looks for social and national recognition. Today's field of knowledge is so vast compared to the limited human mentality. No one can claim to have mastered one science thoroughly. Society requires specialists in each field of knowledge; the work of each is to examine and test truths pertaining to his line of endeavor; moral duty requires him to reveal himself, to exercise his profession truly, skillfully, and magnanimously, and to evince without forfeit the results of his judgment for substantiation. If he remains isolated from the main source of prestige and power, this will result in the underestimating of his vital role in society. According to the ethical standards it is wrong to fail in acquiring and disseminating some utilitarian science or art with good intentions; it is equally wrong not to promote the realization and the fulfillment of such capacities. A good society needs this interaction.

Like any long-range policy forestry requires energy to persist in the course of evolution; that could be supplied by an agency of men of broad interest and understanding, well versed in the knowledge and experience in all technical and educational phases of forestry, by stabilized funds to carry out programs, and by internal, moral incentives.

Confucius once taught that there are three efficient virtues in life: "knowledge, humanity, and energy"; these must always go hand in hand. Men can split the atom but to split those virtues from one another would likely bring ensnarement resulting in tottering civilization. Forestry has been and will continue to be realized and measured in terms of benefits to mankind in the form of economic, industrial and human service and of everlasting contributions to the progress of civilization. That is why it is and ought to be so responsible to the president as well as to the citizen.

Responsibility is an essential feature of vital organization; it is corollary to knowledge fostered by consciousness which in turn is a vital property of man. By its virtue, ethical principles have evolved from social necessities of man in association with his fellowmen as well as in the control over nature with regard to welfare and survival of life on earth. Creative and constructive spirit of forestry is and must be so kept alive, aided by science and education. Human behavior reacts with mental pictures man construes for himself during his life; that is how ideas are made of and their efficacy can be translated in action. So critical those images become that they must be passed through the sieve of ethical standards, and only those which satisfy this test of moral culture will govern our action. Furthermore behavior in order to evolve with life must not remain in static aphorism. The world does not consist of events only; it contains life and forestry practiced with consciousness offers immense opportunities to work with living things such as trees, wildlife and people and to recover one's "spiritual equilibrium." To be in relation with life one must put oneself in its service with meaning and purpose instead of foundering into lethargic passivity.

To sum up, in the adventure of life means of intellectual growth endowed by man has permitted him to acquire knowledge, for "knowledge is power" and the best way so far to acquire knowledge is through science. By virtue of his conscience and reverence for life man utilizes his knowledge for creative achievement by wedding it to action governed by ethical standards

(*Continued on page* 54)

[13] H. L. Shirley, *Forestry and its Career Opportunities.*

The U.P. College of Forestry-Cornell University Assistance Contract—its Mission and Accomplishments

By FLORENCIO P. MAURICIO
Instructor in Forest Management

Pursuant to Orders No. 50 of the Office of the United States Military Governor in the Philippines, the Bureau of Forestry was organized on April 14, 1900 with Capt. George P. Ahern as first director. He recommended the need of a forestry school in his first annual report and this recommendation was strongly supported by Forester Gifford Pinchot after an exhaustive study of Philippine forests and conditions in 1902. The first proposed site for a forestry training school was the Lamao Forest Reserve establishe din 1905. It was already in 1910, however, when a Forest School was created by Act No. 1989 as a department of the College of Agriculture at Los Baños for the sole purpose of training men for service in the Bureau of Forestry. In 1916, Act No. 2578 authorized the Forestry School as a distinct unit of the University of the Philippines. A concrete school building and quarters for pensionados from the Bureau of Forestry for training in the school were erected by funds authorized by Acts 2494 and 2583. In 1949, Rep. Act 352 converted the School of Forestry to College of Forestry. The Director of Forestry was designated **ex-officio** Dean of the College until 1956 when the University of the Philippines assumed full responsibility over the College of Forestry in accordance with Reorganization Plan No. 30-A under Executive Order No. 216. In 1954, the U.P. College of Forestry requested assistance from the International Cooperation Agency (ICA) similar to that enjoyed by the College of Agriculture. In June-July of 1955, Professor Cedric Guise of Cornell University visited the College and immediately recommended the setting up of an assistance program with the College of Forestry. On April 25, 1957, the assistance contracts were signed (PiO/T-92-17-938-5029 between Cornell University and the International Cooperation Agency, and ICA-T-187, ICA-W-307 between the U.P. College of Forestry and Cornell Universiyt). The contract provided assistance to the College of Forestry for a period of three years (1957-1960). To support this assistance program, **the National Economic Council provided** ₱96,025 for the fiscal year 1957-1958 as counterpart to ICA dollar allocations in the amount of $30,000 from the Contract for equipment (up to 1960) and $31,736 (special appropriations from ICA Manila).

The objectives of this Contract are hereunder quoted:

> "The general objective of this corollary agreement is to expand and strengthen the overall educational program and related operations of the University, in order to meet the rapidly increasing need and demand for professional foresters and trained forestry technicians, and to permit the University to provide those services which are expected of a major center of forestry education and research.

"With this general objective as the ultimate goal, this corollary agreement seeks specifically to provide means, outline procedures, and assign responsibilities to the contracting parties for the purpose of:

1. Modernizing the curriculum;
2. Improving teaching methods;
3. Planning and carrying out a policy designed to give increased emphasis to the professional degree course;
4. Stimulating research."

The visiting professors under this assistance contract are accordingly charged with the following obligations which are quoted from their first annual report:

"a. Advise and assist the University faculty in reorganizing and improving the curriculum;
"b. Train local faculty members in their particular specialties and in modern educational techniques and practices by advising and assisting local faculty members in preparing and conducting classes, laboratory and field exercises, seminars, and group discussions and in organizing and conducting research in their particular fields. Personal teaching by the contractor's personnel shall be limited to not more than one course of three credit hours and three teaching units per semester, except as may be authorized by mutual agreement of the contracting parties;
"c. Advise and assist the officers of the University in organizational and administrative matters;
"d. Stimulate research;
"e. Advise and assist the University in its cooperation with the Forest Products Research Institute and the Forest Experiment Stations;
"f. Advise and assist in building up the library and acquiring instructional and laboratory equipment;
"g. Assist in the preparation of informational material for public distribution."

The Visiting Professors

The first year of the Assistance Contract provided for technical assistance in the fields of forest economics, forest products, and silviculture. Dr. Richard E. Pentoney (B.S., California, 1949; M.S., Ph.D., New York College of Forestry at Syracuse U, '52, '56) arrived on September 5, 1957 and assumed his duties as the Visiting Professor of Forest Products. Dr. C. Eugene Farnsworth (B.S.F., Iowa, '26; M.F., Yale, '28; Ph.D., Michigan, '45) became the Visiting Professor of Silviculture on September 30, 1957. Both are from the State University of New York, College of Forestry at Syracuse University. There was no Visiting Professor in Forest Economics available in the first contract year, so technical men in other fields were sought for. On September 13, 1958, Charles Lathrop Pack, Professor of Forest Soils from Cornell University, Dr. Earl L. Stone, Jr. (B.S.F., State U of New York College of Forestry at Syracuse U, '38; M.S., Wisconsin, '40; Ph.D., Cornell, '48) began residence as the Visiting Professor of Forest Soils and Watershed Management. To benefit from the experience in the success of the Agricultural Contract, the Project Leader for the U.P. College of Agriculture-Cornell University Contract, Dr. Halsey B. Knapp (B.S., M.S., Cornell, '12, '13; Ll.D. (honorary), Hofstra, '48) also became Project Leader for the Forestry Contract Group.

Dr. Pentoney and Dr. Farnsworth will complete their tour of duty in March, 1959; Dr. Stone, in February, 1960.

On February 17, 1959, Dr. Carl de Zeeuw (A.B., B.S., Michigan, State College, '34, 38; M.S., Ph. D., State U of New York College of Forestry at Syracuse U, '39, '50) assumed responsibilities as the second Visiting Professor of Forest Products. He will succeed Dr. Pentoney in the College. His tour of duty will be during the third year of the contract and will extend into the renewal contract.

Since the University, the College and the Forestry Contract Group are all taking steps for the renewal of the Contract to at least an additional three years, more visi-

ting professors are expected as soon as well qualified men in other forestry fields are available.

The Participants

As provided for in the Contract, two members of the College faculty are sent abroad every year during the entire duration of the Contract, for advanced study in their own fields. During the first year (1957-1958) of the Contract, Mr. Osiris Valderama (B.S.F., University of the Philippines, '51), Instructor in Forest Utilization, and Mr. Domingo Lantican (B.S.F., University of the Philippines, '51), Instructor in Wood Technology, finished their M.S. at the University of Michigan and at the New York State College of Forestry at Syracuse University, respectively. The former specialized in forest management and the latter, forest products.

In this second year, Mr. Lucio Quimbo (B.S.F., University of the Philippines, '58), Instructor in Dendrology and Wood Technology; and Mr. Napoleon T. Vergara (B.S.F., University of the Philippines, '54), Instructor in Lumbering, are presently engaged in graduate study for their Master's at the New York State College of Forestry at Syracuse University, in Wood Technology and Forest Economics, respectively.

In the third year, Mr. Florencio P. Mauricio (B.S.F.,) University of the Philippines, '55), Instructor in Forest Management; and Fr. Filixberto S. Pollisco (B.S.F., University of the Philippines, '56), Instructor in Forest Products, will take advanced study at the New York States College of Forestry at Syracuse University for their Master's Degree in Applied Silviculture and Wood Mechanics, respectively. Under the direction of the Visiting Professors in Silviculture and in Forest Products, Mr. Mauricio and Mr. Pollisco have begun research projects which have been tentatively approved for graduate credit at the College of Forestry at Syracuse University.

In the first year of renewal, Mr. Leonardo Angeles (B.S.F., University of the Philippines, '58), Instructor in Silviculture; and Mr. Juanito Lamanilao (B.S.F., University of the Philippines, '58), Instructor in Dendrology, will be sent for a year's advanced study in the States.

Mr. Mauricio is now under training as a counterpart to Dr. Farnsworth; Mr. Pollisco to Dr. Pentoney; and Mr. Angeles to Dr. Stone.

The training of participants by assigning them as counterparts to the Visiting Professors during the latters' residence in the College is a wise step. They are gradually developed professionaly through extensive travels throughout the Archipelago, discussions, conferences, and exchange of ideas with the Visiting Professors and other learned groups.

Major Accomplishments

The U.P. College of Forestry sustained severe losses during the last war which caused paralizing effect on the functions of the College. Equipment and furniture, records and all library materials were burned or looted. Forest areas planted for study and observation by the Bureau and the College were destroyed. Except the main school, all buildings were damaged beyond repair. Althought rehabilitation for the student mess hall, the dormitories and the main school building was on, progress was slow and the College found itself in a condition inadequate to meet the needs of the faculty and student body. To make matters worse, technical man from the Bureau of Forestry and Forest Products Research Institute were made unavailable for teaching in the College due to the Reorganization Plan, and the Makiling National Park was automatically put under the administration of the newly created Commission on Parks and Wildlife — a very sad fact which made the College virtually a squatter in the area originally established for it.

Realizing the spot into which the College is forced under the aggravating cir-

cumstances, the Forestry Contract Team worked hand in hand with the College authorities to find solution to the problems on hand. A comprehensive and practical ten-year rehabilitation plan for the College of Forestry was prepared. This rehabilitation plan provides gradual restoration of war damage losses, filling up of vacancies in the faculty, and expansion and strengthening of the education program.

Initial steps in the implementation of this plan are the following:

(1) The building proposed as Botany Laboratory was reconstructed to serve as a forest products teaching laboratory. The improvement of this buliding is almost completed, the necessary equipments and tools ordered under dollar allocations are arriving, and faculty members are being trained for instruction in this laboratory.

(2) The plan for an additional ₱1,000,000 building with spacious classroom, lecture and laboratory space, service rooms, office and research laboratories, and a 600-capacity auditorium, have been prepared and the University architect already consulted. In addition, student dormitories costing ₱270,000 are seriously being considered in order to better the living conditions of the students.

(3) Proposals have been submitted to the University ofr the transfer of a portion of or the entire Makiling National Park to the University to be administered by the College of Forestry. As a college forest, plants planted by the Bureau of Forestry and the College will be better taken care of, more plants introduced for study purposes, and researches in the various forestry fields requiring various species and wide areas be seriously conducted.

(4) A trained liberarian has recently been employed as provided for in the plan. A $10,000 library support from the Rockefeller Foundation for source books have been requested and granted. Some books requested have already arrived and some will still be arriving to increase the information in forestry and associated fields avaiable to students. Magazine racks have been built to accommodate the rapidly increasing library materials. Plans are prepared, materials and equipment have been ordered for the dehumidification of the closed stacks of the library.

(5) Research along forest products have been hampered due to unavailability of a forest products research laboratory. The completion of the college forest products laboratory will remedy somewhat this situation. Dr. Pentoney, however, and several faculty members have cooperated with the Forest Products Research Institute's staff and several research programs have been initiated. In addition, lectures and seminars on forest products are being conducted.

(6) In the field of silviculture, there were initiated three cooperative researches with the Bureau of Forestry installed at Basilan, Butuan and Baguio; and three college researches were begun. A system of twenty-one plots (twelve high-lead and eight tractor) was installed in the Basilan Working Circle and fifteen plots (nine high-lead and six tractor) in the Nasipit Concession at Butuan. These plot installations were so designed as to bring to light the development of a selectively logged residual stand in a dipterocarp forest in the Philippines taking into account stand and site variations, and effect of the method of logging. Four sample plots were established in Baguio in order to obtain sufficient data for volume table for Benguet Pine in a 21-year old plantation, the amount of forest products that can be obtained, and the best density of stocking to promote quality growth by providing three thining levels, i.e., 47-07 square meters per hectare of basal area as ccntrol, 39.03 square meters per hectare, 31.00 square meters per hectare, and 22.96 square meters per hectare basal area as the thining levels (basal area of wood left in the plots). An additional installation is soon to be made in Camarines Sur, and

other study areas may be considered. In these installations, Mr. Mauricio has actively taken part as representative from the College.

A small cooperative study in nursery stock production was initiated in the reforestation nursery of the Bureau of Forestry at the Makiling National Park. With Professor Delizo in charge, preliminary results from root pruning have already been obtained.

A tree seed laboratory has been set up at the College under the supervision of Prof. Delizo. With the new storage equipment, seed scarifier and the other test and storage equipment to be arriving, studies on storage methods and related viability, occurence and breaking of dormancy and effective testing procedures were begun. To be able to determine the best nursery stock for planting and additional information on factors influencing natural reproduction, pretreatment of seed in preparation for germination testing will be emphasized in this continuing study of the College.

In the early part of 1958, a project to study the economic factors important in managing ipil-ipil plantations in Laguna and in Ilocos Norte was initiated. Mr. Vergara plans to use the preliminary data collected therefrom for his thesis and he expects to continue the study after his return.

(6) An attempt to project the College faculty in relation to student population until 1968 was tried: a faculty of 60 and a student body of 600. The schedule of expansion provides for doubling the full time faculty in the next two years in order that the teaching program can be expanded and will make available technical men for research, advanced studies, or for special work with the visiting professors. The suggested organization for the College of Forestry during the period 1958-1959 is given below:

Administration

1 Dean
1 Registrar
1 Librarian
3 — Total

Academic Department

1 Professor & Head
3 Asst. Professors
10 Instructors

14 — Total

Department Instructional Area

: Spanish
: English
: Mathematics
: Philippine Institutions
: Physics
: Chemistry
: Humanities

Forest Production Department

1 Professor & Head
4 Professors
5 Assoc. Professors
10 Instructors

27 — Total

: Management
: Regulation
: Finance
: Economics
: Policy
: History
: Mensuration
: Photogrammetry

Tree Improvement
Forest Influences
Soil Conservation
Surveying
Forest Importance
Fire Control
Dendrology

Statistics
: Entomology
: Pathology
: Silviculture
: Silvics
: Soils

Botany
Logging

Forest Products Department

1 Professors & Head
1 Professor
2 Assoc. Professors
3 Asst. Professors
7 Instructors

14 — Total

: Anatomy & Structure & Wood Indentification
: Wood Physics
: Mechanics & Structure Design
: Kiln Drying
: Machining
: Adhesives, Plywood & Veneer
: Wood Preservation
: Pulp, paper and boards
: Industrial Engineering
: Quality control
: Plant layout
: Plant layout
: Industrial Management
: Lumbering
: General forest products
: Research methods

Forest Information Service

1. Professor & Head
1 Asst. Professor & Publications editor

2 — Total

60—GRAND TOTAL

(7) The resent curriculum was revised to provide for separation of the ranger program from the collegiate program; two collegiate programs, forest production course and forest products course. This revised curriculum was approved by the College faculty and submitted to the University on March, 1958. The curriculum was revised to emphasize the four-year course, and to provide broadened opportunities for training professional men in response to national needs. Outlined below is the revised curriculum with consideration of the general education program in the University of the Philippines:

Proposed Curriculum Revision of the Course Leading to the Degree of B.S.F. Indicating the Place of the Subjects Included in the Basic General Education Program and the Total Number of Units a Semester

A. SUBJECT PLACEMENTS

1st Year

	First Semester	*Units*		*Second Semester*	*Units*
E	English 1	3[1]	E	English 2	3[1]
Sp	Spanish 10	3[1]	Sp	Spanish 11	3[1]
M	Math 1	3[3]	M	Math 2	3[1]
B	Botany 1a	3[1]	B	Botany 1b	2[1]
	Intro. to Forestry	3	B	Zoology 1	4[2]
	Total	15*		Total	15*

2nd Year

	First Semester	*Units*		*Second Semester*	*Units*
E	English 3	3[1]	M	Math 8 (An. Geom.)	3[2]
Sp	Spanish 12	3[1]	E	English 4 (Pub. Speak)	3[1]
M	Math 3	3[1]	Sp	Spanish 13	3[1]
SS	Economics 1	3[1]	SS	Social Science II	3[3]
P	Chemistry 1a (Gen.)	4[2]	P	Chemistry 1b (Organic)	4[2]
	Total	16*		Total	16*

* Does not include required Military or Physical Education courses.
[1] See Announcement of Courses — College of Forestry.
[2] See Announcement of Courses — College of Agriculture.
[3] See Description of Courses — Memorandum by University (undated). First two years are common for Forest Production and Forest Products programs.

Note: General Ed. Courses

E — English
M — Mathematics
L — Logic
H — Humanities
SS — Social Science
P — Physical Science
B — Biological Science
Sp — Spanish

FOREST PRODUCTION

3rd Year

	First Semester	*Units*		*Second Semester*	*Units*
P	Physics 11	3[2]	P	Physics 12	3[2]
L	Logic 1	3[3]	H	Humanities I	3[3]
	Dendrology 1a	3		Silviculture I	3
	F. Physiography	2		F. Engineering 10	4
	Soils 1	3		Dendrology 1b	3
	Elective	3			
	Total	17 (4 labs)		Total	16 (6 labs)

Summer — Forest Engineering 11—Plane & Topographic Surveying — 6 units

4th Year

First Semester	*Units*	*Second Semester*	*Units*
Silviculture II	3	Lumbering 5	4
Forest Management 1	4	F. Management 2	3
Forest Production 1	3	F. Protection 2	3
Wood Tech I	3	F. Engineering 2	3
Forest Economics 2	3	Policy & History (For.)	2
Elective	2	Elective	3
Total	18 (5 labs)	Total	18 (5 labs)

Summer — Forest Inventory—6 weeks — credit 6 units

5th Year

	First Semester	*Units*		*Second Semester*	*Units*
H	Humanities II	3[3]	H	Humanities III	3[3]
	Silviculture 3	3		F. Management 4	4
	F. Management 3	2		F. Management 110	4
SS	Social Science III	3[3]		Forest Production 3	2
	Seminar	1		Seminar	1
	Electives	6		Electives	3
	Total	18 (1 lab)		Total	17 (4 labs)

Summary — Forest Production Program — General Education

E — 12 units	H — 9 units	B — 9 units
M — 12 "	SS — 9 "	Sp — 12 "
L — 3 "	P — 14 "	

FOREST PRODUCTS CURRICULUM

3rd Year

	First Semester	*Units*		*Second Semester*	*Units*
M	Math 10	3[2]	M	Math 11	3[2]
P	Physics 21	3[2]	P	Physics 22	3[2]
L	Logic 1	3[3]	H	Humanities I	3[3]
SS	Social Science III	3[3]		Wood Tech. 10	4
	Agri. Engineering 14	2		Lumbering 5	4
	Dendrology 2	3			
	Total	17		Total	17
		(5 labs)			(5 labs)

4th Year

First Semester	*Units*	*Second Semester*	*Units*
Soils I	3	Silviculture 104	3
F. Physiography	2	For. Products 103	3
Accounting 10	3	For. Products 105	3
Wood Tech. 2	3	For. Products 106	3
Forest Products 104	3	Wood Tech. 3	3
Lumbering 2	2	Forest Products	2
Total	16	Total	17
	(5 labs)		(4 labs)

5th Year

	First Semester	*Units*		*Second Semester*	*Units*
H	Humanities II	3[3]	H	Humanities III	3[3]
	Forest Products 107	2		For. Products 108	3
	Statistics 11	3		For. Products 109	3
	Seminar	1		Special Study	5
	Wood Tech. 4	5		Seminar	1
	Elective	3		Elective	3
	Total	17		Total	18
		(4 labs)			(2 labs)

(One summer industrial experience required — no credit)

Summary — Forest Products Program — General Education

E — 12 units	H — 9 "	B — 9 "
M — 18 "	SS — 9 units	Sp — 12 "
L — 3 "	P — 14 "	

PROPOSED RANGER CURRICULUM

FIRST YEAR

First Semester		Second Semester	
Subjects	**Units**	**Subjects**	**Units**
Botany 10	3	Dendrology 1b	3
Dendrology 1a	3	English 2	3
English 1	3	Spanish 11	3
Spanish 10	3	Forest Engineering 1b	3
Forest Engineering 1a	2	Forest Management 1	4
Introduction to Forestry	2	Forest Physiography	2
Mathematics 5 (Alg. & Trig.)	3	Military Science	(1.5)
Military Science	(1.5)	Physical Education 1b/2g	(2)
Physical Education 1a/2a	(2)		
	19		18

SUMMER: FIELD PRACTICE — 6 weeks; credit 6 units

SECOND YEAR

Spanish 12	3	Spanish 13	3
Wood Technology 1a	3	Forest Products	2
Forest Engineering 2	3	Elem. Forest Protection	4
Economics 1	3	Lumbering 1	5
Forest Administration 1a	3	Forest Administration 1b	2
Nurseries & Plantations	3	Philippine Institutions 1	3
Military Science	(1.5)	Military Science	(1.5)
Physical Education 3a/4a	(2)	Physical Education 3b/4b	(2)
	18		18

Completion of the above courses, a total of 79 units of credit entitles a student for a Ranger Certificate.

(8) To remedy somewhat the dependence of students upon the information given by the instructor in class due to shortage of textbooks in technical forestry subjects, the Visiting Professors initiated the duplication of lecture notes in several courses (Forest Soil, Water Conservation, Wood Physics, Seeding and Planting, and Silvics) which is now being followed by the faculty pending the receipt of more technical books and other publications on forestry.

(9) The use of teaching aids in being encouraged wherever applicable. Several cameras have been obtained and film projectors were ordered for the development and application of a film library. Color slides of forestry conditions and operations in the places visited by the visiting professors and their counterparts and other members of the faculty are now being shown to the students during the different class periods. A good many of these slides will ultimately become part of the College film library.

(10) A weekly seminar on research methods and procedures have been initia-

ted by Dr. Stone. In this weekly seminar (Monday afternoon), several members of the faculty and of the Forest Products Research Institute have been invited to elucidate and amplify their experimental design, methods and analyses of results, to very much interested audience composed of the Faculty, Senior Students and several Personnel of the Forest Products Research Institute.

(11) Dr. Stone and Mr. Angeles have installed two large bulletin boards at the entrance hall of the College building wherein forestry news, informational bulletins, pictures and other illustrative material are put and changed periodically. Dr. Stone and Prof. Blando have just prepared an illustrated brochure on professional forestry and is now being circulated to high schools and other interested groups. A cooperative work on illustrated material designed for distribution to land owners and rural people has also been started in cooperation with the Bureau of Forestry. This illustrated material will contain information on the benefits derived from planting ipil-ipil on open land.

(12) Dr. Farnsworth has initiated and had plans drawn up for the conversion of a portion of the present College building into a dehumidified room for storing surveying and mensuration instruments while in use by students in their field classes. A dehumidifying unit and other materials that can be purchased by dollar funds have already been ordered for the installation of this rom.

(13) The development of a project to organize a teaching and research laboratory in photogrammetry was undergone. The needed equipment for this photogrammetry laboratory is now on order by dollar funds.

(14) The visiting professors have actively participated in the preparation of proposals and justification for NEC fiscal support to the program through the annual peso budget, for an extension of the assistance program contract for the period 1960-1963, for dollar support for commodities, and of the trainee program.

Contract Renewal (1960-1963)

As early as March, 1958, Dean Gregorio Zamuco and the oFrestry Contract Team has already requested renewal of the Forestry Contract for another three years after the expiration of the first Contract in 1960. Justifications were duly presented to the parties concerned. During the three year term of the contract extension, the following will be given due consideration:

(1) Training approximately 25 of the 30 ne wfaculty members to be added to the College faculty during the next four years. This training will be provided through the participant program and through work with the visting professors at the College;

(2) Implementation of the revised curriculum. This has been approved by the Colleged faculty. Two major programs of professional emphasis are provided and a major expansion of course offering is planned, to provide a balanced program of technical training apropriate for the only forestry college in the Philippines;

(3) Development of research programs. Programs started previously will be expanded and work in new fields of forestry;

(4) U pgrading of existing courses, and improvement of teaching methods in all courses;

(5) Obtaining expanded physical plan and equipment. Needed is a new main building to greatly expand laboratory facilities, additional dormitory space and the acquisition of additional technical equipment as needed to implement the instruction and research programs;

(6) Preparing instructional materials and information to be distributed to the profession and to the public;

(7) Maintaining and further development of cooperation by the College with the Bureau of Forestry, the Forest Products Research Institute and other agencies

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A DYNAMIC...

(*Continued from page* 42)

without overlooking the means of its conservation and transmission. The meaning of evolution has evolved along with man's progress from a mere instinct of adaptation and domination over the environment to the conscious management and perpetuation of the forest. For him, scientific knowledge is necessary but not self-sufficing. "Human evolution still depends on the fruits of intelligence."[14] So he puts his knowledge at the service of humanity. Energy in the forms of creative brains, material support and moral incentives acts as a catalyst in man's behavior.

As a student in wood technology I was made to understand first how a tree grows before learning the microstructure of wood. In the same way the forestry meaning should be apprehended. To conceive the **élan vital** of human evolution, to be aware of our little avail from a simple origin, and to realize the greatness of the individual based on ethical premises provided by our consciousness and our empirical resolution, that is how we would rather have cognizance of our value and responsibility in advancing into the new age of wood as dreamed by Glesinger.

The forest problem is obvious; sometimes the most obvious becomes the most difficult but entertaining to explain. As Erhart Rostlund said, between man and timber is always a third factor, human culture. Deformations of mind engender obstacles which stand on the way to progress. In viewing the meaning of forestry in the light of evolution "through the individual by considering him as active" we have emphasized that he alone counts and social events revolve around human actions toward the environment; man is the "business manager" for this cosmic process of evolution although, as Will Durant reflexed, civilization exists by geological consent.

From the philosophy of evolution we can conclude that "those organisms are successful which modify their environment so as to assist each other."[15] One illustration: a tree grows to its best in the forest.

A society's advancement springs partly from the use of human progress. The experience of nations projects a precious light into the darkness of the future. The forest plays a vital role in civilization when we telescope forestry on the evolutionary perspective. My sincere wish here is for us, regardless of any caste of mind, to strike a positive and objective attitude in learning to appreciate the benefits and responsibilities which come to us from our relation with the forest and to educate our people as to their potentialities. This will serve as an impetus to progress.

[14] L. Du Nouy, *Human Destiny.*

[15] A. N. Whitehead, *Science and the Modern World.*

TRANSPORTING LOGS...

(*Continued from page* 34)

This system of log transportation may be of practical use in some parts of the country where streams are also utilized for bringing down logs, during the rainless months. Or it may also be resorted to as an economical supplement to truck hauling from the felling areas to log dumps and landings where conditions will permit. The main objection to the method is the limited distance through which logs may be carried down on a flash flood, which is usually not more than a kilometer following the course of the stream. If a system of subsidiary dams could be devised along a fairly deep stream with a steady flow of water even during dry months, the method may be made to pay several times more than its cost of application, which, incidentally, is a jealously guarded affair of logging operators using the method.

Why The Makiling National Park Should Be Transferred To The University Of The Philippines

By ANGELO G. MORDENO

Due to the necessity of having technically-trained men to handle the management and administration of the forests of the country, a department of forestry in the College of Agriculture was created in 1910 by virtue of Act No. 1989 enacted by the Philippine Legislature, with 20 pensionados appointed by the Director of Forestry as head of the department, to take up the Ranger Course. Mt. Makiling, now known as the Makiling National Park, became the joint seat of the Division of Forest Investigation of the Bureau of Forestry and the then School of Forestry which was separated from the College of Agriculture in 1916 to become a separate unit of the University of the Philippines as provided for in Act No. 2578, with the Director of Forestry as ex-officio dean vested with the power to detail men from the Bureau to teach in the school. By the operation of Republic Act No. 352 in 1949, the School of Forestry became the College of Forestry, with the Director still the ex-officio dean with powers to detail his men in the College as before.

Then came the Reorganization Plan No. 30-A of the Government Survey and Reorganization Commission in 1957 which entirely divorced the College from the Bureau with the dean, appointed by the Board of Regents of the University of the Philippines, and which created the Office of Parks and Wildlife as a separate entity independent of the Bureau, under which all national parks of the Philippines including the Makiling National Park were placed. By this action, the College lost ready access to the experimental forests which it had jointly established with the Division of Forest Investigation, and eventually became a "squatter" on its former campus without any jurisdiction over it. Most of the trees in the campus were planted by former students who had long graduated and certain improvements such as the Forestry Swimming Pool and Forestry Pavilion were constructed for the use of the Forestry students.

Unlike any school or college of forestry in the United States, which has always a forest of its own where experiments on Silviculture, Management, Planting, etc., could be conducted by the faculty and for the students to practise without interruption from any other government entity, the U.P. College of Forestry has no forest of its own. Unlike in agriculture where experiments may give results within a year or two, forestry is a long time project which may extend to two or three generations before the final results may be obtained. For this reason, it is logical that the Makiling National Park be turned over to the University of the Philippines under the administration of the College so that students can continue to use it as their laboratory on the various forestry subjects. It is also important that only one entity should handle the forest in order to control it in such a manner as to attain its objectives in researchs without outside interference.

Furthermore, there is a need for a centralization of control. At present, there are four separate entities of the government

in the Park, namely: The Bureau of Forestry represented by the Forest Experiment Station, the University represented by the College of Forestry, the Forest Products Research Institute which is attached to the office of the President of the University for policy purposes, and the Parks and Wildlife Office which incidentally has no building of its own and only "squatting" in the Forest Experiment Station building. On the other hand, the place is better known to the visitors and excursionists as the college campus and not as Makiling Park. The College usually gets the credit for whatever favorable impression the visitors may have and is blamed for anything that goes wrong on the campus. Due to the absence of a single entity to run the place, confusions have occurred resulting, in one instance, in the cutting of a forest plantation. The damage was already done and the growth studies of the trees conducted by the students and faculty of the college had to be discontinued with no definite conclusion arrived at.

To make the conditions worse, the Parks Commission does not have enough personnel to supervise the campus and to guard the boundaries of the park against illegal cutting and removing of trees and rattan from the forest. Moreover, the in-charge of the park is not a trained forester.

From the foregoing, it is only logical that the Makiling Forest now known as the Makiling National Park be transferred to the University of the Philippines under the administration of the College of Forestry for which it was originally intended; the separation of the College from the Bureau of Forestry leaves the former no connection with this forest which students may use as their laboratory and where the faculty members may conduct researches without interference from outsiders. There is a need for a centralization of control over this forest for efficient protection and administration. Because of the inadequacy of its personnel, the Parks Office cannot cope with the protection and administration work.

The U.P. authorities asked the former Dean of the College of Forestry to prepare a report on the Makiling National Park, its physical aspects, other features, improvements, data on planted species, income and probable expenses. The report is reproduced below:

MOUNT MAKILING FOREST
(Now known as Makiling National Park)

Mount Makiling is a lone mountain peak between the provinces of Batangas on the southern and Laguna on the northern parts of the peak. It is an extinct volcano having its crater on the southeastern side of the peak towards Batangas province.

Area. — This mountain peak which is now known as the Makiling National Park has an area of 3,898.8 hectares.

Topographical features. — It is a peak with steep sides which are again furrowed with deep ravines and high ridges. There are certain portions that are rolling but area covered by these features is negligible. There are three peaks, two of them about the same elevation, 1050 meters and the third one is 1100 meters above sea level.

Vegetation. — The vegetation may be divided into three divisions as controlled by the altitudinal range, namely; the lower elevation from 100-550 meters; the mid-mountain, 550-850 meters and the mossy forest from 850 and up. The vegetation below the elevation of 550 meters to 100 meters has been greatly modified. From all indications, the forest between these two elevations must have been prominently Dipterocarp forest i.e., the lauan forest. The members of this family aggregate 75% of the total volume of timber found in the Philippines. Because this forest adjoin to more populated regions, the people had been cutting the desirable species without restriction since time immemorial, making this for-

est as a result of the above practice, a culled forest, i.e., forest where the dominant species (greater number) are not desirable. There are at present a few members of the Dipterocarp family left sparsely scattered in these elevations. Among them, the bagtikan, **Parashorea plicata** Brandis, lauan puti, **Pentacme contorta,** Merr. and Rolfe, guijo, **Shorea guiso** Bl. and manggachapui, **Hopea acuminata** Merr. of these four the first one, bagtikan, is the most numerous because it is the most prolific seeder whenever it bears fruits periodically, lauan puti, the next and so on to the last one, manggachapui, which is the most scarce of them all.

Of the dominating species (in number) the most common is balobo, **Diplodiscus paniculatus** Turcz. This one is found from 100 to about 500-meter elevations. The second ones are magabuyo, **Celtis luzonica,** Warb. and malaikmo, **C. philippinensis,** Blanco. The former is found usually at lower elevations while the latter up to around 450 meters elevation. These dominating species are left because they produce timber that is susceptible to rot or not resistant to insect infestations. There are other species that form the sum total of vegetations of this forest at these elevations but many of them are culled species at the present stages of timber utilization.

The vegetation of the mid-mountain forest is not much altered because of its less accessibility to man. The trees here are not so big in diameter nor so tall as those of the lower elevations. Small tree ferns are found underneath the trees and epiphytes are common on the branches or trunks of trees. The dominant arborial species are the oaks, **Quercus** spp. the malaruhat, **Syzygium** spp. and the dungao, **Astronia** spp. and others.

Above this elevation (550 meters) and higher is the mossy forest characterized by the presence of mosses on the trunks and branches of trees which are usually short boled and wide-spreading crown. Epiphytes are also common on the branches and trunks

of trees. Except at the very peak, the vegetation is a mixture of different species none of which is predominant in number. At the peak, however, the wide-spreading trees are mostly **Eurya** spp. and **Elaeocarpus** sp.

Other features. — At an elevation of about 400 meters and approximately four kilometers from the College of Forestry campus following the road, is a spring of boiling mud known locally as Mud Spring among the students and Nagtugnos among the old folks in the barrios. It is almost circular although irregular in outline, about 10 meters in diameter. During the wet season, this mud hole is filled with water with a great deal of mud mixed with it and oftentimes, overflows its brims and joins the nearby creeks. The fumes smell sulphur. During the dry season, the water level goes down and the mud becomes thick and its sounds when boiling reminds one of sugar making from cane juice.

There are also deposits of white earth in this mountain (kaolin). At present it is exploited for the manufacture of ceramic products or used in whitewash.

Improvements. — Before the last war, World War II, a road about seven kilometers was built by the Bureau of Public Works to the saddle of the two peaks. It was a macadam one and cars and the like could be driven over it. Since liberation, this road was never taken care of and at present it is badly eroded. However, trucks can still negotiate on it up to the Mud Spring.

There are also foot trails to the peak but lately since the Park took control and because of the peace and order conditions, these trails were not kept clean of bushes and fallen branches. In many places improvements are needed to make them passable.

Plantations. — When the College started in 1910 (known as Forest School, a department of the College of Agriculture), the College campus was grassland with a few small-sized parang species trees of no consequence. This grassland was divided into hectare lots, i.e., 100 x 100 meters with cleared boundaries of two meters wide around each lot. Each of these hectares was planted to commercial species, such as narras, **Pterocarpus indicus** Willd. and **P. vidalianus** Rolfe, teak, **Tectona grandis**, Llf., panglomboien, **Syzygium clausum** (C.B. Rob) Merr., molave, **Vitex parviflora** Juss., and others. The planting was done by laborers of the Bureau of Forestry and by the students in connection with their laboratory work. The caring of these plantations, i.e., clearing the vines and grasses that tended to smother the planted seedlings was made by the Bureau of Forestry laborers as well as by the students of the College. This procedure continued year after year until 1930 when the Bureau of Forestry discontinued sending students as "pensionados" to the College of Forestry. From this time, students entered the College as private and hence are not required to work when they have no classes. Since then the students are only required to clean some of these plantations in their laboratory periods in Silviculture. The laboratory periods may last only three hours. The following tables show the plantations in hectares (Table 1) and the species and number of each (Table 2).

Table 1

Data on Area Planted to the Following Species

Rubber tree	— 21 hectares	— 2,338 trees
Mahogany	— 30 hectares	— 4,754 trees
Dipterocarps	— 10 hectares	— 1,766 trees
Molave	— 6 hectares	— 1,223 trees
Teak	— 2 hectares	— 208 trees
Ipil-ipil	— 170 hectares	

TABLE 2.—DATA ON AREAS PLANTED TO THE FOLLOWING SPECIES

RUBBER		MAHOGANY *		DIPTEROCARP		MOLAVE		TEAK		IPIL-IPIL	
No. of Trees	Has. where located	No. of Trees	Has. where located	No. of Trees	Has. where located	No. of Trees	Has. where located	No. of Trees	Has. where located		
60	6	23	6-C	36	A	19	2	208	2 Has. in		
129	6-A	19	7-B	24	7-E	22	5-D		Pili block		
178	6-B	105	7-C	184	7-F	48	E				
149	6-C	44	8-B	21	F	63	1				165 Has.
84	7	56	10-B	105	7-G	1071	2 Has. in				in
103	7-A	34	11-A	106	8-G		Pili Block				Paliparan
58	7-B	156	11-B	1290	4 Has. in					170	and
143	7-C	18	A							Has.	5 Has.
47	8	17	B								in Boot
114	8-A	126	C								Valley
91	8-B	172	1-1a								
115	8-C	149	1a								
136	9-A	90	2								
102	9-B	45	2-A								
38	9-C	52	3-B								
56	10	53	4								
266	10-A	27	5-D								
138	10-B	165	7-D								
101	11-A	199	7-E								
104	11-B	186	7-F								
26	C.A.	82	8-D								
		147	8-F								
		20	12-B								
2,338	21 Has.	1,895	23 Has.	1,766	10 Has.	1,223	6 Has.	208			

* 7.06 hectares additional plantation located in Capatagan, (Bollman) Camp, along Maitim trail and above Rotarian Camp.

Income and Probable Expenses. — Tables 3 and 4 show the income of this Forest for the last seven years. The first one shows the collection made by the Park and consisted of fees collected for the use of pavilion (dancing), swimming pool, and entrance fees collected from autos and buses entering the Park and from the sales of latex collected from rubber trees. Table 4 shows the collections made by the Bureau of Forestry consisting of the sales of plants, ipil-ipil firewood, fees collected for the use of the pavilion of the nursery which sometimes is hired when all other places for dancing are engaged, transportation charges, i.e., when the Bureau of Forestry trucks are used for transporting plants purchased from the nurseries to the places of vendees, and the miscellaneous items. The total incomes for the last seven years is shown in Table 5 where the average annual income for the last seven-year period is around ₱11,050.73.

Table 3 NATIONAL PARK INCOME

FISCAL YEAR	Pavilion	Swimming Pool	Rubber latex	Stumpage etc.	Auto & Bus entrance fees	TOTAL
1949-50	₱ 370.00	₱2,163.10				₱2,533.10
1950-51	55.00	576.76	₱2,164.95	₱ 379.73		3,176.44
1951-52	670.00	2,098.44	1,758.05	283.59		4,810.08
1952-53	1,123.00	3,074.24		89.49		4,286.73
1953-54	110.00	2,576.28		295.10	₱ 676.04	3,657.42
1954-55	210.00	2,787.00		1,103.76	1,873.56	5,975.20
1955-56	1,695.00	2,860.90		3,238.82	2,061.50	9,856.22

Table 4 REFORESTATION FUND COLLECTIONS

FISCAL YEAR	Sale of plants	Ipil-ipil firewood	Pavilion & Nursery Hall	Transportation charges	Miscellaneous	TOTAL
1949-50	₱11,863.90	₱ 998.10				₱12,862.00
1950-51	6,788.30	1,105.03				7,893.33
1951-52	6,639.00					6,639.00
1952-53	5,476.10			₱ 17.00	₱ 3.10	5,496.20
1953-54	6,462.70	₱ 305.64	₱1,335.00	52.00	10.00	8,165.34
1954-55	6,056.40	446.74	882.00	196.50	79.83	7,661.47
1955-56	3,685.50	10.81	557.00	10.67	78.58	4,342.56

Table 5

The Yearly Income from the Makiling National Park for the Last 7 Years

1949 - 1950	₱15,395.10
1950 - 1951	11,069.77
1951 - 1952	11,449.08
1952 - 1953	9,782.93
1953 - 1954	11,822.76
1954 - 1955	13,636.67
1955 - 1956	14,198.78
TOTAL	₱77,355.09
(Yearly Average) —	11,050.73

Probable Annual Expenditures. — To start the administration of this forest park, the following men with their respective compensation are deemed necessary:

	Total Amount
1 — Forest Ranger at ₱1,800 p.a.	₱ 1,800.00
4 — Forest Guards at ₱1,440 p.a.	5,760.00
1 — Pavilion caretaker at ₱1,440 p.a.	1,440.00
1 — Gate collector at ₱1,440 p.a.	1,440.00
2— Nurserymen at ₱1,440 p.a.	2,880.00
1 — Swimming pool caretaker at ₱1,440.00 p.a.	1,440.00
8 — Laborers at ₱4.00/day (300 working days)	9,600.00
2— Carpenters at ₱5.00/day (300 working days)	3,000.00
2 — Campus guards at ₱1,440 p.a.	2,880.00
TOTAL	₱30,240.00

The work of the forest ranger is to supervise the forest guards who will be distributed as follows: one in the northern part, one in the southern part, one in the eastern part and one in the western part of the park. One pavilion caretaker is to take charge of the pavilion which is always engaged on Sundays and holidays by the outsiders for dancing purposes. The gate collector has to collect fees from cars and buses entering the park. The two nurserymen have to propagate the seedlings and plants, in the two nurseries now operated by the Bureau of Forestry. They also take care of the sale of the plants to outsiders. The caretaker of the swimming pool has to take charge of the pool and in cleaning its premises and the changing weekly of its water. The eight laborers will be distributed as follows: two laborers to each nursery to help each nurseryman and the four to take care of the parts of the park forming the forestry campus, where most visitors congregate when they visit the campus and litter it a great deal in spite of the notices put up like "Keep the campus clean", "Use the garbage cans for refuse". The carpenters would be used for repairs of various buildings when this park is turned over to the University. This may also be used for the repairs of the present College buildings. The two campus guards, together with the two security guards, now under negotiations for transfer to the College of Forestry from the Bureau of Forestry, will be used on Sundays and holidays to direct the traffic of cars and buses to parking places, to keep peace and order during Sundays and holidays on the campus and for security and protection during ordinary days.

having interests in common with those of the College;

(8) Planning for the initiation of graduate study.

The contract extension proposes that there will be two visiting professors in Forest Products, one in Silviculture, one in Forest Economics, one in Photogrammetry, one in Forest Botany, one in Forest Administration, one in Forest Extension, one in Forest Pathology, and one in Forest Management. It is also proposed that there will be two participants in Forest Management, two in Silviculture, one in Forest Botany, five in Forest Products, one in Forest Administration, one in Photogrammetry, one in Pathology, one in Forest Extension, and one in Forest Economics.

Conclusion

There is no doubt that the Assistance Contract between the U.P. College of Forestry and Cornell University has been very beneficial. Conditions in the College have changed — for the better. Our government should then make it a point to have the contract renewal approved so that the College of Forestry will gain maximum returns from the funds and effort expended under the assistance program and thus be amply rehabilitated to meet the needs of the faculty and student body as regards up-dated instruction, training and opportunities for research in the different fields of forestry. Our forests are fast disappearing and we need more forest conservation men to check this forest depletion — and it so happens that it is only in the U.P. College of Forestry that technical foresters in this part of world are trained. — **End**

A Career in Forestry—for You?

The boy who chooses forestry chooses an honorable profession. He will be the guardian of a precious natural resource — his nation's forests. He will be a partner in their scientific management and use in order that his fellowmen may enjoy forests as an economic and cultural resource forever.

Could one ask for a more honorable task?

Forests are essential to the Filipino people. Forests provide housing, fuel and a great many products for everyday life. They are also the basis for a major industry that gives jobs to thousands of people and supplies the national needs for wood. At the same time, exports of logs and lumber earn foreign exchange necessary to balance the Philippine economy. Equally important, forests guard steep mountain watersheds, reducing floods and protecting the flow of water for power dams and irrigation of agricultural lands below. Forests are the most valuable "crop" for the rough steep lands so common in our country.

Is not the wise use of forests a worthwhile occupation?

A forester is the individual trained to carry on "scientific management" so forests may continue to produce the things we need. He knows about trees and soils and watersheds. He knows how to survey land, build roads and measure timber. He is trained to harvest wood in such a way that the forest renews itself and grows more products than it would if left wild and unmanaged. He also knows something about the use and milling of wood products, and some men are especially trained in this work. In addition to such technical matters the forester works continually with people. He supervises timber harvesting crews and forest workmen, and may direct organizations in government agencies and companies. He works with the general public to bring about appreciation of conservation and wise use of all natural resources.

He can say with the Puerto Rican foresters, "It is my pride and joy to be the shepherd of my country's trees."

The associates a boy will have in his life as a forester will include many distinguished men. Many foresters are highly respected public servants. In this country some foresters have also become known as industrial managers, authors, professors, deans, researchers, and directors of research institutes, as well as military officers, congressmen and even a cabinet member. In other countries foresters have also become prominent as scientists, conservationists, independent businessmen and consultants, university presidents and, in at least one case, president of his nation.

Such men are stimulating, exciting companions, both in learning and doing.

Moreover, a boy who makes forestry a career has a chance to make a name for himself. Some people may see only the hard work and routine side of field or office jobs. They may think that forestry is simply an easily applied set of rules.

That isn't so.

There are unknown areas — great areas of land and even greater areas of knowledge — that must be explored before the Filipino people can get full value from their forest resource. Someone, for example, must map out the different types of forest and forest land, and find the best ways to treat each. Someone is going to study the biology of forest trees — the secrets of their growth. Someone must organize methods to protect

and repair our damaged watersheds. Someone will discover new uses for our native trees, new chemical processes, more efficient ways to manufacture wood.

That someone could be you.

Can you think of a more significant or thrilling field for a qualified man to work in today? And we can assure you of this: The young forester will receive a hearty welcome in his profession. Foresters all over the world are noted for their good will and professional morale. We in the Philippines have a crying need for new people. The total number of technical foresters is less than 1,000. That is, only about one person in 24,000.

The shortage of foresters is acute and will become more so. The federal Bureau of Forestry, logging companies, plantations, wood manufacturing plants, and other businesses and agencies are hungry for well-trained, able foresters. Other Asian countries have asked for Filipino trained foresters.

A wide variety of specialties is available to the forester, according to his talents and training. For the man who likes out-of-door life and practical affairs, there is forest management — the planning and control of forest use, and protection. The man with mechanical or engineering abilities will find roads to design, logging equipment to supervise, and complex mill machinery to regulate. A forester is also concerned with the search for new uses of the forest production. Through such efforts portions of the tree now wasted may be converted into useful products providing employment and increased economic activity. Research and technical control call for the highest skills, especially in the new industries manufacturing plywood, hardboard and paper. In both industry and public service, the experienced man with administrative abilities will rise to managerial positions.

But this we warn you: A youngster has to be both competent and hardworking to get ahead in forestry or the related industries.

Naturally you would like to know the financial prospects for foresters. They range from modest to excellent. Beginning salaries are likely to be low but increases come, sometimes rapidly, with experience or special abilities. New graduates (B.S.F.) often start work in industry at ₱2,400 to ₱3,000 a year. This will range up to around ₱4,500 to ₱14,000 for logging or mill superintendents, and even higher for executive positions. Government pay scales are understandably less. Under the new WAPCO schedule a qualified forestry graduate may begin at about ₱2,700 a year. Salaries range upward to ₱8,000 or more at the division chief level. Some field positions in both industry and government include housing.

College teaching and research positions demand special aptitudes and often additional training. Salaries are likely to begin about ₱2,900 and may go to ₱10,000 or even above for mature professors and scientists with higher degrees. Occasionally, the young forester in this field has an opportunity for study abroad.

No matter which field of work a forester enters he can count on a high degree of security. Pension plans are general, positions are stable and personnel turnover is low. Furthermore, better conservation of natural resources and, especially, the great expansion of forest industries will provide many opportunities for rapid advancement. Best of all, foresters enjoy the respect of their fellow workers and the public at large.

As we said before, the greatest needs and opportunities are for well educated, competent men. Training begins before college. Have you done well in high school mathematics and English? Have you formed good study habits and a willingness to work at a new or difficult subject until you master it? Do stories about nature and science interest you?

If so, talk with your parents, your teach-

(Continued on page 66)

A CAREER IN . . .

(Continued from page 64)

ers and perhaps a nearby forester about a college education in forestry.

The College of Forestry of the University of the Philippines is located in Los Baños, Laguna, adjacent to the College of Agriculture and the new Forest Products Research Institute. Students take basic sciences, mathematics, languages and social sciences, followed by engineering and technical forestry subjects. A special curriculum in wood products is now planned for men entering forest industries. Satisfactory completion of the four-year program leads to the degree of Bachelor of Science in Forestry (B.S.F.) from the University of the Philippines.

You can get more information about the college and its entrance requirements by writing to—

The Secretary
College of Forestry
College, Laguna

Unquestionably a 4-year college education is expensive. The minimum cost for tuition, books, room and board runs about ₱1,000 a year. However, several scholarships from the University and private sources are available for outstanding students in need of assistance. Some students also earn part of their way by working outside of class hours.

While on the subject of education let us say this, too: A college education has such a high value, both in future earning power and in opportunity for a useful happy life, that qualified students should be willing to make considerable effort to begin. The sincere, intelligent student will often find unexpected help and encouragement along the way.

I will strive to raise my own body and soul daily into all the higher powers of duty and happiness, not in worship or contention with others, but for the help, delight, and honor of others and for the joy and peace of my own life.

—JOHN RUSKIN

• Literary Attempts •

A Young Ranger's Song

(To J. G.)

Come with me and be forever mine
Come sip with me Love's sweetest wine,
Come, every moment is a priceless treasure,
Every second, a joy beyond measure.

Let's sit upon this rock and wait for the moon
For sable Night, studded with stars'll be here soon
By the side of this fern-decked brook, a purling
Our thoughts of love and rapture a-swirling.

I will gather the jade vine's pendant flowers
And with vine and cane I'll make you beauteous bowers
'gainst sun and rain and mists and showers
Snuggled in my bosom, sleep away the hours

The blue of the sky and the rose of the dawn
The shimmer of the stars and the dew-pearled lawn
The sough of the wind, so soft and serene
Are all yours, all yours, my heart's only Queen.

The song of the brook racing to the sea
The quiet of the meadows, the silence on the lea
The dream of a lake looking up at the sky
Are ours to enjoy, all ours, you and I.

I would not change my lot with the riches of kings
Nor a minute of love for diamond rings
Your eyes, your smiles, your tears, your sighs
Your kisses are my priceless gems, my Paradise.

— TOTI BLANDO

Forest Conservation Through Dynamic Forestry Education

By LORENZO M. ESTRADA

The problem of educating the masses to appreciate the value of our forests and the necessity of conserving them for future generations needs a most urgent attention. While reforestation and selective logging have been resorted to to counteract forest destruction, we must admit with regret that our efforts at reforestation and conservation by selective logging have proven inadequate and ineffective to cope with the fast rate and big extent of tree destruction going on throughout the length and breadth of the land. While in the beginning we had to contend with the ignorant kainginero, nowadays the public enemies of our forests are intelligent, influential and "inspired." In telligent because they generally are literate and have had formal education and are leaders in their community. Influential because they have money and can be counted upon for votes. "Inspired" because they go at forest destruction with the fanatical zeal of one who has gone berserk for money. The kainginero because of his ignorance does not know the damage he is causing on the forest by his nomadic system of mountain agriculture. What he needs is someone to explain to him the bad effects that would result from his kaingin-making. In the past years, however, President Magsaysay's policy of "land for the landless" has emboldened the kainginero to be more ruthless and at times daring. His activity has become more rampant, and so destructive, that he no longer is afraid of the arms of the law so that what was intended as **land for the landless** has become **land for the lawless.** The persistent demand for release of forest lands for agricultural purposes is res-

ponsible for the tremendous forest destruction now going on in the country. People greedy for land no longer care about future generations as long as they can have their fill.

A visiting American forester of world renown said that our forests are among the best in the world but unless we take protective measures we are liable to lose them earlier and faster than we think. The old belief that we still have plenty of forests still persists. Not until every mountain has been disrobed of its green mantle, not until every mountain stream has dried up, not until the run-off after a torrential rain has gathered strength and volume to swell the rivers and threaten the valleys below with flood, will man learn. The Mabini tragedy took place not very long ago. It served as a stark reminder, for a time, but now the passing of years had erased the memories of the past, and once again kaingin-making has been resumed in the nearby mountains. The Bureau of Forestry entrusted with the care and protection of our forests is like a man with his hands tied at his back, helpless and inutile against politics.

We must admit that these destructions could have been prevented or minimized if the people only knew something about their forests, their important role in the daily life of man and in the progress and prosperity of a nation. How many of those men you meet on the street every day really know the importance of the tree in his daily life. To a good many, a tree is a tree, good for shade or firewood, and no more. The poor tree is taken for granted. The problem, therefore, of educating the masses must be taken seriously and the solution implemented as effectively and expeditiously.

The following are to my mind some of the ways of solving this perennial problem: In the first place, there should be a centralized agency, with sufficient funds from the Government, whose main function is to dessiminate basic forestry principles not only in schools but among the masses. The Community Development workers whose privilege has been to attend lectures on forestry principles and practices will serve as effective agents in the dessimination of forestry knowledge.

Introduction of forestry principles in the elementary grades. Elementary school children often have shown vandalistic tendencies in their treatment of trees. They climb trees, lop off the branches wantonly and recklessly, carve initials and figures on the tree trunks, drive nails into all parts of the tree, and in certain places set to fire the surrounding cogon areas and, more often than not, the growing trees or newly planted seedlings are totally destroyed in the holocaust. The only forestry lesson that these schoolchildren get is during the Arbor Week, but how many of these understand the speeches or poems or talks during the Arbor Day celebration, or how many of them really care to listen and learn. If the simple forestry principles are taught to these children as a part of the daily lessons so that they will learn early to appreciate the importance of trees, and thus learn to love them, there will be less tree destruction. Our trees along the roadsides, in the parks and schoolgrounds will be less molested. And we shall have lovelier looking trees around us.

A keener apreciation of the importance of trees will also make these schoolchildren take pride in the seedlings that they planted during the Arbor Week, and they will see to it that the young trees are watered and well taken care of, at least, during their stay in school.

Coming home from school, they will have a chance to tell their parents about man's faithful friends from the beginning of time. Greater are the chances for parents to listen to their children with interest than to the "montero" whom perhaps they meet once in a very, very blue moon.

Civic organizations like women's federations and clubs, the Jaycees, the Lions, the KC's, the Rotarians can join hands in

putting out a publication on forestry, on our local trees, both ornamental and commercial, etc., during Arbor Week give prizes for the loveliest looking school yard, the student whose trees is the best taken care of, the community with the best looking trees, etc. While it is true that some of these organizations have helped in forestry celebrations, there is still much to be desired and to be done. One cannot and should not have limits when it comes to taking care of trees.

A department of forestry extension should be created in the College of Forestry similar to that of the College of Agriculture, entrusted with the same task by disseminating forestry knowledge by publications, by talks and audio-visual media.

The DANR should coordinate all the activities of the different publications of its different bureaus and in order to attract young promising writers to handle these, it should offer not only good, but **excellent** pay so that the personnel will stay and give the best years of their lives to this kind of work.

The **Forestry Leaves,** organ of the Alumni and the Student Body of the College of Forestry for doing a yeoman's job should be given the whole-hearted support of all Bureau men, the financial support of the lumber companies and those engaged in forest products and the University of the Philippines.

WHEN THE FORESTS ARE GONE

By ANGELO G. MORDENO

While people still see forests around, only a few would ever think that a time will come when there will be no more forests. This idea really seems ridiculous especially to those who believe that our forests are inexhaustible. However, if we pause for a while and try to look back, we find that forest destruction dates back

SODALIS

Mt. Makiling, I behold you where now you stand
Above verdant fields and coconut palms
Your hoary head above the clouds
Watching us below, loyals sons of forestry
From distant places and a foreign strand

We love your forests broad whose charms
Lie in every tree, spring, brook and the tangling shrouds
Of pakpak lawin —laden branches and cascading vines
Overhanging trails and carpets of fallen leaves,— Nature's most beauteous tapestry

Here atop a ridge overlooking the quiet Bay Lake
Far from the din and throng of men
Far from the dash and rumble that cars and jeeps and buses make
Far from the glare and glitter of Neon signs
Here close to Nature, among the trees, we feel the burden
Of cares lifted tenderly.
Here we listen to the song of birds and the symphony
Of the breeze and the trees in bloom,
Here we dream dreams and weave with hope our future's loom.

— A.G. MORDENO — '59

thousands of years ago as shown by the man-made deserts, buried ruins, ever-spreading deltas, etc., that could be seen in any part of the world today. The lands once so fertile that they were called "Garden of Eden," "Gift of the Nile," and others, are now barren. During that time, population, although not as yet large as it is today, forest destruction was already known. How much more with the present, the world's population having increased to gigantic proportions and the use of land grown extensively. We have lived so long with our forests that we have often taken them for granted.

Man, of course, is the chief agent of forest destruction. Whenever population increases, especially at a tremendous rate, there is always that desire for lands, because it is in the nature of man to search for food in order to live. But the time will come when there will be more people than what the land can actually support. Then every piece of land will be used to produce food in the futile effort to feed the millions. Then the forests will not be spared and the future generation "can go to the dogs." No one can possibly prevent or minimize the destruction caused by man except man himself. He must be made to understand the value of the forests and their proper treatment so that with modern technology, they can be made to render more services than when they are cleared. However, the people have been so indifferent to the aims of forestry. Judging from their present attitude, it seems that the only way by which they could be made to understand and realize the paramount importance of forest conservation is for them to suffer first the consequences of timber famine.

Perhaps, we have not realized the increase of our population every year, nor have we realized the actual forest destruction and its effects on us. Statisticians say that our population is increasing at a rate of about 1.4 million people per year. On the other hand, we are losing annually forest areas at the rate of thirty thousand hectares. Our reforestation of one thousand hectares per year will never be able to catch up. In forty years, therefore, we will have over one million hectares of denuded areas, and only forty thousand hectares of reforested lands. Regardless of the exact figures, it is a fact that reforestation is losing its battle to deforestation. At present, we have over three million hectares of open lands which in addition to that estimated amount in forty years, already constitutes a very large portion of the total land area of the Philippines. Now, with our present population of about 24 million, increasing by 1.4 million every year, in forty years, the Philippines will be supporting eighty million people. Excluding the possible increases in the other years to come after forty years, eighty million people is eighty million and every square inch of land will have been cultivated by then. We cannot say that the 16 million hectares of forest land will be spared for there will always be a lot of kaingineros among the eighty million. Kaingineros have been forestry's No. 1 public enemy. If the present trend goes on, there is no denying the fact that the forests will disappear in the not distant future.

As a people, we need food, clothing and shelter among others. Without wood, other building materials like cement, metals, stones and others will be used for homes, although it can never compete with wood. This might be possible to those who can afford, but how about the poor? Then, without forests, what will become of the food and clothing problem? It has been said time and again that without forests there is no agricultural land. With the fertile lands turned by erosions into drifting sands, where shall we grow our crops? Water will always be a perennial problem. If even with the presence of forests our water supply has been dwindling, how much more without them? *(Continued on page 84)*

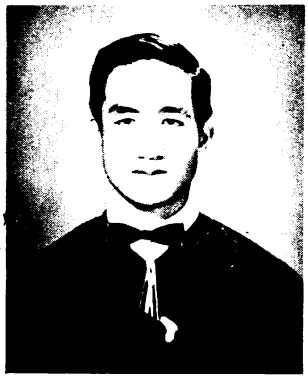
THE SENIOR CLASS

FLORENCIO P. MAURICIO
Adviser

ISIDRO T. ZAMUCO
College, Laguna
Ranger's Certificate — 1957
Delegate, Annual National College Student Conference to Baguio, 1955; President, Senior Class, 1958-'59; Supreme Fellow, Zeta Beta Rho, 1958-'59; Vice-Illustrious Fellow, Upsilon Sigma Phi, 1956-'57; Captain, Forestry Basketball Team, 1938; Los Baños Varsity Letterman, 1956-'59
Member: U.P. Los Baños Varsity Basketball Team, 1959

EMERSON B. ABRAHAM
Paniqui, Tarlac
Ranger's Certificate — 1957
Business Manager, Junior Class, 1957-'58; Vice-President, Senior Class, 1958-'59
Member: Zeta Beta Rho

ANDREW W. BACDAYAN
Sagada, Mountain Province
Ranger's Certificate — 1957
College Scholar, 1955-'56 (1st sem.); Insular Lumber Company Scholarship, 1957-'59
President, Forestry Student Body Organization (1957-'58); Freshman Class, 1955-'56 (2nd sem.); College Editor, 1959 Philippinensian; Associate Editor, Forestry Leaves, 1958-'59
Member: U.P. Beta Sigma Fraternity (Los Baños)



SABADO T. BATCAGAN
57 New Lucban Road,
Baguio City
Ranger's Certificate — 1957
Member: Beta Sigma Fraternity; Makiling Literary Club; Forestry Leaves Staff

ANDRES C. BLANDO
Sta. Maria, Pangasinan
Ranger's Certificate — 1957
Sgt.-at-Arms, Forestry Student Body Organization, 1956-'57; 1958-'59
Member: Corp of Cadet Officers, U.P. Los Baños, ROTC Unit; Beta Sigma Fraternity

NAPOLEON D. BUSA
Butuan City
Ranger's Certificate — 1958
PRO, Senior Class, 1958-'59; Business Manager, Freshman Class, 1955-'56
Member: Forestry Leaves Staff, 1958-'59; Forestry Football Team, 1958-'59

ESTEBAN S. CADAY
Laoag, Ilocos Norte
Ranger's Certificate — 1957
Delegate, 46th Annual Laymen's YMCA Convention, Manila, 1958; Business Manager, Sophomore Class, 1957; Treasurer, Ilocos Norte Varsitarians (Los Baños)
Member: Beta Sigma Fraternity, Zeta Beta Rho Fraternity

ROMULO A. DEL CASTILLO
Pangil, Laguna
Ranger's Certificate — 1957
Member: Zeta Beta Rho Fraternity

SIMPLICIO T. CASTILLO
Bacarra, Ilocos Norte
Ranger's Certificate — 1957
Member: Zeta Beta Rho Fraternity

SANSERN CHARERNSRI
246 Chulalongkosn Lane 3,
Bangkok, Thailand
Associate in Forestry, Kasetsart University — 1952
Member: Forestry Football Team; International Club, Los Baños Chapter; Thai Students' Association in the Philippines

NICOMEDES A. COLLADO
Jones, Isabela
Ranger's Certificate — 1958
Sgt.-at-Arms, Senior Class, 1958-'59
Member: Upsilon Sigma Phi; Zeta Beta Rho

IRENEO L. DOMINGO
Piddig, Ilocos Norte
Ranger's Certificate — 1957
Vice-President, Ilocos Norte (Los Baños) Varsitarian
Member: Beta Sigma Fraternity

ELPIDIO R. FABIAN
Bayombong, Nueva Vizcaya
Ranger's Certificate — 1958
Member: Beta Sigma Fraternity; Forestry Leaves Staff

ADOLFO L. GALAM
Solano, Nueva Vizcaya
Ranger's Certificate — 1955
President, Forestry Student Body Organization, 1958-'59; Vice-Chairman, Forestry UPSCA, 1955-'56 (1st sem.); Auditor, FSBO, 1955-'56 (1st sem.)
Member: Beta Sigma Fraternity; Committee on Management, Los Baños YMCA Branch, 1958-'59

JULITA A. GERARDO
Laoag, Ilocos Norte
Ranger's Certificate — 1957
Member: Makiling Literary Club; Sigma Beta Sorority; UPSCA (Forestry Chapter)

NARONG GRITTANUGULYA
466 Lab Lae, Uttaradith, Prae, Thailand
Associate in Forestry, Kasetsart University — 1952
Member: Forestry Football Team; International Club, Los Baños Chapter; Thai Students' Association in the Philippines.

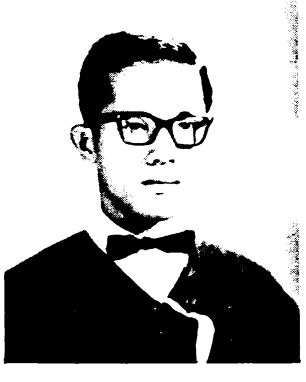
ENRIQUITO D. DE GUZMAN
1178 M. Blvd., Caridad, Cavity City
Ranger's Certificate — 1957
Student Assistant in Dendrology, 1957-'58; Fellow, Bursar, Zeta Beta Rho, 1957-'58; Fellow charge d'affaire, Zeta Beta Rho, 1958-'59; Rep. to FSBO, Senior Class, 1958-'59; Sports Editor, Forestry Leaves, 1958-'59; Treasurer, Junior Class Org., 1957-'58; Treasurer, Makiling Literary Club, 1958-'59
Member: Board of Management, Forestry Leaves, 1956-'57

TEOFILO M. LINDAYEN
San Carlos, Pangasinan
Ranger's Certificate — 1958
Member: Upsilon Sigma Phi; Zeta Beta Rho; Pangasinan Varsitarian Club

BENJAMIN C. MABESA
Baguio City
Ranger's Certificate — 1957
Member: Beta Sigma Fraternity

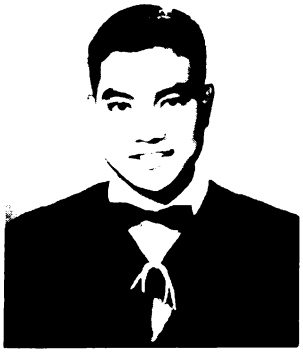
SEVERINO B. MOLINA, JR
Alcala, Cagayan
Ranger's Certificate — 1957
Member: Upsilon Sigma Phi; Zeta Beta Rho

ANGELO G. MORDENO
Jabonga, Agusan
Ranger's Certificate — 1957
Managing Editor, Forestry Leaves, 1958-'59; President, Junior Class, 1957-'58; Vice-Supreme Fellow, Zeta Beta Rho, 1958-'59; Secretary, Forestry Student Body Organization, 1957-'58; P.R.O., Makiling Literary Club, 1957-'58; Athletic Manager, Senior Class, 1958-'59; Representative, FSBO, 1955-'56
Member: Forestry Basketball Team, 1956-'58



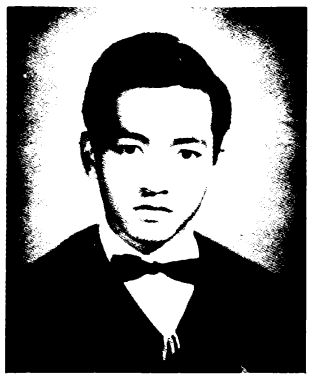
NICASIO N. MULATO
Ranger's Certificate — 1958
San Fernando, La Union
Editor-in-Chief, Forestry Leaves, 1958-'59; Treasurer, UPSCA, 1958-59; Auditor, Beta Sigma Fraternity, 1955-'56; PRO, Makiling Literary Club, 1956-'57; Beta Sigma Fraternity, 1958-59; Vice-Pres., La Union Varsitarians
Member: Board of Management, Forestry Leaves, 1956-'57

SANGA NETHIN
Royal Forest Department, Bangkok, Thailand
Associate in Forestry, Kasetsart University — 1952
Member: Forestry Football Team; International Club, Los Baños Chapter; Thai Students' Association in the Philippines.

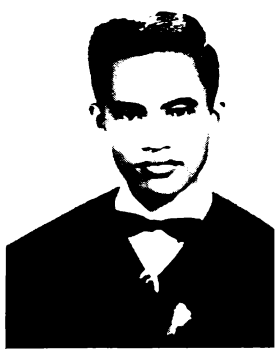


ELIAS A. ORANTIA
Infanta, Quezon
Ranger's Certificate — 1958
PRO, Freshman Class, 1955-'56;
PRO, Junior Class, 1958-'59
Member: Zeta Beta Rho

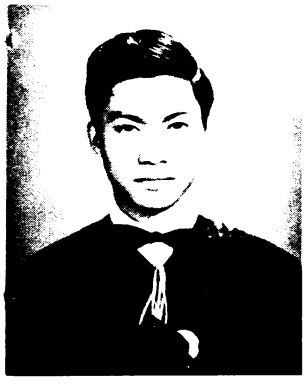
SATURNINO A. PONCE
Magsingal, Ilocos Sur
Ranger's Certificate — 1957
Sgt.-at-Arms, Senior Class, 1958-'59
Member: Beta Sigma Fraternity



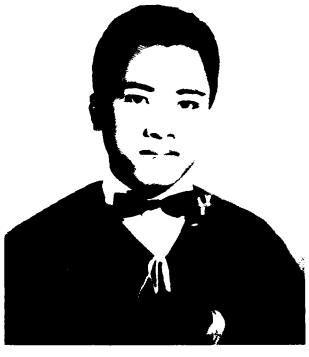
RODOLFO M. QUITOLES
Bayombong, Nueva Vizcaya
Ranger's Certificate — 1957
Vice-Illustricus Fellow, Upsilon Sigma Phi, 1957-'59; News Editor, Forestry Leaves, 1958-'59; Business Manager, Senior Class, 1958-'59
Member: Makiling Literary Club



ROBINSON A. RAIZ
San Mateo, Isabela
Ranger's Certificate — 1957
Auditor, Senior Class Organization, 1958-'59; Auditor, Junior Class Organization, 1957-'58
Member: Zeta Beta Rho



BENEDICTO T. REPRADO
Cordon, Isabela
Ranger's Certificate — 1957
Member: Beta Sigma Fraternity



EMILIO A. ROSARIO
Raois, Vigan, Ilocos Sur
Ranger's Certificate — 1958
Treasurer, Senior Class, 1958-'59
Member, Zeta Beta Rho

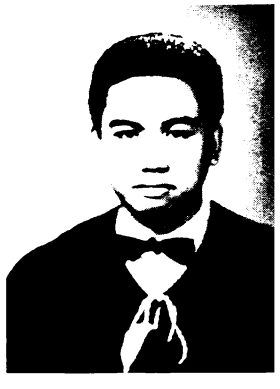
FLAVIANO G. SARDIÑA
Binalonan, Pangasinan
Ranger's Certificate — 1958
Secretary, Senior Class, 1958-'59
Fellow: Zeta Beta Rho; Upsilon Sigma Phi

FRANCISCO M. SOLARTA
Mariraya, San Antonio, Samar
Ranger's Certificate — 1958
Rep. to FSBO, Junior Class, 1957-'58
Member: Zeta Beta Rho

TRAGARN SUPMANEE
84 Suan Yai, Mandhaburi, Thailand
Associate in Forestry, Kasetsart University
Member: International Club

FLORENTINO O. TESORO
Sto. Domingo, Ilocos Sur
Ranger's Certificate — 1957
Vice-President, Forestry Student Body Organization, 1958-'59; Ass't Bus. Manager, Forestry Leaves, 1958-'59; Auditor, Forestry UPSCA, 1958-'59
Member: Beta Sigma Fraternity; Makiling Literary Club; Zeta Beta Rho

AMPHOL UTTHANGKORN
No. 97 Bamrong Muan Road
Bangkok, Thailand
Associate in Forestry, Kasetsart University
Member: Forestry Football Team; International Club, Los Baños Chapter; Thai Students' Association in the Philippines.



ARMANDO A. VILLAFLOR
Infanta, Quezon
Ranger's Certificate — 1957
Representative, Junior Student Council, 1957-'58; Junior Rep. to U.P. Student Council, 1957-'58; Representative to Senior Council, 1958-'59; Auditor Forestry Student Body Org. 1956-'57
Member: Upsilon Sigma Phi; Zeta Beta Rho

President Sinco listens with interest to Dean Zamuco's explanation for the need of renewing the ICA-NEC Program.

President Sinco at a merienda given by Dean Gregorio Zamuco, "What's this? I just came from another party . . . and here, we are at it again . . ."

Party given by Sec. Juan de G. Rodriguez at his Manila residence on March 7, 1959 in honor of FAO Director General B. R. Sen. Among the guests were: Director Benjamin Gozon, Bureau of Mines; Actg. Director Anacleto Coronel, Bureau of Animal Industry; Asst. Director Vicente Tordesillas, Bureau of Lands; Mr. Peregrino Quinto, Gen. Manager, Phil. Tobacco Adm.; Director Alicante, Bureau of Soils; Atty. Salvador F. Cunanan, Asst. to the Secretary, DANR.

THE JUNIOR CLASS

FILIBERTO S. POLLISCO
Adviser

JOSE A. ACAIN
Binalonan, Pangasinan
P.R.O., Junior Class Org.
Member: Upsilon Sigma Phi; Zeta Beta Rho

ROMEO B. AGLEAM
Vigan, Ilocos Sur
Member: UPSCA

CRISOSTOMO V. ARENAS
Sampaloc, Manila
Member: UPSCA

BIENVENIDO C. AREVALO
Sta. Cruz, Laguna
Member: Forestry Leaves Staff

CESAR A. ARROYO
Basilan City
Treasurer, Student Body Org.; Fellow Whip, Zeta Beta Rho
Member: Basketball Team

JOSE O. BANIQUED
San Quintin, Pangasinan

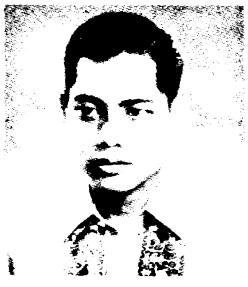
BIENVENIDO S. BARCARSE
Camalaniugan, Cagayan
Treasurer, Sophomore Class, 1957-'58
Member: Beta Sigma Fraternity

EDILBERTO Z. CAJUCOM
Sta. Clara, Basilan City
Vice-President, Junior Class, 1958-'59; Fellow Fiscalizer, Zeta Beta Rho, 1958-'59; Business Manager, Forestry Leaves, 1958-'59

ROBERT CHOY
Tondo, Manila
Chairman, UPSCA (Forestry Chapter), 1959-'60
Member: Beta Sigma Fraternity

JESUS T. COROTAN
Laoag, Ilocos Norte
P.R.O., Sophomore Class, 1957-'58
Member: Beta Sigma Fraternity

RUFINO C. DORADO
Borongan, Samar
P.R.O., UPSCA; Cdt. Officer, U.P. Los Baños, ROTC Unit, 1957

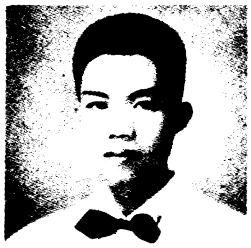


ISIDRO ESTEBAN
Vigan, Ilocos Sur
Member: Zeta Beta Rho; Forestry Leaves Staff; Makiling Literary Club

ROGELIO GONZALES
Lambunao, Iloilo
Member: Vis-Minda Varsitarians Club; UPSCA

CESAR R. GUTIERREZ
San Carlos, Pangasinan
Member: Zeta Beta Rho Fraternity

PERFECTO F. LACUESTA
Buer, Aguilar, Pangasinan
Member: Beta Sigma Fraternity



JOSE L. LECHONCITO
Lambunao, Iloilo
Member: Vis-Minda Varsitarians Club

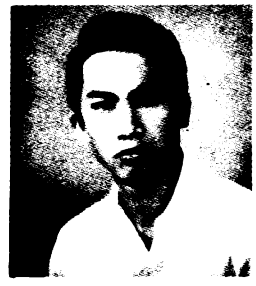
ADELA RIMBON
Los Baños, Laguna
Society Editor, Forestry Leaves
Member: UPSCA

JUSTO P. ROJO
Pondol, Calamba, Cebu
Fellow Whip, Zeta Beta Rho Fraternity, 1959-'60

BIENVENIDO R. ROLA
College, Laguna
President, Junior Class; Secretary, Zeta Beta Rho; Athletic Manager, FSBO
Member: Forestry Leaves Staff; U.P. Varsity Basketball Team

ROMEO S. SALVADOR
San Jose St., Zamboanga City
Treasurer, Student Body Org., 1957-'58; Zeta Beta Rho

ERNESTO V. SEGURITAN
Cabugao, Ilocos Sur



CONSTANTE B. SERNA
Cabugao, Ilocos Sur
Member: Upsilon Sigma Phi

BERNARDO C. SINUES
San Manuel, Pangasinan
Business Manager, Pangasinan Varsitarians

MARCELO UDARBE
Sandakan, North Borneo
Member: Beta Sigma Fraternity; UPSCA

ROMULO R. VALERIO
Binalonan, Pangasinan
Secretary, Junior Class Org.
Member: Zeta Beta Rho; UPSCA

ROBERTO G. DE VERA
Magtaquing, Bugallon, Pangasinan
Member: Beta Sigma Fraternity

AVELINO G. VERACION
Ballesteros, Cagayan
Member: Beta Sigma

Not pictured:

H. T. Achanzar, F. S. Arcangel, A. T. Asuncion, I. K. Bulacan, O. B. Cadeliña, B. A. Calabia, A. D. Cañete, M. S. Cortes, A. S. Decena, V. X. Dinh, D. B. Endangan, L. M. Estrada, L. O. Lee, B. M. Macabata, N. N. Mulato, H. R. Organo, W. S. Pollisco, T. A. Talaro, D. T. Tran, F. D. Virtucio.

THE SOPHOMORE CLASS

Dr. ARTEMIO V. MANZA
Adviser

FLORENTINO R. ANDAYA
Cordon, Isabela

MARCELINO D. BAUTISTA
Camiling, Tarlac

ATILANO A. CABASUG
Cabugao, Ilocos Sur
President, Ilocos Sur, Abra Student Organization
Member: Zeta Beta Rho

LARRY N. CAYAYAN
Fabrica, Negros Occidental
Member: UPSCA; Basketball Team

ROGELIO COSICO
San Pablo City, Laguna
Member: Zeta Beta Rho Fraternity; Forestry Leaves Staff; Makiling Literary Club

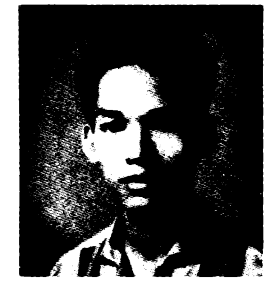
LARRY B. CULILI
Fabrica, Negros Occidental
Member: UPSCA; Model Company; Panay, Negros Students Organization

ROBERTO N. DUMO
Bonfal, Nueva Vizcaya
Member: Beta Sigma

CARLOS N. EMPEDRAD
Iguig, Cagayan
Member: UPSCA

MOISES Q. ESTRELLA
Tuburan, Cebu
Vice-Pres., Sophomore Class Org.; Treasurer, UPSCA
Member: Zeta Beta Rho

GREGORIO R. FABIAN
Anda St., Bayombong, Nueva Vizcaya

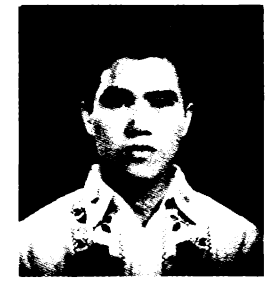


PANTALEON G. FORTUNADO
Infanta, Quezon
Member: Zeta Beta Rho

CARLOS GLORI
Bangued, Abra
Associate Editor, Forestry Leaves, 1958-'59
President, Makiling Literary Club

FRANCISCO F. GUZMAN
Piat, Cagayan
Member: Beta Sigma

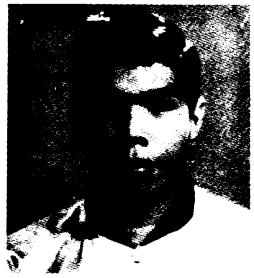
VIDAL T. LLACUNA
Laoag, Ilocos Norte
Member: Beta Sigma; ROTC Band



SOFRONIO F. MAGBANUA
Fabrica, Negros Occ.
Member: UPSCA; Southerner's Club

MELCHOR L. MAGSANOC
Laoag, Ilocos Norte
Rep. to SBO, Freshmen Class, 1957-'58

FRANCISCO MANAOG
Abuyog, Leyte
Member: Vis-Minda Varsitarians Club



APOLINARIO C. MARQUEZ JR.
Forestry Campus, Laguna
U.P. Los Baños Student Tennis Champion

PETRONILO MUNEZ
Butuan City
Fellow Whip, Zeta Beta Rho, 1959-'60
Member: UPSCA; Forestry Basketball Team; Soccer Team; Track-Field Team

APOLINARIO M. PAEZ
Butuan City
Member: Beta Sigma; Model Company

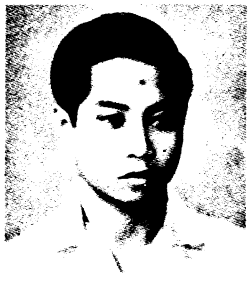
FEDERICO RAMOS
Dingras, Ilocos Norte
Member: UPSCA; I.N.S.A.

LUCRECIO L. REBUGIO
Laoac, Manaoag, Pangasinan
Member: Zeta Beta Rho; UPSCA

ALEXANDER A. REQUINA
Lopez, Quezon
Member: UPSCA; Que-Mar Varsitarians

ADOLFO REVILLA JR.
Dingras, Ilocos Norte
Member: Zeta Beta Rho
Secretary, FSBO, 1958-'59
Sophomore Class, 1958-'59

PETE SAN PEDRO JR.
San Juan, Rizal
Member: Basketball Team; Football Team; Los Baños Varsity Basketball Team
Manager, U.P. Los Baños Student Tennis Champion



ERNESTO E. SANTOS
Manila
Member: Beta Sigma

BIENVENIDO E. TOLENTINO
San Jose, Occ. Mindoro
PRO, Freshmen Class Org., 1957-'58

ERNESTO M. TREMOR JR.
Sto. Domingo, Ilocos Sur
Member: Beta Sigma; UPSCA; Ilocos Sur-Abra Student Association

EDILBERTO UNITE JR.
Ballesteros, Cagayan
Fellow Herald, Zeta Beta Rho Fraternity, 1959-'60
Member: Forestry Basketball Team; U.P. Los Baños Basketball Team; U.P. Varsity Team

BUENAVENTURA C. VIDAD
Incangan, Dupax, Nueva Vizcaya

ELPIDIO A. VILLANUEVA
Davao City
Bus. Mgr., Freshmen Class, Org., 1957-'58; Treasurer, UPSCA, 1959-'60
Member: Beta Sigma

THE FRESHMAN CLASS

Dr. ARTEMIO V. MANZA
Adviser

SAMUEL A. AZARES
Raois, Vigan, Ilocos Sur

CONRADO P. BACENA
Tuao, Bagabag,
Nueva Vizcaya

AUGUSTO M. BLANDO
U.P. Diliman, Quezon City
Vice-Pres., Freshmen Class
Member: UPSCA; Basketball Team; Los Baños Varsity Basketball Team; Letterman, Los Baños Varsity

GUILLERMO M. CABAÑERO
Laoag, Ilocos Norte
Member: ROTC Band

BRIGIDO A. DE LA CRUZ
Santa Maria, Ilocos Sur
Member: Model Company; Makiling Youth Club; Ilocos Sur-Abra Varsitarians Association

ERICO T. ENRIQUEZ
Margosatubig, Zamboanga del Sur

TANCIANO G. FELIAS
Nasipit, Agusan

ANGEL M. GARCIA
Mangaldan, Pangasinan

AL RASHID H. ISHMAEL
Bus-bus, Jolo, Sulu

SATURNINO O. MACARAEG
Sta. Maria, Pangasinan

PEPITO M. MENDOZA
Dagupan City

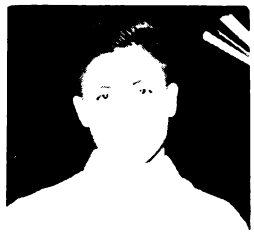
VIRGILIO A. OCHINANG
Lipit, Manaoag, Pangasinan
Member: UPSCA

BERNARTE B. OLLERO
San Nicolas, Pangasinan

MARIANITO N. PASTOR
Cordon, Isabela

ANICETO S. PAVO
Palina, Urdaneta,
Pangasinan

RODOLFO R. PILAR
Raois, Vigan. Ilocos Sur



DOMINADOR T. DEL ROSARIO
Alcala, Cagayan
Pres., Freshmen Class Org.
Member: UPSCA; Volleyball Team; Softball Team

SANTOS S. SABIO JR.
Cabugao, Ilocos Sur

BERNARDO D. SAYGO
Cordon, Isabela

TERENCIO P. TALOMA
Tayum, Abra
Member: UPSCA

ALERTO E. TREMOR
Sto. Domingo, Ilocos Sur

CALITO P. VERTUDES
Sto. Domingo, Ilocos Sur

Not pictured:

A. C. Acoba, R. V. Aguilar, A. C. Agustin, R. C. Agustin, D. S. Alonzo, E. A. Alvarez, A. L. Aranas, T. R. Ay-yad, M. P. Bandong, J. C. Baranda, I. V. Barongan, F. S. Barrozo, D. L. Bartolozo, A. E. Bertuso, B. O. Bisuña, R. C. Boada, A. B. Boado, E. F. Brillos, P. C. Buen, E. T. Buenafe, S. T. Burgos, R. D. Bustillo, V. F. Cacdac, T. P. Calora, I. E. Camello, E. U. Candelario, B. C. Cariño, P. L. Cayabyab, M. E. Corpuz, R. P. Crisostomo, B.B. Dacanay, O. N. Dagdayan, P. U. Dasig, F. M. Dasilao, R. L. Delgado, O. D. Dispo, I. M. Domingo, R. A. Dormendo, C. G. Duruin, M. N. Ebuña, S. M. Enerva, F. B. Enrile, C. G. Ewoc, T. V. Fernandez, S. D. Festin, D. B. Figarola, U. G. Gabot, C. M. Galvez, Q. V. Gellidon, M. L. Generalao, F. A. Gines, O. U. Gonzales, C. V. Gulmatico, O. M. Hamada, E. E. Hermosura, G. P. Jamera, G. L. Lacuesta, R. M. Lanciola, A. C. Laureta, N. F. Llavore, M. A. Lomerez, F. C. Lozano, M. R. Madamba, S. B. Maghanoy, L. B. Magtira, B. D. Malto, V. V. Martinez, M. H. Mendoza, F. L. Mendoza, D. L. Mong, I. E. Nalupa, R. S. Orsolino, D. G. Padre, C. P. Paed, R. E. Pagulayan, P. Pangcoga, R. N. Pascasio, I. G. Patague, F. A. Peralta, U. R. Pilar, D. P. Pinaroc, S. C. Privado, L. M. Quitoles, B. P. Ramirez, S. S. Rañeses, W. I. Reboton, S. E. Reyes, H. C. Salapang, A. P. Sangalang, S. S. Savellano, J. B. Seguerra, V. V. Serquiña, I. R. Serrano, W. A. Solis, D. A. Soriano, J. L. Tacugue, J. T. Taeza, T. P. Taloma, L. T. Tobias, E. D. Tongacan, A. E. Tremor, R. L. Valencia, H. T. Velez, C. P. Vertudes, R. F. Villadelgado, N. Q. Zaballa, D. S. Zaragoza.

CLASS ORGANIZATIONS

The Senior Class Organization with Dr. C. E. Farnsworth, Dr. R. E. Pentoney, Dir. E. de la Cruz, Dean Zamuco, Dr. Carl De Zeeuw, Dr. E. Stone Jr., and Mr. M. Mauricio, Class Adviser.

The Forestry Student Body Officers. Sitting from left to right: I. Esteban, Jr. Rep. to UPSC; A. Galam, President; Dir. E. de la Cruz, Adviser; F. Tesoro, Vice-President; A. Bacdayan, Sr. Rep. to UPSC.
Standing same order: C. Lantican, Auditor; C. Arroyo, Treasurer; A. Blando, G. Turgo, Sgt.-at-Arms; A. Canete, Rep. to the Phil. Collegian.

The Officers of the Sophomore Class Organization with Dr. A. V. Manza, Class Adviser.

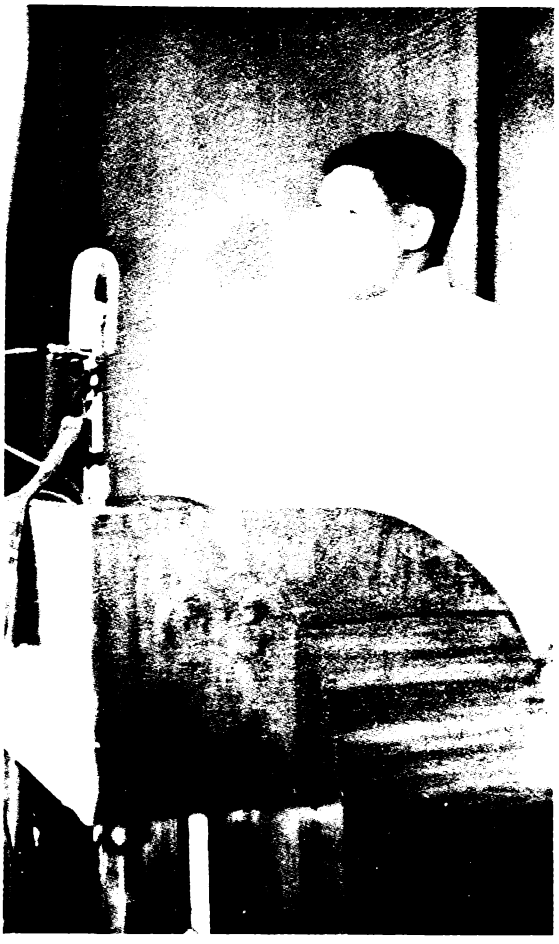
The Vigilance Committee: Sitting from left to right: I. Gonzales, A. Revilla Jr., D. Faustino Jr., Dr. A. V. Manza (Adviser), N. Dalangin, M. Lickiayo, B. Vidad. Standing same order: I. Aspiras, S. Martin, S. Cruz, E. Unite Jr., M. Tandoc, C. Estrella.

The Silvicultural Class under Prof. Delizo in one of the reforestation projects in the Ilocos Region.

The Sophomore Class Organization with their Adviser, Dr. Artemio V. Manza.

FORESTRY DAY SCENES

Dean Zamuco introducing Hon. Amando Dalisay, 17th Forestry Day speaker.



Undersecretary Dalisay delivering his address during the 17th Forestry Day held November 30, 1958.

Miss Amelita Amor of the U.P. Conservatory of Music thrills the audience with a vocal rendition.

Mr. Zoe Lopez accompanied on the piano by Miss Mauricia Borromeo.

Portion of the audience during the 17th Forestry Day Convocation program held on Nov. 30, 1958 at the College auditorium.

Undersecretary Dalisay laying a wreath at the cenotaph as Dir. Cruz and Adolfo Galam, SBO Adviser and President respectively, look on.

A portion of the audience singing "Men of the Forest We".

The guest speaker chats with Dr. and Mrs. Farnsworth after the convocation.

The Guest Speaker with Dean Zamuco and Assistant Dean Santos (C.A.) and some members of the College of Agriculture Faculty on their way to the College of Forestry Auditorium.

HERE & THERE

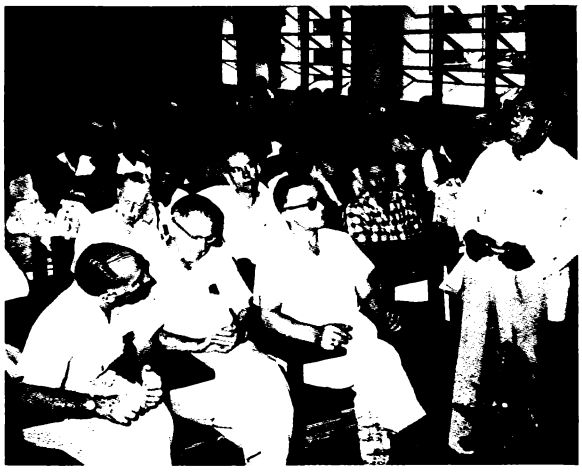
Faculty members and employees of the College of Forestry, College of Agriculture and U.P. Rural High School taking their oath before President Vicente Sinco during the Constitution Day Program held February 8, 1959.

The Forestry Float that participated during the Opening Parade of the Vigan Carnival and Fair held January 20, 1959. Standing at left is Dist. Forester Bernabe Zumel.

COLLEGE SCENES

The guest speaker with Dean Zamuco, Dr. Hunt, Dr. Stone Jr., Dr. Farnsworth, Dr. Zehngraff and Dir. Cruz.

Dr. Thomas Gill, forest policy expert delivering an address before the faculty and student body of the College of Forestry at a special convocation held on January 22, 1959.



Dir. Eugenio de la Cruz asking Dr. Gill a question on forest policy.

Dean Zamuco congratulating Dr. Gill after his address on World Forestry and Foresters.

• College Notes •

MOVING-UP DAY PROGRAM SLATED MARCH 19-21

The Moving-Up Day Celebration is slated tc day March 21 as decided upon by the College of Forestry SBO in a meeting held last Feb. 5 with the SBO President, Adolfo Galam, presiding.

The celebration, a tradition in the College of Forestry held annually before the end of the school year, was decided to be a colorful one this year. A committee, formed by the president himself, decided on the following program of activities that will surely make the celebration a success:

March 19, 1959 (Thursday)
- 8:00-10:00 a.m. — "Hobo" hike (From Calauang to Forestry Campus).

March 20, 1959 (Friday)
- 8:00-12:00 a.m. — Athletic games
- 1:00- 5:00 p.m. — Athletic games
- 7:00-10:00 p.m. — Oratorical and Spanish Declamation Contests under the auspices of the Makiling Literary Club. (Makiling Nat. Park Pavilion).

March 21, 1959 (Saturday)
- 8:00-10:30 a.m. — Open House (College of Forestry and College Dormitories)
- 9:00-10:00 a.m. — Registration of Alumni (College of Forestry Building)
- 10:30-12:00 noon— Luncheon (By Invitation) College of Forestry Building
- 1:00- 4:30 p.m. — Joint U.P. Forestry Alumni Association and Society of Filipino Foresters Annual Meeting.
- 8:00-12:00 p.m. — Graduation Ball

Different committees were formed to help make the celebration a successful one.

— Dizon, E. G.

* * *

COLLEGE FACULTY BID GOODBYE TO THE FARNSWORTHS AND PENTONEYS

The College of Forestry faculty gave a despedida party for Dr. C. Eugene Farnsworth and Dr. Richard E. Pentoney and their families at the College auditorium last March 7, 1959. Dr. Farnsworth and Dr. Pentoney will leave for the United States on March 17 and 25, respectively, after having completed their 1½ year-stay in the Philippines under the U.P. College of Forestry-Cornell Contract. They were the first exchange professors who were sent to the Philippines under the contract that began last year.

The "salo-salo" was also a welcome party for the De Zeeuws who arrived recently. Dr. De Zeeuw will replace Dr. Pentoney and Dr. Farnsworth and will be with the College faculty together with Dr. Earl Stone, Jr. for another contract year.

A program emceed by Prof. Recto was held after the dinner. Short talks were heard from the honorees in between musical and dance numbers. The Forest Products Research Institute presented a piano selection by Miss Marietta Agcaoili, a "Salakot" Dance and the popular "Tinikling" performed by FPRI personnel children, and a vocal solo by Mrs. Zaraus. Hidden talents among the College faculty were also discovered when Prof. Delizo played the guitar, Virtuoso style and Miss Jessie Taleon sung "Pakiusap" and "Bakit Ako Naulila". The local UPSCA chapter presented a folk dance called "Surtido" while Philippine folk songs were played for the visiting professors and their families. Not to be outdone, the ladies of the visiting professors presented a special number. They sung "Juanita" and "The More We Get Together" to the delight of the audience.

Mrs. Zamuco presented the gifts of the faculty to Mrs. Farnsworth and Mrs. Pentoney. Dean Zamuco delivered the closing remarks expressing his gratitude on behalf of the faculty for the accomplishments that the two professors had done for the College.

—A.G.M.

* * *

SENIORS HONOR VISITING PROFESSORS

The Senior Class Organization of the College of Forestry honored the Farnsworths, the Pentoneys, and the De Zeeuws with a party held at the Forestry roof garden last March 6, 1959. The Pentoneys will be leaving for the United States via Hongkong and Japan on March 17, while the Farnsworths will leave on March 25 for Europe before proceeding to the United States. Dr. Carl De Zeeuw and his family arrived recently to replace Dr. Farnsworth and Dr. Pentoney who have just completed their

1½ year stay in the Philippines under the U.P. College of Forestry-Cornell Contract. Dr. De Zeeuw will be with the College faculty together with Dr. Earl Stone, Jr. until next year.

A short program was held emceed by Julie Gerardo. Short talks were heard from the visiting professors and their ladies, while surprise numbers were also presented by some members of the class. The Pentoneys and the Farnsworths said that they really enjoyed their stay here and expressed their unwillingness to go were it not for their job at Syracuse.

The party ended with Dean Zamuco delivering the closing remarks followed by the singing of "Auld Lang Syne".

—*A.G.M.*

* * *

LUMBERING CLASS TO LLAVAC

The Lumbering I class under Dean Zamuco went on an educational field trip to Llavac, Infanta, Quezon last February 23 to 25, 1959.

Aboard 2 buses, the students left the campus at 5:30 early in the morning headed by the dean & lumbering instructors Leonardo Angeles & Juanito Lamanilao. They made their first stopover at Paete where they observed the rafting of logs of the International Hardwood & Veneer Co. of the Philippines. The logs, to be rafted from Paete to Manila gave the boys a first hand information on that particular subject of their lumbering course. To keep up with their limited time, the class proceeded immediately to Llavac after having finished their field studies at Paete. The boys had barely shaken off the dust when they started taking lecture and orientation notes around the sawmill areas. The following day, Feb. 24, they made a round-up of the logging operations inside the Int. Hardwood & Veneer Co. of the Philippines. They observed the kinds of logging operations & sawmilling employed by the mill. On Feb. 25, a part of the class went out to the logging area while the others remained in the sawmill areas. Those who went out made a survey of the sawmill sites, the buildings, & made plans of these. All observations, lectures on logging operations & sawmilling were accomplished before noon of that day. The students had a little break after taking their meal & then went home after 30 minutes. They arrived home at about 4.30 p.m., tired & worried about the busy days ahead for their report on the trip.

--*Dizon, E. G.*

* * *

SEND LECTURES ON AERIAL PHOTOGRAMMETRY BEFORE FSBO

The College of Forestry, through the efforts of the Visiting American Professors, requested Mr. Bernfard Send, a German photogrammetrist to lecture on the basic fundamentals of aerial photogrammetry before the U.P. College of Forestry students. The lecture was held at the College auditorium last January 12. Mr. Send introduced the principal equipments needed in the practice of Photogrammetry. He briefed the students on the importance of the subject to land demarcation, cadastral surveys, road locations, and on other fields of surveying. He said that photogrammetry is very important to forestry because it accelerates land classifications at less expense. The German photogrammetrist was applauded by the audience when he illustrated the process of getting heights of trees or any objects whose heights are to be taken.

After briefing the students, he showed pictures of the various instruments used in Photogrammetry, after which, a movie illustrating the process of taking aerial maps and pictures, developing of films, procedure in locating contour lines, and adjustments of errors and distortions were shown. Location of control points was also shown and explained. Mr. Send entertained questions propounded by the enthusiastic audience.

Meanwhile, the Dean of the College of Forestry said that the College will offer Photogrammetry probably next school year. He disclosed that a $10,000 worth of Photogrammetry instruments and equipments have been requested. He said that the instruments are expected to arrive sometime this year. The Dean disclosed however, that Photogrammetry when offered next school year will be an elective subject.

—*L. M. Estrada*

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WOOD TECH 3 CLASS HOLDS TRIP

The Wood Tech 3 (Wood Preservation) class visited the Atlantic, Gulf and Pacific Co. of Manila, located at Farola, North Harbor, Manila last February 14.

The Class, under Prof. R. Cortes, was met by Forester Bernardo Burgos, an alumnus of the College, who led the tour around the wood-treating plant. The class was afforded a first-hand observation on the treatment of logs and lumber; creosote-treatment and Wolman salts-treatment operations.

Professor Caesar Recto, the secretary of the College, and Mr. Domingo Lantican went also with the class.

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LITERARY-MUSICAL PROGRAM

Students from the College of Agriculture grabbed the lion's share of the top prizes during the literary-musical program held last Nov. 29,

1958 at the Forestry auditorium in connection with the 17th Forestry Day. Except for the musical contest which was won by D. Faustino, Jr., all other contests were won by Aggie students.

In the declamation contest, Ariel Arias romped away with the gold medal with "Man with the Hoe" while Buddy Batcagan and Rosie Villadelgado, both forestry students, won the silver and bronze medals, respectively.

Miss Remedios Cinense won the gold medal in the oration contest while Carlos Glori and D. Faustino, Jr. won the 2nd and 3rd prizes, respectively.

June Faustino's interpretation of "I'm a fool to want you" won for him the gold medal in the musical contest. The silver medal went to Miss Ruth Botor representing the Sigma Beta sorority.

—*N. D. Busa*

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SILVICULTURE CLASS FIELD TRIP TO THE NORTH

The silviculture class under Prof. Teodoro Delizo held an education tour to the Northern provinces which include Ilocos Sur, Baguio and Ilocos Norte last Dec. 23-28. This trip was undertaken in connection with the study of nurseries and plantations.

The class visited reforestation projects and nurseries among which are: Kennon Road Nursery, Pacdal Nursery and Plantation in Baguio City, Tumedtedted Nursery in Ilocos Norte, Nueva Era Reforestation Project in Nueva Era, Ilocos Norte, and the Caniao Reforestation Project in So. Caniao, Bo. Paing, Bantay, Ilocos Sur.

The trip was highlighted by lectures of District Foresters of the different districts visited, and those of the foresters-in-charge of the various nurseries and reforestation projects. The class was also feted with dances in some of the places visited and basketball games were also played. The Silviculture team composed of Unite, San Pedro, Barrairo, Faustino, Dumpit, Generalao, Tremor, Cruz and Paez had "swell" games in some of the places visited.

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FORESTRY CHRISTMAS PROGRAM

The Student Body Organization celebrated Christmas with a program last December 20, 1958 at the Forestry auditorium. Different contests were held and every participant won a prize due to the great number of prizes donated mostly by the students.

In the skit contest, the Junior Class was declared winner with their antics that kept the audience rolling in the aisles with laughter. The Seniors and Freshmen won the 2nd and 3rd prizes, respectively.

The Juniors again won the carol singing contest followed closely by the UPSCANS, Freshmen, Seniors, Betans and Rhoans.

In the lantern contest, the Freshmen won the top prize while the Zeta Beta Rho Fraternity was second. The Juniors, UPSCANS, and the FORESTRY LEAVES got the next three highest places.

However, the UPSCANS almost stole away the show from the other participating groups with their well-rehearshed special numbers. Their much-applauded numbers were the folk dance and the pageant about the birth of Christ.

—*N. D. Busa*

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COLLEGE FRATERNITY ELECTS OFFICERS

In a recent meeting, the Zeta Beta Rho Fraternity of the College of Forestry elected its new set of officers for the school year 1959-60. Jess Rola and Eddie Cajucom were chosen Supreme-Fellow and Vice-Supreme Fellow, respectively, replacing Sid Zamuco and Angie Mordeno. Other officers elected were: Bernie Sinues, Fellow Scribe; Will Pollisco, Fellow Charge d'Affaires; Moises Estrella, Fellow Bursar; Romie Salvador, Fellow Fiscalizer, Eddie Unite, Jr., Fellow Herald; Pete Munez and Justo Rojo, Fellow Whips. Dr. Artemio V. Manza was unanimously elected Fellow Adviser.

Meanwhile, the fraternity decided to give a despedida party for the graduating brods. Graduating this year are: A. Abraham, E. Caday, R. Castillo, S. Castillo, N. Collado, E. de Guzman, T. Lindayen, A. Mordeno, E. Orantia, E. Rosario, F. Sardina, F. Solarta, F. Tesoro, A. Villaflor, and Sid Zamuco.

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DILIMAN SELECTION UPSETS FORESTRY FIVE — 79-73

The Diliman selection after a late rally in the second half of play defeated the College of Forestry team 79-73 last Nov. 30, 1958 at the Forestry basketball court. The Diliman five, composed of selected players from the different colleges in Diliman had a poor start during the first half of play but they rallied some five minutes before guntime and defeated the forestry five. This was the second setback suffered by the local team in the hands of the Diliman quintet.

In the early part of the game, the forestry team jumped to an early lead 20-12 with the combination of Unite, San Pedro, and Blando going on a scoring rampage. At this juncture, the Diliman team tried to keep abreast with a

combination of Jorge, Solivar, Payumo and Saddul but Blando, Marquez, Zamuco and Unite retaliated basket for basket to retain the lead till the end of the first half. The score was 40-32.

The Diliman five caught fire in the second half of play and after ten minutes, they were up by 1 point, 51-52. San Pedro jumped and regained the lead 53-52. Both teams had a ding-dong battle and after four minutes, the Diliman team stretched their lead to five, 68-73. With three minutes left, Jorge, and Solivar converted three successive goals, 68-79. A charity and a lay up by Rola cut the lead to eight, 71-79. With thirty seconds left, San Pedro jumped and ended the game to the tune of 73-79.

How they scored:

DILIMAN		FORESTRY	
Solivar	24	San Pedro	20
Jorge	21	Unite	18
Saddul	14	Blando	8
Payumo	10	Rola	7
Lazo	6	Tandoc	6
Yu	2	Marquez	6
Fider	2	Zamuco	2
		Agcaoili	2
	79	Buenaflor	2
			73

Meanwhile, the Forestry Junior team defeated the Laguna Institute hoopsters 61-55. Both team showed accurate shooting and perfect rebounding. Eddie Ocampo garnered a total of 17 points, with Daproza scoring 9 points, followed by Cortes, Clemente, and Sequerra earning 6 points each.

Dela Cuesta scored a total of 18 points with Escueta and Altovero scoring 10 points each for Laguna hoopsters. Halftime score was 34-31.

In another game held on the 29th of Nov., the Forestry Selection made an easy victory over the lowly Knights of Canlubang. The Forestry Selection used both height and speed to defeat the Knights. Unite and Blando were the top scorers for the Forestry Selection. They were followed closely by Rola, Tandoc and San Pedro with 11, 9 and 8 points respectively. The game ended with a score of 86-57.

— E. de Guzman

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MARQUEZ: 1958 STUDENT TENNIS TOURNAMENT CHAMP

Apolinario Marquez, Jr., lone entry of the College of Forestry to the 1958 Student Tennis Tournament grabbed for the first time the tennis throne with a 6-4, 6-2 conquest of Narciso at the College of Agriculture tennis court. Narciso was the defending champion and a representative from the College of Agriculture.

Narciso smashed his way to a 4-1 lead in the first set. Marquez broke Narciso's service in the sixth game, held his service in the seventh and again broke Narciso in the eighth to tie the score at 4-4. In the ninth, Narciso committed 3 straight errors and in the tenth Marquez broke again Narciso to win the first set 6-4.

Service held in the first two games by both players made the second set tied early at 1-1 all. Then Marquez by giving slow and fly balls went ahead to a 4-1 lead. Narciso took the sixth, 4-2. Then Marquez held on in the seventh and in the eight. Marquez won easily the second set, 6-2.

— E. de Guzman

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GOLDIES IN THE MAROON LINE-UP

With the end of the local basketball season and with the College of Forestry emerging as champion for the first time, three of our players were selected to bolster the rookie-laden U.P. Maroons in the National Open and most probably in future cage wars.

However, we found that they were not given enough publicity although they had consistently shown their worth. They were also known to represent the Aggies instead of the College of Forestry. Incidentally, it is also interesting to note that we contributed three of the four Los Baños representatives whom we should be proud of.

To give them the honor that they rightfully deserve, we believe in putting in a few good words for them.

Sid Zamuco—The ballhawking 5'7" skipper of the Forestry Goldies plays forward for Bing Ouano. An adroit dribbler, he played the role of playmaker and source of speed for the Goldies in their quest for the crown. Chief weapon is a one-handed jumpshot from the quartercourt and from the sides. Provide him the screens, and Bingo!

Jess Rola—The kid with the mighty stretch plays forward for the Maroons. A tremendous rebounder at 5'9" both in the defense and the offense, he tended the backcourt and the pivot area for the goldies during the intramurals. He has the distinction of staying cool and calculating even under pressure and when the going becomes rough. These qualities makes him the logical successor to Zamuco as skipper next year. Chief weapon is a powerful lay-up and a two-handed jumpshot from the corners.

Eddie Unite Jr.—The tallest guy in the Goldie team at 5'11" plays center for the Ma-

roons. Together with Rola, he provided the rebounding power of the Goldies in the intramurals. Despite a relatively low poundage for his height, he proved himself unstoppable from the pivot area with his repertoire of shots plus the flawless feeding of Zamuco. Chief scoring weapon is a towering jumpshot and a forceful lay-up from the keyhole area.

Angie

* * *

Here's a "gripe note" from one of our freshmen who got too fresh that he posted three of his anonymous letters on the bulletin board. The text of his notes is not even worth the value of ink in print but for the sake of those concerned, we are publishing it.

* * *

TO THE VIGILANTS

"We are appealing to you to please stop giving us tickets because as you know we are poor and not as rich as you are. We can't afford even to pay a fine of 20 centavos, how can we buy a new skull cap and why do you insist on us to do so? Is wearing the skull-cap throughout a year, a tradition? If so, why did you not do your part? Since you did not wear, it goes to show that it's not a tradition, but you are creating a new tradition and enforcing what you want and this is unfair."

— ANONYMOUS —

To Mr. Anonymous, I say, Man, you've got something in there.

And to the Vigilants, I ask, "Any comments?"

E. G. Dizon

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FORESTRY UPSCA ELECTS OFFICERS

The Forestry UPSCAns recently elected their officers for the schoolyear 1959-1960. Robert Choy, last year's most outstanding applicant, made a landslide victory over four other aspirants for the chairmanship. The officers elected to the different positions were: R. B. Agleam, Vice-Chairman; A. Rimbon, Secretary; E. Villanueva, Treasurer; W. Pollisco, Auditor; R. Salvador, PRO; J. Manarpac, Business Manager; M. Bandong and S. Martin, Sgt.-at-Arms; M. Estrella and R. Dorado, Representatives to the Central Council. Miss Jesusa T. Taleon was unanimously elected as adviser.

A picnic was held two days later, at the Crocodile Lake in Los Baños in honor of the prospective BSF and Ranger graduates who are members of the UPSCA.

A. A. Rimbon

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JUNIOR-SENIOR PROM

The traditional Junior-Senior Prom was held last January 31 at the Forestry Swimming Pool. Unmarred by the threatening overcasts, the dance was claimed a success by those who attended it. Dean Zamuco, F. Mauricio, Sr. class adviser, and Junior Class Adviser F. Pollisco headed the lists of guests.

The following Junior class officers graced the annual prom; President, B. R. Rola; Vice-Pres., E. Z. Cajucom; Secretary, R. R. Valerio; Treasurer, A. A. Rimbon; Business Manager, P. F. Lacuesta; Ath. Manager, R. G. de Vera; Auditor, J. P. Rojo; Reps. to SBO, F. S. Arcangel; M. P. Udarbe, Jr.; Reps. to the U.P. Junior Council, A. D. Canete, A. S. Decena; Sgt.-at-Arms, J. F. Corotan

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LIBRARY GETS NEW BOOKS FROM ROCKEFELLER FOUNDATION

The College library is receiving new books from the Rockefeller Foundation since February 3. More are still expected until the $10,000 appropriation granted by the Rockefeller Foundation is all used up for the purchase of books and library equipments.

The $10,000 aid is granted by the Rockefeller Foundation to the College of Forestry Library last year. The books received are advertised in the bulletin board.

Meanwhile, the college professors are also donating books, periodicals, magazines, pamphlets, periodical stands, book trucks, etc. The donors are Drs. E. Stone Jr., E. Farnsworth, and R. Pentoney, Prof. C. Recto, Prof. T. Delizo and Dr. A. Manza.

The librarian, Mrs. J. C. Ranit, is trying to attract more readers through monthly posters.

A. A. Rimbon

SEMINARS

A series of seminars on forestry was held at the College of Forestry from February 6 to 20 for the benefit of the graduating Ranger and B.S.F. students. The seminars were conducted to acquaint the future rangers and foresters with the Bureau of Forestry and the lumber industry and its allies, where they may join after graduation, and at the same time giving them information in connection with the forthcoming civil service examination scheduled on April 3, 1959.

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The first seminar was conducted last Feb. 6 with For. Nicolas P. Lansigan, member of the fact-finding committee of the National Economic Council, as main speaker. He talked on the achievement of the committee and presented a comparative data between that of the Bureau and that obtained by the committee with regards to the vegetative cover of the Philippines, es-

pecially the controversial figures of the area of forest lands and extent of timber stock. He also emphasized on the management of the forest, reforestation work, and the major problems in forestry.

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Through the invitation of Dr. Pentoney, Mr. Eddie Galang of the Industrial Development Center, spoke on the Philippine plywood industry last Feb. 10. He made mention on the aspects, the present and future problems of the industry.

Mr. Galang also talked on the functions of the I.D.C. in assisting the various Philippine industries and made much emphasis on the stiff competition that Japan is making with the Philippine products in the world market.

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Through the request of Dean Zamuco from the Director, the chiefs of the different divisions as well as some other keymen of the Bureau of Forestry were invited to talk about the functions, activities and problems of their respective divisions.

For. Carlos Sulit and For. Braulio Cristobal, chiefs of the Administrative Services Division and Domain Use Division, respectively, were the main speakers last Feb. 13. For. Sulit aside from talking on the main subject, said that the opportunity of graduates in the Bureau is very slim and advised them to join private companies instead. He also gave important pointers in taking civil service examinations.

For. Cristobal also emphasized on the different criteria in the classification of lands and presented the updated data of the soil cover of the Philippines as well as the accomplishment of land classification work.

Last Feb. 17, For. Martin R. Reyes, representing the Forest Management Division and one of those responsible for the Selective Logging Method, spoke on the objectives of forest management. He also mentioned the different logging procedures especially the new method of marking trees that are to be left.

The last seminar was held Feb. 20 with For. Gregorio Poblacion, For. Severino Nablo, For. Porfirio San Buenaventura, and For. Florencio Asiddao, chiefs of the Sawmills and Licenses Division, Forest Land Uses Division, Reclamation and Reforestation Division, and Forest Research Division, respectively, as main speakers.

For. Poblacion mentioned the differences of the grading rules as well as the income that the Division of Sawmills and Licenses gets a year.

"Forest Protection is the 'sublime-paralytic' of the Division of Forest Land Uses," said For. Nablo about the main problems of his division. He also talked on the various permits and provided the audience with samples of them.

For. San Buenaventura traced the history of reforestation work in the Philippines and mentioned the accomplishments of the division in reforestation.

For. Asiddao also talked about the conduction of different researches for the other divisions especially the establishment of sample plots.

—*A.G.M.*

US FOREST POLICY EXPERT CONVOCATION SPEAKER

"Forestry is a vague, mysterious sort of a profession, so is the misconception of many a people," remarked Dr. Thomas Gill, world famous forest policy expert and executive director of the Charles Lathrop Pack Forestry foundation in a convocation held at the College of Forestry auditorium on January 22, 1959. Dr. Gill was invited by the ICA at the request of the NEC and the Bureau of Forestry to come to the Philippines to see the prevailing forestry conditions in the country. He will see the various forest areas in the Philippines to observe forest utilization, administration and conservation.

After being introduced by Dean G. Zamuco, the lanky American Forester began with the history of forestry, mentioning among others the pioneer countries that blazed the trail in the utilization of forests for the use of mankind.

"But now," he said, "forestry is a widespread profession ranking among other important careers in the field of professions." He also explained the glamour and wide opportunities the profession offers and the comradeship that one gets with those who share a common interest in forestry. Commenting on the conditions of forest education in our country, he remarked, "what the country needs now is a competent training to continue on its forest program."

Dr. Thomas Gill is a Yale graduate, founder and president of the Society of Tropical Foresters.

An open forum was held after his speech, wherein the audience, mostly faculty members and students of the College of Forestry and some personnel of the Forest Products Research Institute asked him some questions about forestry. The special convocation, emceed by Secretary Recto, ended with the UPCF song.

E. G. Dizon

B. F. Notes

RESUME OF THE ANNUAL REPORT OF THE BUREAU OF FORESTRY, DANR FOR THE FISCAL YEAR 1957-1958.

During the fiscal year, more public attention was focused on our public forests. This was brought about mainly by the destructive floods that swept several sections of the country. The occurrence of floods was blamed on deforestation. More or less, the situation that prevailed was not contributory to the cause of forest conservation. It was more of fault finding than extending the necessary cooperation to the Bureau of Forestry. Congress, however, manifested interest in forest conservation by providing and promising additional appropriations and constructive legislation.

Be that as it may, the Bureau of Forestry, exerted efforts to make our remaining public forests perpetually productive despite limited appropriations and personnel. While the Bureau is the custodian of the country's forest wealth, the cooperation of the general public is needed. The Bureau alone can not fully guard all the forests throughout the Islands. Since the public forests are maintained for the benefit of the people, it is also our common responsibility, especially those living in the places where there are forests, to see to it that this natural wealth is not subjected to wasteful exploitation.

A great portion of the public does not seem to realize the value of forests in the national economy. It is said that agriculture is the backbone of the nation. This is true. But it should also be borne in mind that agriculture is dependent on the forests. Soil erosion — the nemesis of agriculture — is induced by the absence of forest vegetation. Erosion robs the land of its fertility. There can be, therefore, productive agriculture only if there are forests.

The belief that forest resources are inexhaustible has already been debunked not only by the testimonies of experts but also by naked facts which unfold themselves before the eyes of one who travels around the country. There are a number of provinces which are already feeling the adverse effects of deforestation. This alone is an indisputable proof of the falsity of the belief. However, forests are replaceable if properly managed.

The lumber industry and other enterprises which use wood as raw materials rely on the largeness of the forests. The stability of their operations provide them the necessary raw materials. These industries are big sources of revenue both in peso and dollar, aside from affording thousands of people with gainful employment opportunities.

Comparatively speaking, the intangible benefits derived from our forests out-weigh the tangible benefits. The good effect of forests on agriculture, climate, wildlife, watersheds, landscape and health is beyond estimation. If only for this alone, our remaining forests must be properly conserved and wisely used. This is a joint task of the Bureau of Forestry and the public.

STATUS OF SOIL COVER:

The Philippines has a total land area of 29,740,972 hectares. The soil cover is made up of the following (as of June 30, 1957): Commercial Forests, 9,328,688 hectares (31.37%); Non-Commercial Forests, 3,842,237 hectares (12.92%); Brushland, 2,077,187 hectares (6.99%); Openland, 3,402,827 hectares (11.44%); Marsh or Swamp, 716,265 hectares (2.40%); and Cultivated, 10,373,168 hectares (34.88%).

As of June 30, 1958, the area of public land already classified comprised 15,090,080 hectares, of which 3,459,473 hectares were established as permanent forest lands and 11,630,607 hectares were delimited as alienable and disposable lands. Of the total land area, 14,650,892 hectares remained to be classified.

Our forests have an estimated standing timber of 977,807,006 cubic meters or about 414,590,170,544 board feet. The estimate does not include the volume of the young growing timber and the value of the intangible benefits of the forests. Of this amount of timber, about 404,071,785 cubic meters are found in Luzon, 44,288,077,512 cubic meters in the Visayas, and 198,975,656,192 cubic meters in Mindanao.

It might be worthy to cite here a portion of the evaluation report submitted by former Secretary Salvador Araneta to the late President Magsaysay in 1955. According to the report, the forest resources of the country have an estimated actual value of ₱27,860,611,000.00, or four times more than the combined value of all other natural resources, and an estimated potential value of ₱49,496,171,000.00.

ORGANIZATION:

The Bureau of Forestry is under the Department of Agriculture and Natural Resources. As reorganized (Reorganization Plan No. 30-A, approved by the President under Executive Order No. 216, dated November 17, 1956), the Bureau has seven functional divisions, namely: (1) Administrative Services; (2) Forest Management; (3) Reforestation and Reclamation; (4) Forest Land Uses; (5) Sawmills and Licenses; (6) Domain Uses; and (7) Forest Research.

For better coverage, the Philippines is divided into 47 forest districts each under a district forester. Aside from the 47 forest district headquarters, there were 80 forest stations, 20 scaling stations, 73 reforestation projects, 14 provincial nurseries and one (1) city forest nursery.

PLANNING AND OBJECTIVES:

Land Classification. — The Bureau undertakes the classification, delimitation and demarcation of the public domain in order to determine its permanent use — whether for forestry or for agriculture and other similar purposes. The primary aim is to zonify the land area of the Philippines into their various essential economic uses. In the prosecution of this project, the well-being of the present and future generations is always taken into consideration over and above all other factors.

It was and is still the plan of the Bureau to release as fast as possible and practicable all areas suitable for agricultural purposes so that they can be disposed of by the Bureau of Lands in accordance with the Public Land Act. On the other hand, areas found to be profitable for forestry purposes will be established as permanent timberlands. The Bureau had proposed legislation that would assure for our established forest lands a permanency of status. Forest areas, once declared as such, should not be released, except in emergency cases and only upon approval by Congress. The proposed bill has not yet been enacted into law.

The Bureau was committed to classify no less than 1,200,000 hectares every year subject to the availability of funds. As of June 30, 1958, there were 14,650,892 hectares still unclassified. Of these 9,031,727 hectares had been proposed as permanent forest land and 5,619,-165 hectares for alienation.

Forest Management. — The placing of commercial forests under scientific forest management program is a very important conservation measure. The full-dress implementation of selective logging under management plan for sustained yield in all license areas has been started. The plan was and still is to put all logging operations in permanent forest lands under the system. At first the operators were not receptive to the program; however, through persistent efforts of the Bureau, they started to realize that it would be for the best interest of their business if they observed the selective logging system in their operations.

Selective logging is the most practical and cheapest means of restocking logged-over areas. It consists in the removal of mature timber, usually the oldest or largest trees, either as single scattered trees or in small groups at intervals of time, usually five to thirty years. By this method, invasion of second growth species is prevented, natural regeneration is encouraged and trees of various size classes maintained. Greater emphasis is now given on the leaving of as many sound immature trees as possible and on the care and protection of the remaining growing trees.

Timber inventory is a necessary tool of timber management plans, The plans under this project was to gather data on the growing stock in license areas where timber management plans would be prepared. The data are of vital importance in the implementation of sustained yield management in all logable areas and in planning for more intensive economic development.

Reforestation. — This is an artificial process of reforestation as distinguished from the selective logging system which is a natural process. If the area is already denuded of forest cover, the only way to reclaim it is by artificial reforestation. The process is expensive and time-consuming, but the science of forestry encompasses not only the present but also the future generations.

The plan of work in reforestation and reclamation included the restoration of forest cover in projects already existing at the headwaters of hydro-electric dams, irrigation systems, national parks and logged-over areas. Areas where flood and soil erosion are common will also be reforested if facilities become available.

Forest Research. — With the encouragement and support of the administration, forest research along with other fields, was expected to

gain considerable headway. Forest research is mostly a long-range program which requires constant experimentation, field work and follow-up. Priority was given to the establishment of sample plots in cut-over areas for growth and yield studies. The data are basically essential in the preparation of management plans designed to enhance forest values and attain a high degree of perpetual forest productivity.

Our forest research program has also for its objective the replenishment of basic facts on the various phases of forestry. There is a lack of knowledge on our forest soils, the physiological processes involved in the flowering and fruiting of our forest trees, the seeding habits as well as other phenological information about our important commercial tree species, systematic and biologic dendrology, plant anatomy and pysiology, mycology, forest geography and biological characteristics of species, forest ecology, soil physics, soil chemistry, meteorology and climatology.

Forest Utilization. — In the exploitation of public forests by qualified persons, the Bureau sees to it that waste and damage resulting from the operations are minimized. Terms and conditions are imposed from time to time upon licensees and permitees so that our forest resources are not wantonly or uselessly exploited in total disregard of future harvests and of the general well-being of the people. Violation of forest laws, rules and regulations and non-compliance with the terms and conditions in licenses and permits are grounds for revocation or cancellation without prejudice to civil criminal liabilities of the offenders.

As planned, step was already taken to eliminate red tape in the processing of applications and reports and in the issuance of licenses, permits and leases. To this end, forms were simplified and decentralization effected, authorizing, in some limited extent, the District Foresters to handle the issuance of special use permits.

To provide bonafide citizens steady means of livelihood and further improve the economic and social conditions of the people, permits and leases are granted for the special uses of public forest lands available for disposition or use under Section 1838 of the Revised Administrative Code. Pasture permits are designed to encourage the livestock industry. Tree farm permits are an incentive for private initiative and capital to help the government put idle and denuded lands into some use with fruit trees and other trees of economic value. Releases of mangrove swamps for fishpond purposes, after considering forestry needs, are intended to boost fish production.

The Bureau issues two kinds of commercial forest licenses: (1) the ordinary timber license which is good for a period of one year and renewable annually; and (2) the long term license which is good for a period of not more than twenty years and renewable for another period of twenty years. Cutting regulations to check indiscriminate logging are promulgated from time to time. It was planned to place all logging operations under supervision and to hold seminars and in-service training courses on the effective implementation of the selective logging method.

Licenses and permits to cut, collect and remove minor forest products are also issued after a thorough screening of the applications. Most of the minor products in public forests are good sources of raw materials for many of our profitable household industries, like furniture making, wood carving, "bakya" and basket making, bamboo and sawali and others.

Forest Protection. — Fire, illegal kaingin and squatting besides careless logging are three most destructive agents of forests destruction. The awakening of the people towards the importance of forests has become an important objective of the Bureau of Forestry. This calls for a sustaining information campaign. The plan which could not be realized for lack of funds was to send information teams to critical areas and to print educational materials for distribution to the public.

The Bureau had been seeking from time to time the assistance of the Philippine Constabulary and the local law enforcement agencies in its anti-kaingin campaign. Other projects included in the forest protection program were the establishment of forest blocks to accommodate squatters and the organization of patrol teams and establishment of look-out stations in areas where forest fire was rampant.

OPERATIONS:

Land Classification. — The land classification work had been carried on by forty nine (49) field teams, each composed of three men each. The teams were assigned as follows: twenty-two (22) in Mindanao, sixteen (16) in Luzon, two (2) in Samar, two (2) in Mindoro, two (2) in Palawan, and one (1) each in Cebu, Iloilo, Negros, Leyte and Bohol. Forest officers stationed in forest district offices also undertook land classification work of individual or isolated cases.

Priority was given to areas within the Mindanao Road Development, areas traversed by the national highways. provincial and feeder

roads, and to tract of lands in demand for immediate settlement, including those nedded by the National Rehabilitation and Resettlement Administration (NARRA). The average cost per hectare in the land classification work was ₱1,214.

Forest Management. — To speed up the full implementation of selective logging program, continued were the organization of forestry crews of licensees, the accelaration of the training of timber management assistants, the training of forest officers and men of the licensees on the various aspects of forest management, and the development of a standard guide for the application of acceptable practice of the system.

The timber inventory work was undertaken by six (6) field teams, distributed as follows: two (2) in Agusan, two (2) in Davao, one (1) in Surigao, and one (1) in Zamboanga. The method used was ground survey, a slow and expensive process as compared to aerial survey. It would take more than sixty years to complete the inventory of all forest areas in the country.

Reforestation. — The work involved planting and replanting of seeds and seedlings. There were in actual operation fifty-six (56) reforestation projects including the Cinchona Plantation, fourteen (14) provincial and one (1) city nurseries. Aside from their main task of reforesting critical areas, these projects and nurseries also served as sources and distributing centers for seeds and seedlings for cooperative planting.

Forest Research. — In operations were five (5) forest experiment stations: (1) Los Baños Forest Experiment Station, Los Baños, Laguna; (2) Baguio Forest Experiment Station, Km. 21, Atok, Benguet, Mt. Province; (3) Magat Forest Experiment Station, Bagabag, Nueva Vizcaya; (4) Cebu Forest Experiment Station, Camp 4, Minglanilla, Cebu; and (5) Malaybalay Forest Experiment Station, Malaybalay, Bukidnon.

Forest Utilization — Before a timber license was issued or renewed, the area, allowable annual and additional cuts and cutting rules involved had to be passed upon. The selective cutting method had been intensified by the supervision of logging and by the institution of tree marking and logging techniques to save marked trees. To expedite action on special uses applications, the field personnel were instructed to prepare and submit the inspection reports with the least possible delay.

In order to protect the interest of the lumber industry and to bolster the revenue collection of the government, scalers and lumber graders of the Bureau were told to do their work right in the cutting areas. Sawmills were periodically inspected to check on their activities. Implemented was Republic Act No. 1239 requiring all agents, contractors and dealers in logs, lumber and commercial piles to register in the Bureau.

Forest Protection. — The information campaign was carried on through the fieldmen, press, radio, meeting and other printed media. Our district foresters and their personnel took every opportunity to inform the people of the importance of our forest resources and the evil effects of forest destruction. They participated in provincial and municipal fairs and carnivals, conventions and civic parades.

ACCOMPLISHMENTS:

Land Classification. — Classified during the fiscal year was an aggregate area of 1,008,909 hectares covered by 298 land classification projects, of which 259,204 hectares were delimited alienable or disposable and 749,705 hectares as timberlands. Including the 328 projects pending certification at the end of the fiscal year 1956-1957 covering an area of 456,484 hectares of alienable and disposable lands and 766,099 hectares of timberlands, there were 626 projects having an aggregate area of 715,688 hectares as alienable and disposable lands and 1,515,804 hectares as timberlands for certification during the period under report. Of these projects, 194 were acted upon of which 153 were certified as follows: 276,266 hectares as alienable and disposable and 353,914 hectares as timberlands.

There were 5,733 individual surveys taken covering 24,279 kilometers, the valuation or timber estimate of which was taken on 2,148 hectares. Acted upon were 986 cases of individual requests for classification and 42 cases of public land applications. Completed were 97 land classification maps, 8 of which were reconstructed from the originals; 32 communal forest maps, 1 communal pasture map, 3 forest concession maps, 1 special map and 33 miscellaneous sketches.

Forest Management. — With the additional of about 715,700 hectares, the total area now under acceptable management was 1,200.300 hectares. Eight (8) timber licensees covering an area of 197,000 hectares submitted policy statements, four (4) of which were processed and submitted to the Secretary of Agriculture and Natural Resources. One (1) pulpwood and two (2) timber license agreements were prepared and already approved by the Secretary. Cutting rules were updated in said agreements to conform to the selective logging requirements.

Satisfactory residual stands by tree marking,

applications of logging techniques and checking by residual inventories were secured in logged-over areas. There were 6,160 hectares with 116,931 trees marked in 713 settings. For residual inventory, 3,187 hectares with 63,268 trees were inventoried in 388 settings. In poorly stocked logged-over areas, 562 were improved by supplemental planting and girdling of big defective trees. The timber inventory teams inventoried 286,025 hectares of forested areas, of which 3,353.05 hectares had been actually valuated. Within the area inventoried, 3,334 reproduction plots were taken ranging in sizes from 8 to 10 meters radius.

There were 96 forest reserves with a total area of 1,185,404.4456 hectares; 2,137 parcels of communal forests with an aggregate area of 258,926,505 hectares; and 100 parcels of communal pastures with an aggregate area of 19,-182.15 hectares.

Reforestation. — Out of 5,073,300 hectares of open grass lands, 2,434,484 hectares were intensively studied, of which 1,381,695 hectares including areas in previous years needed immediate planting. Conducted were 31 planting surveys containing an area of 402,692 hectares of which 279,599 hectares should be planted. The different projects had a total of 34,017.22 hectares of plantations with about 22,000,000 trees more than a year old and above of different species, height and diameter class. Newly planted to seedlings and directly seeded were 9,400.20 hectares, and replanted 1,655 hectares.

The area of the nurseries was 294 hectares, of which 214 hectares were for seed beds, 22 hectares for transplant beds, 17 hectares for paths and rides, 10 hectares for lawn and ornamental purposes, and the rest for future expansion. Handled were 226,427.05 liters of seeds, of which 84,698.51 liters were sown in the nursery, 48,715.77 liters directly broadcasted in the plantation, 29,819.30 liters given free to the public, 3,821.0 sold, 19,529.04 condemned, and the rest left in stock. There were handled 22,-594,918 seedlings, of which 4,573,809 were set out in the plantations.

The Cinchona Plantation had a planted area of 644.92 hectares, of which 366.04 hectares were planted to cinchona species, 77.26 hectares to timber species, and 23.61 hectares to abaca. There were 935,283 cinchona species in the plantation and 104,634 reforestation trees. Harvested were 2,122 kilos of fresh barks.

Forest Research. — Studies and investigations were conducted along four (4) major projects, namely: (1) Silvics and Silviculture; (2) Forest Grazing; (3) Forest Pests and Diseases; and (4) Forest Influences.

Silvics and Silviculture

There were established 39 sample plots for growth and yield studies during the period, bringing the total to 301. The number of remeasurements made of the established sample plots was now 358. Analyzed were 73 sample plots and completed were seven (7) studies. Started were 29 studies, aside from the 44 which are still in progress.

Forest Pests and Diseases

There was no serious outbreak of pests and diseases in the forest nurseries and plantations and in the natural forests. The localized infestations of some pests caused only slight damages in a few forest plantations. Five species of beetles were collected in Malaybalay, Bukidnon, for identification.

Forest Grazing

Five (5) grazing sample plots were established and the preliminary observations on backyard deer raising were completed. Collected were seeds of *Clitoria ternatea* for distribution to the experiment stations and *Centrosema* seeds for experimental planting. Introduced were exotic and endemic grasses in the grazetum of Magat Forest Experiment Station. Collected and identified were 10 forage specimens, 4 exotic and 4 endemic grasses, one exotic and one native legume.

Forest Influences

Trial planting of grasses and shrubs and legumes to find out their relative merits for soil building and erosion control was done in the premises of the five experiment stations.

Forest Utilization. — The people became interested in the exploitation of the public forests. The once timid Filipino capital came out to invest in various industries which are dependent on the public forests for their raw materials. In previous years, applications for licenses and permits were received by the Bureau in greater number. However, this year, the clamor for concession rights somewhat abated because there were practically no more easily accessible vacant areas available for exploitation.

Concessions

There were handled 1,722 applications for ordinary timber licenses, of which 736 were acted upon and approved. At the end of the period, there were in force 1,643 ordinary timber licenses covering a total area of 3,882,563 hectares with a total allowable cut of 6,151,068 cubic meters and a total capital investment of ₱41,420,323.26.

Issued were 148 private gratuitous timber licenses with a total of 5,646 cubic meters

to the Bureau of Fisheries were 431 applications granted; 11 public gratuitous timber licenses with a total volume of 27,330 cubic meters of timber granted; and 18 miner's gratuitous licenses with a total volume of 3,051 cubic meters granted.

The number of license agreements in force was 27 embracing a total area of 1,119,017 hectares with a total allowable cut of 2,468,215 cubic meters of timber.

Special Uses

Handled were 62,685 applications for special use permits involving 5,843,985 hectares. Of these, 7,491 were received during the period under review covering a total area of 1,402,568 hectares. Permits in force were 8,925 with a total area of 597,352 hectares. Pending renewal were 6,977 permits of 410,320 hectares. Of the permits in force, 1,404 were issued this year with an area of 179,268 hectares. The top four special use permits were residence, pasture, nipa-bacauan plantation and tree farm. Certified to the Bureau of Fisheries were 431 applications for fishpond permits involving a total area of 8,350 hectares.

Minor Forest Products

There were handled 2,213 applications for minor products licenses, 2,033 of which were received during the period. Approved were 1,734 applications and disapproved were 138, and the rest were left pending action. Cancelled were 24 licenses. The total number of minor products licenses in force was 1,710 covering a total area of 1,183.156 hectares with a capital investment of ₱1,411,906. The first five provinces having the most minor products licenses were Quezon with 233, Palawan with 114, Camarines Norte with 88, Davao with 86 and Samar with 85. The first five minor products for which most licenses were issued were: (1) rattan; (2) firewood; (3) almaciga resin; (4) nipa shingles; and (5) charcoal.

Issued were 5 personal gratuitous protected plants licenses and 1,108 permits to transport protected wild plants.

The Lumber Industry

Despite the instability of foreign markets, the lumber industry was active during this period. Logs and lumber exports increased as compared with those of the previous year. The Bureau of Census and Statistics ranked lumber and logs as fourth in the list of leading export items. Approximately 75,000 men were actually employed in the lumber industry. Including dependents, about 375,000 persons depended upon the industry for their livelihood.

Sawmills. — There were 368 sawmills with an aggregate daily capacity of 3,381,000 board feet and a capital investment of ₱54,660,111.00. Of these, 193 were with timber concession with a capital investment of ₱34,790,771.00, and 175 were without timber concession with a capital investment of ₱19,869,340.00. The Filipinos owned 34.50 per cent of the total capital investment.

Plywood and Veneer Mills. — Capitalized approximately at ₱45,000,000.00, the 14 plywood mills and 4 veneer mills employed about 10,000 men. There were five (5) more plywood and veneer mills in the process of formation. The 14 plywood mills had a total daily capacity of 709,000 square feet and the 4 veneer mills, 250,000 square feet.

Production. — Lumber production was 499,258,498 board feet valued at ₱89,866,530.00 based on ₱180.00 as the average value per thousand board feet; plywood, 137,849,431 square feet; veneer, 244,643,820 square feet; and logs, 2,047,115,099 board feet valued approximately at ₱163,769,208.00 based on ₱80.00 as the average value per thousand board feet.

Export. — Plywood export was 29,474,019 square feet valued at ₱3,846,849.51; veneer, 53,332,314 square feet valued at ₱2,083,270.06; Logs, 890,676,065 board feet valued at ₱80,891,145.26; and lumber, 61,616,761 board feet valued at ₱13,957,102.74.

Import. — Logs imported from the United States, 13,656 board feet valued at ₱12,296.00 (used by the US Army); lumber also from the United States, 636 board feet valued at ₱38.00; and plywood and veneer also from the US, 87,600 board feet valued at ₱13,404.00.

Consumption. — Timber or log consumption (used either in their natural form, piles, or manufactured into lumber, plywood or veneer), 1,094,822,273 board feet; and lumber, 462,641,737 board feet.

Trend of Domestic and Foreign Markets.— Demand for logs in the Japanese market increased as compared with the previous year. Demand for sawn lumber in the United States was also in the upward trend, but local producers could not fully supply the quality desired. Prices of timber ranged from ₱20.00 to ₱30.00 per cubic meter while lumber prices remained steady.

Scaling. — Timber scaling for collection of forest and reforestation fund charges is the biggest source of revenue of the Bureau. There were 4,828,101.65 cubic meters of timber cut and manifested during the year with forest charges of ₱5,072,595.20 and reforestation fund charges of ₱1,859,725.87.

Lumbering Grading and Inspection — Inspected and graded were 952,292,826 board feet of logs and lumber valued at ₱94,848,252.00. Collected was ₱2,856,879.00 as inspection fees.

FOREST PROTECTION. — The extent of forest (under sector-area protection) intensively protected was 804,000.00 hectares; and nominally protected, 14,365,689.00 hectares.

Detected were 2,965 illegal kaiñgin cases involving a total area of 3,685.01 hectares and 152 cases of forest fires covering an area of 15,248.55 hectares. To accommodate squatters and tree farm permit applicants, 31 forest blocks of 3,553.55 hectares were established. Handled were 1,990 General Land Registration cases involving 4,010 parcels with an aggregate area of 296,478.7271 hectares. There were in force 505 Private Woodland Registration certificates of 556 parcels covering an aggregate area of 28,244.9453 hectares.

Financial Statements:

The appropriation for the fiscal year was ₱6,763,150.00, itemized as follows: General Fund, ₱4,087,760; Reforestation Fund, ₱2,112,-250; Cinchona Plantation Revolving Fund, ₱63,140.00; and Bond Fund (R.A. 1305), ₱500,000.00. The sums of ₱131,851.00 and ₱78,270.00 under the General Fund were transferred to the Office of the President and the Social Welfare Administration, respectively. The Bond Fund (R.A. 1305) was reduced to ₱375,000. So actually, the regular appropriation of the Bureau was ₱6,428.029. Republic Act 1800 appropriated ₱10,300,000 as loan and bond issues for reforestation. The cash allocation under the said loan and bond issues was reduced to ₱620,000.00. All in all, the appropriation reached ₱7,048,029.

The amount expended was ₱6,620,419.61, itemized as follows: General Fund, ₱3,776,-233.87; Reforestation Fund, ₱1,900,076.66; Bond Fund (RA 1305), 307,619.28; and Loan and Bond Issues (RA 1800), ₱619,950.93.

The amount of ₱427,609.39, balance from the actual appropriation, was unexpended.

The total income actually collected by the Bureau was ₱5,842,606.03, itemized as follows: General Fund, ₱3,898,066.14; Reforestation Fund, ₱1,942,763.53; Cinchona, ₱362.04; Bond Fund (RA 1305), ₱1,308.39; and Loans and Bond Issues, ₱105.93. Including the ₱5,383,416.47 forest charges actually collected by the Bureau of Internal Revenue, the grand total income was ₱11,226,022.50.

Income exceeded appropriation by ₱4,177,993.-50, expenditures by ₱4,605,602.89.

Recommendations:

1. Legislation providing permanency of status for declared forest lands.
2. Legislation providing more teeth for our forest laws.
3. Additional funds, especially for traveling expenses, and acquisition of facilities like vehicles, filing cabinets, typewriters, scale sticks, marking hatchets, etc., to carry on forest administration and protection work more extensively, research, implementation of selective logging, timber inventory, scaling and reforestation.
4. Amendments to WAPCO position classifications and pay.
5. Establishment of bunk houses for fieldmen assigned in isolated places.
6. Sending of promising technical personnel abroad for specialization on the various important aspects of forestry work.
7. Creation of a forestry legal division.
8. Training of more lumber graders and inspectors.
9. Appointment of at least 50 more scalers to help implement collection of more forest charges on logs and timber cut and manifested.

* * *

Forest Policy Consultant Dr. Tom Gill, accompanied by Forestry Adviser Zenngraff, visited Negros Occidental for the last two days (January 30 and 31, 1959) to observe the actual forest conditions existing in the province. Their tour of the Island included a meeting held at the Office of the District Forester, Bacolod City, which was attended by Asst. Governor Narciso Jocson, Provincial Agriculturist Olympio Fontanilla and a group of forest officers headed by District Forester Vicente G. Gobuyan.

In a talk given by Dr. Gill, he expressed misuse of forest lands, inroad of forest destruction and illegal occupation of forest lands. He advanced the idea of passing a law that will put to an end the too much unnecessary releases of forest areas, most especially in this province. The law, according to him, will authorize the Bureau of Forestry to delimit permanent forest lands and free from entry by any individual. He lamented the fact that our forest resources are nearing exhaustion on account of subsequent releases of forest lands for agricultural purposes coupled by the ever increasing squatters problem. He believes, however, that if and when the law which he proposes will be fully implemented by Congress, we could be rest assured of a continuous benefits derived from our forest resources.

Dr. Gill is the Executive Director of the Lathrop Pack Forestry Foundation, Washington, D.C.

WHEN THE FORESTS...

(Continued from page 70)

If such a time would come, then the people would ask: "What shall we do?" The people will begin to look for the answer. They will finally realize the value of "reforestation," "conservation," and "selective logging." What is important would be the fact that then the people would realize the importance of forestry men. Now the forester instead of fighting an uphill but losing battle, will be everybody's friend for the country's salvation lies in his hands.

As "it is better late than never," we must now understand the urgency of using our forests wisely for as one forester aptly said it, "it may be later than we think."

TILL WE MEET AGAIN

The empty halls once echoed our steps
Along the corridors, our laughter in class
and the rise and fall of voices from the rooms
and the electric bell ringing
and the chatter and the hi's as we met on the steps...

The empty halls are silent now and sad
for the voices are no longer heard, and the chatter,
gay laughter and staccato steps gone, too, like dreams of yesterday....

But nothing can blot them from our memory
Our happy careless years together when life
was one happy dream after another, when to-day
counted most, and to-morrow just another day to come
and lectures are meant for notebooks, books to gather
dust in the library, and test things to be taken for granted....
to pass or not to pass... did not worry us a whit...
for schoollife was sweet, and to be young was to be alive
and to be alive with somebody to love, was heaven enough.....

Moving up day will come soon
And we must bid goodbye for we know not where Fate will
take us tomorrow, like seeds borne aloft, to be scattered
Never to meet again, and our fate will be like that of seeds;
some will fall on good ground, some on rocks, some among weeds,
some to be picked by birds..... and like seeds we know not our fate and destiny

But someday God like a nurseryman will pick us up like
grown seedlings and take us to Life's nursery and there
again we know not whether we shall grow into giants reaching
out for the sky, or for lack of care or water or rain, we'll die,
Or towering above the rest which envy us, a wild wind will
tear at our heads, rock us, till we tremble and totter,
and with a resounding crash fall to the ground.....

But why think of these things?
Why think of the future when we can seek refuge in the happy past?
Why think of good byes, when it is sweeter to say
Till we meet again?

— B. Giron

• Forestry in the News •

'LAWANIT' GIVEN 'PRODUCT OF YEAR' AWARD; CITED AS PI'S VITAL FOREST PRODUCT

By CARLOS P. FERNANDEZ
Executive Vice-President,
Nasipit Lumber Co., Inc.

I should like to explain in this article the details of a new industrial plant which after 32 months of careful and painstaking construction, we have recently placed in commercial operation.

The plant is located in Nasipit, Agusan, side by side with our sawmill built several years ago. The aim of the plant is to convert the residual material left over from the sawmill operation into a building board panel of great utility. (Detailed information on the process is contained in the brochure we have prepared for distribution.) But in broad terms, the process consists in reducing the residual material into uniform size chips, converting the chips into ground pulp through the combined application of steam and attrition, forming the pulp into a continuous wet mat and finally pressing the mat in a high pressure, hydraulic press.

The end product is an article which has been known in the Philippines even before the war by the trade mark of "Masonite." The international name of this product is "Hardboard," but in the Philippines the trade mark "Masonite" is better known.

* * *

DISCOVERY

The story of this process as originally developed by Mr. William Mason dates way back to 1926. There is a bit of romance attached to this story because it is told that the process was discovered through a mistake. In my last trip to the United States, I had the privilege of meeting two persons who personally knew Mr. William Mason and who were present at Laurel, Mississippi, when this fabulous mistake took place.

The way the story was told to me was as follows: Mr. William Mason was employed in a lumber company in Mississippi and he was particularly interested in developing a process to extract turpentine from residual wood material. His area of operation was a small inconspicuous place by the boiler room. It is said that one day he had some material he was experimenting with, and he tried to compress it under letter press, and then very fortuitously he went for lunch. Apparently the lunch was more extended than usual and when he came back and removed the material from the letter press, he was, to his amazement, looking at the first hardboard.

Mr. Mason being of an intensively creative imagination, he pushed his process to perfection and made his trade mark "Masonite" known all over the world.

DEVELOPMENT

A few years after Mason's great discovery, actually in 1932, a Swedish engineer, Mr. Arne Asplund, who had worked under Mr. Mason, conceived of a variation in the process of pulping and developed a machine known as the Defibrator. From then on the hardboard industry in the United States under the "Masonite" trade mark and the hardboard industry in Sweden using the Asplund Defibrator grew by leaps and bounds, and now hardboard is considered as one of the major building materials entering world trade.

Hardboard has a very widespread utility, actually, it is said, it has 328 different uses.

The plant at Nasipit is the first plant of its kind in the Philippines. In Japan, about three years ago, the Mitsui Company put up a small plant, about one-fourth of the capacity of the Nasipit plant, and using a less economic type of processing. In a few months they will inaugurate a new hardboard plant in Nagoya, practically a sister plant of the one in Nasipit, using exactly the same machinery and designed by the same engineers in Stockholm.

Aside from these two plants, the nearest hardboard plants are the ones in Tasmania and Auckland, New Zealand. We are, therefore, completely justified in claiming that the plant at Nasipit is the first one of its kind and dimension in the Far East.

* * *

ECONOMIC VALUES

This new plant, I believe will make a distinct contribution to the industrial progress of our country. I say so because I believe that it is not just a new plant, but a new plant with a new concept.

In the first place, it is unique in that its raw material is actually of zero value. As a matter of fact, it might even be said that the raw material has a negative value in that it costs money to burn and destroy it. Out of this

valueless material and using a very modest quantity of additives — it is estimated at ₱0.11 worth of chemicals per sheet of 4' x 18', 1/8" thick — a very durable and useful building material is obtained.

Obviously, the efficiency of the sawmill plant is increased tremendously — it is estimated that normally out of a Philippine log the ratio of utilization is seldom higher than 42 per cent meaning 58 per cent is waste. By making use of this large quantity of waste material, the Philippine lumber industry might achieve the degree of efficiency necessary to compete effectively with the woodworking plants abroad. This new plant, therefore, might furnish the solution to the riddle which has for long baffled our authorities of our logs to be done in the Philippines rather than having the logs exported in raw form.

In the second place, this new concept of utilizing wood material is applicable to the enormous amount of vegetable material left in our forests, unutilized because it is considered non-merchantable. When this large amount of forest material is given value through the establishment of proper conversion plants the value of our forests will increase many fold.

That change might be the key to the effective conservation of our forest lands and will prevent their denuding — a measure considered by everybody of the utmost importance and yet hardly ever put into effect.

Thirdly, viewed from a larger aspect, this new plant is a distinct contribution in that the wealth it creates is not obtained through more extensive use of our resources. Rather, it is achieved through a higher and more intensive utilization of our raw materials. I believe this is most important because in the Philippines we might say that we have no frontiers left; all the good lands have been practically occupied, and our only hope is through wiser exploitation of our resources. Perhaps we might truly say that at this juncture in the development of our country, wastefulness is a national crime.

Lastly, this new plant is a contribution in that it involves an unusually large amount of precise scientific work, it requires engineers and technologists in much larger proportion than are required in the usual woodworking plants. For this reason, we have established alongside the factory a fully equipped laboratory to keep rigorous control on the quality of our product and also—undoubtedly equally as important—to conduct original research to discover new ways of utilizing Philippine materials. Here again, we might say that the only hope to achieve a lasting improvement in our more scientific methods in our country's standard of living lies in employing more systems of production.—*Manila Chronicle.*

* * *

MAÑALAC BACKS LUMBER BARTER

Unless it is certain that the 147 barter applications filed before the ban and unacted upon by No Dollar Import Office were antedated, these applications should be given due course, Gaudencio S. Mañalac, a Davao City lumberman, said yesterday.

On this basis, local businessmen entered into contracts with their counterparts abroad so much so that even if the foreign buyer did not want to buy high grade logs they have been practically forced to accept high grade shipments.

Based on statistics, barter permits granted by the NDIO amounted to only $120 million or at an average of about $30 million annually. A great percentage of the collateral imports were essential commodities needed in industry, Mañalac said.

Mañalac pointed out, barter could not have drained our foreign exchange reserves by $80 million annually.

1. It gives a premium to inefficiency because only low grade products can be bartered;

2. It abets unemployment because instead of improving production by introducing more processes for improving the grades and employing more men in the process, producers become contented with low grade, they make the profit on the collateral imports;

3. It is open to fraud because high grade products may even be shipped for low grades just to take advantage of a barter;

4. It does not help boost our dollar reserves because of low export prices of low grade goods; and

5. It may retard industrialization since collateral imports give more profit to traders than to those who really process these goods into finished products.—*Manila Times, February* 2, 1959.

* * *

WORLD BOY SCOUTS JAMBOREE SET IN JULY AT MAKILING NATIONAL PARK

12,000 youths to converge on slopes of legendrich mountain in Laguna; mammoth camporal first to be held in Far East . . . the next will come around in 100 *years*

By JESUS S. MALLARI

What promises to be the biggest international event ever to be witnessed in the Philippines will be held this July when 12,000 overseas and Filipino boy scouts and leaders converge at the Makiling national park in Los

Baños, Laguna, for the 10th World Boy Scouts Jamboree.

From July 17 to 26, about 4,000 youths from 68 countries will live and play together with 8,000 Filipino boys in a 300-hectare "jamboree city" carved out of the forested slopes of the legend-rich Mt. Makiling.

* * *

FIRST JAMBOREE IN FE

This will be the first time in the 52-year history of the scouting movement that a world jamboree will be held in this part of the world. It may take another 100 years before another one can be held here because there are 69 countries, members of the international boy scout conference, vying for the honor to play host to the event every jamboree time.

World jamborees are held every four years. The first world jamboree was held in England in 1920, 13 years after Lord Robert Baden-Powell had founded the world-wide youth movement in England. Succeeding world jamborees were held in the following countries: Denmark, 1924; England, 1929; Hungary, 1933; Holland, 1937; France, 1947; Austria, 1951; Canada, 1955; and England, 1957. The last was a special one held to commemorate the centennial of Lord Baden-Powell and the 50th year of the scouting movement.

The regular holding of world jamborees every four years was interrupted after the 1937 jamboree in Holland because of World War II. The first world jamboree held after the last World War was the one held in Moisson, France in 1947.

As an aftermath of World War II, this jamboree was called the "Jamboree of Peace."

A world jamboree is an international meeting of scouts and scout leaders. In a jamboree, youths led by adult leaders from as many lands as possible are assembled in one locality where they live together, exchange skills, make friends, swap native products and learn about the others' customs and traditions.

In it they live the One-World ideal regardless of religion, race, creed and social class. The promotion and expansion of universal peace and brotherhood is the primary aim of a world jamboree.

* * *

UN IN SHORT PANTS

Members of the "United Nations in short pants," as a famous Hollywood comedian once called the boy scout organization, attending a jamboree tangibly demonstrate what tomorrow's citizens can do in the making of a better world.

The decision to hold the 10th World Jamboree in the Philippines was made in August, 1957, during the 16th International Scout Conference at Cambridge, England.

At that conference, representatives of 69 member nations of the boy scouts international bureau chose the Philippines as site of the next jamboree from a number of countries which vied for the honor.

President Garcia, honorary president of the Boy Scouts of the Philippines, extended the invitation to hold the 10th World Jamboree here.

At this writing, 38 countries have already made reservations for the attendance of some 4,000 boys and leaders in the coming international scout gathering.

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BIGGEST DELEGATION FROM US

The United States will send the biggest delegation composed of no less than 1,000 boys and adult leaders. Nationalist China will be represented by 700 boys and scouters at the jamboree while Great Britain and Hongkong are expected to send 460 and 400, respectively.

Countries definitely sending delegates to the jamboree include Japan, Korea, Malaya, Australia, Belgium, Brunei, Burma, Cambodia, Canada, Ceylon, Cuba, India, Denmark, Finland, France, Greece, Indonesia, Iran, Ireland, Kuwait, Liechtenstein, Netherlands, New Zealand, North Borneo, Pakistan, Sarawak, Singapore, Sudan, Sweden, Switzerland, Tunisia, Viet-Nam, Mexico and Italy.

At least 35 more national scout associations, also members of the boy scout international bureau, are expected to send contingents.

At the helm of the gigantic preparations being made for the 10th World Jamboree is the Jamboree Board composed of the nation's leading government, business, military, education and civic leaders. This board is composed of 77 members.

However, the jamboree committee composed of a chairman, executive vice-chairman and the chairman of the eight operating committees of the jamboree, is handling the actual work.

About ₱2 million will be spent for the holding of the 10th World Jamboree. Half of this is being raised through a nationwide fund campaign which has already netted some ₱700,000 in cash and in kind. For its part, the Philippine government has chipped in ₱500,000. The rest of the amount will be raised through fees of ₱80 each to be paid by jamboree participants.—*January* 30, 1959.

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MINDORO LUMBERJACK SHOT, BY 2 JAPANESE STRAGGLERS

Two Japanese stragglers shot and seriously wounded a resident of sitio Calingag, barrio

Tilik, Lubang island last Tuesday afternoon, said a report received here today from Maj. Julian Villena, provincial PC commander.

The victim was identified as Julian Martinez, who was with several companions cutting logs, was wounded in the right shoulder. He was taken to the town by his companions.

The mayor of Lubang wired Malacañang this afternoon for a plane to airlift Martinez to Manila.

Brig. Gen. Isagani V. Campo, PC chief, informed the Japanese embassy office in Manila on the activities of the Japanese stragglers, who were identified as 2nd Lt. Onada Miroo of Wakayama prefecture and Sgt. Kotsuka Kischichi of Tokyo.

Both were the objectives of a mission headed by Akihisa Kashiwa of the Japanese welfare ministry, who was purposely sent by the Japanese government here to contact the holdouts.—RCM—*Manila Times, January* 31, 1959.

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NEW REGULATIONS ON COPAL EXPORT ARE NOW IN EFFECT

Director Bonifacio Quiaoit of the bureau of commerce today announced that commerce administrative order No. 7-1 amending rules and regulations governing the standardization and inspection of Philippine Manila copal have been in effect since December 29, 1958.

Date of effectivity of the new commerce order is its date of publication in the Official Gazette, in accordance with section 551 of the administrative code. Notification has just been received by the commerce office from the bureau of printing that the new standardization order on copal has been published in Official Gazette Volume 54, No. 38, dated December 29, 1958, on page 8603.

The new commerce administrative order provides among others, for eight grades of Philippine Manila Copal instead of seven as provided in the original order and also prescribes higher inspection fee for the lowest grade to discourage exportation of this class.—*Evening News, January* 9, 1959.

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KENAF MAY REPLACE JUTE

Two U.S. businessmen think that kenaf, a reedy tropical plant, is well on its way to eventually replacing jute.

They said that Kenaf was finding a ready market everywhere for the production of burlap bags, carpet-backing, twine, plastic, paper production and for automotive padding and upholstery.

J. Clarke Cassidy, Jr., vice president of Product Techniques, Inc., of Hudson, Ohio, said the United States uses some 160,000,000 (M) pounds of fibre annually that might be replaced by Kenaf.

Cassidy said an important consideration in evaluating Kenaf as a replacement for jute would be "our ability as an industry to maintain a relatively stable price structure and at the same time maintain close tolerances on product specifications. We are hopeful that harvesting mechanization and seed hybridization programs will make significant contributions towards both goals.—*Manila Times, January* 28, 1959.

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FREIGHT RATE HIKE FOR PI LAUAN EYED

Bullish trend in the Southeast Asian freightage market was forecast by shipping circles in Tokyo today.

Operators pointed out a 10 per cent hike in freight rates for lauan from the Philippines and iron ore from Malaya since the beginning of this market represented a forerunner in a general rise in rates in the Southeast Asia.

The freightage for lauan was recently quoted at $15 per 1000 board measure F.O.B., Butuan, Mindanao, for February loading as compared to $14.50 for January loading and $13.50 for the latter half of last year.

Iron ore from Malaya was quoted at 30 shillings six pence C.8.F., Yawata, Kyushu as against 28 shillings for 1958.

The rates will be raised further to $20 and 40 shillings for lauan and iron ore to meet the increasing operating costs, it was expected. Regarding long-distance freightage rates in 3, 34-), shipping circles were still pessimistic in view of the continuing worldwide slump.—*Manila Times, January* 27, 1959.

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PI WOOD USEFUL FOR PAPERMAKING

A technical article on the papermaking of some 83 species of Philippine wood was published recently by TAPPI, a monthly publication of the Technical Association of the Pulp and Paper Industry in the United States. This was learned from Director Eugenio de la Cruz of the Forest Products Research Institute.

Director De la Cruz said the paper which is entitled, *Fiber Dimensions of Certain Philippine Broadleaved and Coniferous Woods, Palms and Bamboos,* is based on the partial results of a continuing the FPRI toward finding species possessing long fibers.

Explaining the importance of this project, the director pointed out that generally long-fibered wood species are preferable for the manufacture of pulp and paper.

The article carries information on the length of fibers, cell wall, thickness, width of the lumen, and other fiber characteristics having something to do with the paper-making properties of wood.

Mr. De la Cruz mentioned that most of the 83 species covered by the article appear very promising or promising for the manufacture of pulp and paper because they have sufficiently long fibers and other fiber characteristics suitable for the purpose.—*Manila Times, January* 27, 1959.

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RESEARCH GROUP ON BENGUET PINE TREES FORMED

A joint cooperative research project on Benguet pine thinning, the first of its kind in the country, was established here by a team of experts and personnel of the college of forestry, bureau of forestry and the ICA.

The Benguet pine thinning program, which is calculated to increase the peso-producing capability of the pine forest, was initiated in the fall of 1957, by the college of forestry and the bureau of forestry.

The American experts are now in this city to help lay out the Benguet pine thinning study. They are: Dr. C. Eugene Farnsworth, visiting professor of silviculture; and Dr. Earl L. Stone, Jr., visiting professor of forestry in the UP college of forestry, with fields in forest soils and watershed management.

Dr. Farnsworth underscored the importance of the project, saying that properly carried out, the study site would provide a place to show to the people as the best argument on the need for protecting the forest.

He said that an orderly management of the Benguet pine forest would increase timber supply. He observed that Mt. Province is an ideal place for timber production, and that the province should contribute a major part in the timber industry of the country.

The Benguet pine, which is scientifically called *Pinus insularis,* has been successfully used for reforestation in the Philpipines for a number of years. The age of planted stands has in several instances been reached where attention is needed to maintain satisfactory vigor.—*Manila Times, January* 27, 1959.

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SOIL EROSION THREAT CITED

Water expert sees danger to Ambuklao dam

Dr. Earl L. Stone, Jr., forest soils and watershed management expert, urged yesterday different government entities to pool their efforts in minimizing soil erosion along the Ambuklao access road to prevent the silting of the multi-million Ambuklao hydroelectric dam.

Dr. Stone, who is a visiting professor of forestry at the U.P. college of forestry, visited the Ambuklao hydroelectric project yesterday with Dr. C. Eugene Farnsworth, also a visiting professor at the forestry college.

He said he was "shocked" to see the great erosion going on in the area, and that he suspected that considerable volume of soil has already been washed down the rivers and on to the Ambuklao hydroelectric dam.

Stone cited the need for water control program to check on erosion with particular respect to the road construction and those of logging trails in the region.

The visiting professor, who was with the photogrammetry squadron of the Fifth Air Force during the liberation of the country stated that planting of trees alone will not control soil erosion in that place.—*Sunday Times, January* 25, 1959.

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COFFEE PLANT DISEASES NOTED

Four hitherto undescribed fungous diseases attacking coffee plants in the Philippines have been observed by plant pathologists of the UP college of agriculture at Los Baños.

The diseases—twig girdle and berry rot, zonal leaf spot, rhizoctonia blight, and thread blight—have caused considerable damage to coffee trees under conditions favorable for disease development, according to Dr. F. T. Orillo and R. B. Valdez of the department of plant pathology.

These new fungous maladies sporadically in coffee plantings of the Los Baños agricultural college, Bureau of Plant Industry and some private growers.

Symptoms of the diseases are as follows:

1. *Twig girdle and berry rot*—The disease first appears as minute cracks starting on the vertical branch. The cracks ramify on the infected and healthy areas. Infected bark peels off and death of the top main stem results.

The stem infection may enlarge and spread to the berries producing water-soaked lesions. Infected mature berries shrivel and die and are covered by a dirty white to pinkish floury mold.

2. *Zonal leaf spot*—This attacks mainly the leaves and produces circular to irregular lesions. The lesions start as minute and depressed specks on the leaves and gradually enlarge with age.

During favorable conditions of fungous growth, the injuries enlarge rapidly with the characteristic "zoned" pattern. During dry months, infection is very slow and the "zoned" patterns are absent.

3. *Rhizoctonia blight*—Infection on the leaves is characterized by irregular water-soaked blotches occuring on any portion of young and mature leaves. Under favorable conditions, the infection spreads and blighted leaves drop to the ground. During dry spell, affected leaves appear sun-scorched.

4. *Thread blight*—Fungus forms coarse, white to brown strands tightly appressed under the leaves or on shaded portions of branches causing necrotic lesions on tender shoots.

Severe infection on the leaves causes premature defoliation and death of small branches. Berries may also be infected at any age. In severe cases, the disease invades and girdles the peduncle eventually causing premature drying of the berries.

Studies on the control of these diseases are being undertaken at the agricultural college department of plant pathology.—*Sunday Times, January* 18, 1959.

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TO STOP YULE TREE SMUGGLE

Brig. Gen. Pelagio Cruz, Constabulary chief, today directed the Mt. Province PC to assist forestry personnel in the prevention of "smuggling" of Christmas tree to Manila and lowland towns.

Cruz' directive followed an announcement by the bureau of forestry that the four-year ban on the cutting down of pine trees which started 1956, still stands.

Rafael Quidilla, Baguio district forester, said that the only source of pine trees will come from private lot.—*Daily Mirror, December* 8, 1959.

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WORLD BS JAMBOREE SITE SEEN

Boy scout officials from all over the Philippines have been impressed by the progress of construction at the 10th World Boy Scout Jamboree camp site at Makiling National Park here.

The officials who attended the "key 3" conference in connection with the coming world jamboree visited the camp site this noon.

Jorge B. Vargas, conference chairman, headed the delegation to Los Baños. He said the camp site was well selected, adding it has a commanding view of Laguna and Rizal provinces.

Commenting on the progress of construction, Vargas said more equipment should be used to level the roads.

Hermenegildo Reyes, chairman of the physical arrangement committee, briefed the delegates on the progress of construction at the camp site. He said some eight kilometers of highway road carved out from rolling hills and criss-crossing the camp site were finished.

According to him, drilling for water supply was in progress. The water supply would come from two natural springs nearby.

The visitors, who came in some 30 cars and buses, were welcomed to Los Baños by Mayor Genaro V. Catalan and Dean Leopoldo B. Uichanco of the UP college of agriculture here.

Upon arrival, they made an ocular survey of the 300-hectare camp site, travelling through dusty gravel roads up to the site of the general headquarters.

The visitors enjoyed the panoramic view of Laguna de Bay and other towns of Rizal and Laguna. The cold breeze from the placid Laguna Lake chilled most of the delegates.

Later, they were feted with a barrio fiesta at the town plaza, complete with folk dances and other entertainment numbers. An open forum on the 10th world jamboree was also held with chairmen of the different committees in attendance.—*Manila Times, January* 12, 1959.

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AUSTERITY AND OUR FORESTS

The forest conservation program, such as it is, is one of the laudable projects adversely affected by austerity. As our legislators prepare their work sheets for the next Congress, attention is being focussed on the despoliation of forests and the loss in millions of pesos which is due to accidental fires, man-made fires set by *kaingeros*, the failure to carry out selective logging pledges, and the limited reforestation program in which the government is only mildly interested.

The House forests committee the other day reported that the total forest reserve has been reduced by 2 million hectares of forests administered by concession-holders, only half a million is being selectively logged.

In his Tokyo visit, the President cited forest products as one of the mainstays of Philippine exports to Japan. The bulk of these exports is in logs. Those who have enough foresight and public spirit say that in about 10 years, there will be such a critical depletion of main forest resources that there won't be anything to ship, or anything to hold the water during the rainy season.

The bureau of forestry used to have an outlay of ₱3.5 million to finance its reforestation program. It conducts experiments in forest management, inventories of resources, and research, but its funds are limited.

Congress should appropriate more funds for reforestation, research, and the enforcement of forest laws. If no funds are available in the

near future, existing laws should at least be strictly enforced—both on the *kaingero* and the concession-holder who ignores selective logging. —*Manila Times, December* 8, 1958.

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FOREST FIRE PERILS CALIFORNIA RESORT

An explosive brush fire cut a black swath of destruction through the mountain playground of Hollywood movie stars Wednesday, destroying 26 homes, menacing scores more, and routing hundreds of families.

The 50,000 dollar home of actor Lew Ayres was one of the houses destroyed as the flames raced eight miles across the Malibu Hills to the sea, driven by dry, gale-force winds.

Property on ranches owned by actors Ronald Reagan and Bob Hope was damaged. Actor Glenn Ford evacuated his flame-threatened ranch, trucking out several head of prize cattle with him.

The famed film colony of Malibu Beach lay only a mile from the leaping flames and residents stood by through the night playing water on their fashionable homes. One of them was actor Jakie Coogan, who cancelled a television appearance Tuesday night to watch over his house.—*December* 4, 1958.

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FOREST PROTECTION SEMINAR

Forest officers of the first forestry district in the Philippines will have their first seminar on forest protection in the city of Baguio on the 14th and 15th day of this month. The purpose of the seminar is quite important. Also the program of the seminar is well conceived, those to speak on forest protection presumably are the best available locally and under the circumstances.

In between, or following the sessions, the participants will have luncheons, cocktails and dinners, all tendered by the local mining companies and forest concessionaires. To cap the seminar, a climaxing reception and dance will be given for those joining the conference. So it will not all be serious fare. The meeting, in order not to be dull, will also have its lighter moments.

Beyond any cavil, the protection of Philippine forests is a matter of serious national concern. While we have a tremendous stand of trees in our forests, of the most valuable timber to be found in tropical growth, this virgin stand is fast disappearing, and practically negligible effort is being exerted to restore what is becoming a permanent loss, either because once forest lands have become agricultural, or denuded timber areas have not been reforested

The problem of forest protection and conservation in the first forestry district attaches principally to the Central Cordilleras in the Mountain Province. In their once virginal state, you had trees literally marching from the mountain tops down to the coastline. We have here even now the lush vegetation of the tropical rain forest and the scrubby alpine growth of cold altitudes. As with every other forestry district, the first has its own peculiar problems.

In the matter of forest protection, two major causes of forest destruction could be readily prevented should forest fires and illegal clearing of kaingins be halted altogether or minimized effectively. With mother or seed trees left in logged-over areas, reforestation by nature is quite adequate for all purposes and would do very well indeed, provided forest fires and kaingin clearing are guarded against.

Forest conservation includes that of protecting the watershed of streams and rivers flowing down to the sea. The Cordilleras are the fountainhead of all the rivers of northern and partly of central Luzon. This watershed role of forest and vegetation in the Cordilleras is a matter which needs understanding and comprehensive appreciation in order that a program of effective conservation can be mapped out. The problem needs careful study and investigation, a task perhaps as yet unassigned or altogether overlooked.

The generous patronage of the seminar by the mining industrial concerns and forest concessionaires must be from a correct apprehension of the value of forest protection and conservation in which they are vitally interested. For trees are indispensable in the mining industry.

A word of counsel to the participants in the seminar: In order to allay public skepticism in the sincere purpose of the conference, the delegates should devote themselves seriously to the supremely important objectives of the seminar. The success of the conference would inescapably follow should every Filipino participant be imbued with that love of country which is the inner force or drive leading to national achievement, the magic key opening to greater vistas. —*Baguio Midland Courier, January* 11, 1959.

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T I M B E R

Specially prepared for the Manila Times *by "The Economist" Intelligence Unit of London*

There has been no significant recovery in industrial production in the U.K. after the summer holiday period. When adjusted to allow for seasonal factors, industrial production in

September was 4½ per cent lower than a year ago, this being the widest gap recorded so far this year.

But, despite this evidence, the general feeling in industry is surprisingly optimistic. This is especially true in the major consumer goods industries, where the first responses to the relaxation in controls on credit sales have been fairly good on the whole. Furniture manufacturers are particularly optimistic and a recent survey suggests that a boom is already beginning. Order books have been filled with a sudden rush of orders and as a consequence delivery dates which has been counted in weeks now go into months. Some manufacturers go so far as to suggest that conditions have never been better. To some extent this must be discounted by the fact that the last part of the year is normally the best for the furniture industry, but most estimates agree that if present progress is maintained the industry's sales will be 10-15 per cent higher next year. One fact seems to emerge from recent trading. This is that traditional, reproduction lines have shown the largest increase, probably because the purchasers of this type of furniture are most affected by credit sales relaxation, and this means a good market for veneers. But it is clear that all types of furniture have benefited.

The radio, television and record player field has also experienced an improvement. Here it seems likely that the newly-developed stereophonic records will provide an extra fillip to sales.

The hardwood trade's reaction to these improvements has been varied. The forward market trade has certainly increased and there seems to be a rather wider interest in buying. Furniture manufacturers were mainly low in stocks of timber and they have been fairly quick to approach the importers for supplies. But importers are still a little cautious, with some exceptions, and they are mainly confining themselves to filling gaps made by furniture makers' purchases. Some sources go so far as to suggest that the average importer would rather be without all he might conceivably need to cover a big increase in consumption, than be caught carrying too much in a competitive market. Some importers have been buying quite heavily, however, although there seems to be almost a complete absence of any speculative buying.

In this atmosphere only such items as Japanese oak and Yugoslavian beech, for which demand will almost certainly outrun supply, are being freely bought. Heavy quantities of both have been bought for 1959 delivery. The comparative shortage of Japanese oak—the Hokkaido cut is smaller than last year—has caused prices to firm up and some swing towards U.S. oak is on the cards.

Despite the ending of the Bangkok freight "war" and the establishment of firm rates causing an increase in yang prices Keruing remains on the weak side. Demand from the U.K. is not strong, and this has also had weakening effects on teak and iroko prices.

Some West African timbers are very firm, amongst them niangon which is now well above summer prices, while Nigerian abura is in short supply and shippers are asking, and to some extent getting, top prices. Elsewhere log prices are mainly weak; for Ghana utile this is a consequence of shippers pressing logs on rather reluctant buyers. But now, at last, the rains have begun. This should at once ease the pressure on utile and soon increase the supplies of abura as more lografts come down the coast. More normal prices do not seem far away now.

One point of interest has emerged from the current U.S. industrial revival. Building has experienced a fairly sharp upturn and hardwood flooring blocks are in stronger demand. Prices have risen and this must to some extent affect the U.K. which has increased its imports of U.S. hardwood flooring blocks from under 45,000 cu.ft. in 1956 to about 115,000 in 1957. This year total imports of hardwood flooring blocks and strips and parquet flooring in sections has been running at an annual rate of over 590,000 cu.ft. against 742,000 cu.ft. in 1957.

Arrivals of hardwood in September were slightly down on August, totalling 3,210,958 cu.ft. against 3,301,974 in August. Contracts placed were larger, however, 2,193,000 cu.ft. against 2,081,000. A feature of the figures is the fall in stocks of imported hardwood held by importers, which are down from 18,985,483. These are of course, higher than those held for example in May, June or July but they are still small and probably hardly adequate to meet sharply improved demand. It is probable that September orders were placed before the new upsurge in the furniture industry became apparent in October, and even more November stock and contract figures should prove interesting. Outstanding contracts at the end of September totalled 13,139,021 cu.ft., an extremely low level.—*Manila Times, November* 28, 1958.

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US EXPERT CONFERS WITH LUMBERMEN

Given briefing on pressing wood problems

Dr. Tom Gill, *world famous policy expert and executive director of the Charles Lathrop Pack Forestry Foundation,* recently met with the officers of the Philippine Lumber Producers' Association.

He was invited to come to the Philippines by ICA at the request of the Bureau of Forestry and the National Economic Council.

Dr. Gill was given a briefing by the PLPA directors of the pressing and current problems in connection with administration, utilization and mangement of public forest. One feature of the current policy of the government which has resulted in unwise forest conservation is the release of forest land adopted for forest growth for agricultural purposes. Likewise, it was observed that reforestation fees collected by the Bureau of Forestry intended to implement reforestation measure and to bring about reforestation project ,are mingled with the general fund of the government and spent for some other purposes.

Dr. Gill will visit the various forest regions of the Philippines, and members of the PLPA have placed at his disposal their concession areas so as to give him all the opportunities to observe forest administration, conservation and utilization.

As soon as he had made a thorough study of Philippine conditions, Dr. Gill will again confer with the entire members of the Philippine Lumber Producers' Association for a more definite and thorough discussion of existing problems in accordance with his countryside observations. The work of Dr. Gill will give the government a guiding reference for a complete analysis of conditions prevailing in the Philippines upon which a wise forest policy may be made. —*Manila Times, January* 21, 1959.

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EXPERT WARNS AGAINST LOSS

Gillsays Kaingin ruining forests; notes soil waste

The manificient forests of the Philippines are rapidly being reduced to man-made deserts, Dr. Tom Gill, a forester of international renown, told the Society of Filipino Foresters Wednesday night.

"The greatest single factor causing the destruction of this valuable resource are the kaingins made illegally on the mountains and forest lands," Dr. Gill said. Thousands of hectares of steep lands covered by costly timber are cleared every year through this kaingin practice. Unless stopped, he said that the rich forests of the country would be ruined and the cost of reparations will be tremendous.

Dr. Gill is on a two-month study of local forest policies and laws upon invitation of the Bureau of Forestry under the NEC-ICA program. He was guest speaker last night of the association of Philippine foresters.

"There seems to be a general belief that one can create agricultural land by legislation yet in the whole history of civilization, there has never been found any way to force sterile forest land to yield permanent agricultural crops.

"The damage to the forests and the waste of valuable timber are bad enough, but worse still is the destruction of the soil itself—for soil is the very basis of the world's life.

"The destruction of Philippine forests and forests lands by the kainginero is a problem that from the standpoint of ultimate human welfare far outranks the more publicized problems of subsidies, export permits, and peso exchange."—*Sunday Times, March* 1, 1959

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MODERN LUMBER METHODS URGED

Philippine lumber exports will eventually be flusched out from the American and Hawaiian markets by other foreign suppliers if the local industry does not adopt modern and scientific techniques of production, Ruben Alvarez, commercial attache in Honolulu, told lumber producers yesterday.

The trade official, who is currently in consultation with the department of commerce and industry, stated that kiln-dried lumber has been methodically reducing the demand for air-dried and green lumber in the western markets.

Alvarez urged that the National Economic Council and the Central Bank relax the regulation on the importation of kiln-drying machinery, modern sawmill equipment and spare parts. He said some lumbermen had informed him that their application for import licenses for such equipment have not yet been acted upon.

The trade official pointed out that the lumber producers and exporters were being shortchanged by foreign buyers of Philippine logs and timber. Philippine lumber exports, he cited, cost ₱60 per thousand board feet, and foreign buyers kiln-dry them to be sold at $150 for the same quantity.

Alvarez said the move in Congress to bring about a systematic reforestation of denuded wooded areas and a judicious cutting of trees would go a long way in helping the full development of the lumber industry, especially with the application of scientific techniques.—*Manila Times, March* 2, 1959.

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I went to a lumber association dinner prepared for a boring evening. What I heard from world-renowned experts in that dinner should make every Filipino's hair stand on end. The Philippines, according to Tom Gill, American world famous forestry expert, have forests the equal of any in the world but these forests are now being destroyed faster than any in the

world. If the Philippines did not do anything to stop indiscriminate destruction of our forest resources, he said, Filipinos of future generations will live in deserts made by the Filipinos today.

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Converting forest lands to agricultural land without scientific consideration for their adaptability to agriculture will destroy not only the forests but the fertile lands around the former forests. In Brazil, said Mr. Gill, a 5000-hectare forest was cleared by the government to make room for farmers but in less than a year the once forest land became hard as rock and the surrounding areas became arid. We need education in forest and soil conservation, but our lawmakers are too wise to bother about this. It does not concern them what happens to our grandchildren.

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According to Sam Nicky, president of the Philippine Mahogany Association of America, Philippine mahogany has been discovered to possess excellent acoustical possibilities. Philippine mahogany, he said, has a great future in the United States as raw material for boats, musical instruments and furniture but Filipino exporters must guard the quality of what they export.

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The political tolerance of the "kainginero", all agreed, is costing the Philippines millions of pesos daily and this apathy towards forest conservation is slowly destroying the fertility of our agricultural land. There is no such thing as a fertile area, said Mr. Gill. Fertility comes from decaying vegetation. Where there is no vegetation, not all the fertilizers will help because there will also be no rain. Mr. Gill's description of our "race between education and disaster" should be read by every congressman and by the President. I'm sure they'll not sleep the night they read it. It is that horrifying.—*Over a cup of coffe by Teodoro F. Valencia. The Sunday Times, March* 1, 1959.

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THE STORY OF THE "ROMBLON" PLANT

By TEODORICO MONTOJO
Bureau of Forestry

Out in the Visayas, a home industry has been quietly flourishing aided by an almost unknown plant called the "romblon" (Pandanus sp.). The weed which ordinarily would not draw a second glance from anyone has, in creative hands, become a product of beauty and practicality. The mats and hats woven out of the romblon plant are conceded by those who have seen them to be works of art.

The "romblon" plant derives its name from Romblon Island where it originally came from. How it finally found a home in Cebu, Leyte and Bohol is a story in itself.

As one will have learned from geography, Romblon Island is the smallest island in the Philippines where the capital town of a province is located. It was also once a favorite of botanists because of the rare and bleautiful species that existed on it. Many of these plants are no longer found there, among them the "romblon" plant. The only native plants that remain are the "baguiw" (Rosa sp.) of the Rosaceae family, a useful and beautiful ornamental plant because of its fragrant, white-yellowish flowers, the "pay-at", the "busisi", the "sentimiento", the kuyaoyao (batino) or "Alstonia macrophylla", the "liong-liong", the "kayumamis", the "tuñgao", etc.

The "romblon" is a kind of pandan (locally called "baliw"). It thrived abundantly in the coasts and hillsides of Romblon Island ages ago, particularly in the barrios of Agbudia, Palji, Logoon Barrio Islet and sitios Binagong, Ipil, Sowa, and Lusod. The "romblon" grows best in sandy soil just like any other pandan species. It is a delicate plant and requires constant care and cultivation.

But the Romblon inhabitants disregarded the care of the plant and it would have gone into complete extinction were it not for the traders and fishermen from the neighboring Visayan provinces. These traders found in the plant potentialities which the natives had not recognized. Their families back home were engaged in the weaving of hats and mats. And they saw in the leaves a more useful and beautiful material than what they had been using. They brought the plant to their homes where soon it was being turned into beautiful hats and mats.

Perhaps one reason why the natives of Romblon neglected the "romblon" plant was their shift of interest to coconuts following a Spanish decree making the planting of coconut trees in Romblon Island compulsory. Soon coconuts took the place of the "romblon" to such an extent that Romblon Island now has the distinction of having the greatest number of coconuts per unit area in the whole Philippines.

So the "romblon" plant went travelling to other soils carried by itinerant peddlers and fishermen who touched at Romblon Island while plying their trades. A Bohol fishermen even exchanged his sailing boat ("solohan") for the plant.

Recently, the "romblon" plant returned to its ancient home when a peddler from Bohol, Severo Alvares, brought thousands of hats and

mats made from the plant to Romblon. Other products found their way to Odŏñgan, Romblon. This author has taken steps to see that the "romblon" stays in its real home by bringing suckers of the plant to Barrio Agnay in Romblon and planting them there.

The natives of Romblon are also engaged in the weaving industry but they lack the materials for weaving. They import "buri" leaves from Oriental Mindoro because the local buri plantations under the coconut trees can not support the industry. Maybe when the "romblon" suckers will have been given a chance to grow, the natives of Romblon will finally see its true worth and realize that right in their backyard they have the material that they need.

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THE "ROMBLON" OF ROMBLON

By
TEODORICO MONTOJO
Bureau of Forestry
Romblon

Romblon is one of the main islands where the capital town is located in the province popularly known as the marble province of Romblon. Marbles and Mancono (*Xanthostemon verdugonianus*), the hardest of Philippine woods, are synonyms to Romblon. Romblon is dubbed as a Rocky Visayan Province. But nobody knows that there is another popular name among the cottage and home industry centers in the Eastern Visayas. In Cebu, Leyte, Bohol, "Romblon" is a very popular name. This time "Romblon" is not a beautiful port, but a useful plant made beautiful by hat and mat weavers in Cebu, Bohol and Leyte. The history of the "Romblon" plant is replete with romance and adventure aside from the fact that it is indigenous to a province which is located in the heart of the Philippines (Romblon) where trade and fishing had attracted the East Visayan traders and fishermen from Cebu, Bohol and Leyte, bringing back to their homes the seedlings or suckers of this now popular plant of economic value, and exchanging with the natives of Romblon, the fisherman's fast sailing vessel ("solohan") now locally called as "Binol-anon" in honor of the Boholano fisherman who exchanged same with the suckers of the "Romblon". Romblon Island had been the aborigine of this "Romblon" plant growing abundantly with the native plants of Romblon such as the "baguiw", a beautiful and useful small-sized tree with beautiful and fragrant flowers the "payat", the "Lumbay" (*Gnetum gnemon*); the "sentimiento", the "cuyao-yao" (Batino), the "kayumamis", the "liong-liong", the tuñgao", the "tuba", etc.

"Romblon" is a kind of pandan that belongs to the hillsides and coastlines in the island capital of Romblon, particularly in Lugbong, Agbudia, Paji, Lonos, barrios and sitios of Binagong, Ipil, Sowa and Lusod. The "Romblon" thrives best in sandy soil just like any other pandan species. It is a pandan species that is intolerant which has delicate surviving characteristics such as constant care and cultivation as weeding of dominant species as the common pandan which has wild characteristics. It belongs to a class of pandans which is suppressed and intolerant in contradiction to the class of dominant or tolerant species, the common or wild pandan. To make my point clear, a hypothetical situation will illustrate that "romblon" planted indiscriminately with pandan, "ticug", "bacung", belibid", "baliw", lamang", etc. will perish in due time.

Due to the disinterest of the Romblon inhabitants to this aborigine plant, complete extinction resulted therefrom. Those who brought this plant to their homes, took meticulous care for its growth and propagation. The abundant growth of this plant in Western Leyte, Bohol, Cebu and other eastern Visayan provinces, explains the interest of the people in the Eastern Visayas in the economic importance or value of the "romblon" leaves for the manufacture of mats and hats, a home industry which existed long, long ago before the introduction of the "romblon" to the Eastern Visayan region.

Another reason why "romblon" is no longer found in Romblon Island is due to the shift of planting interest to coconuts following the Spanish Governor's decrees, the Spanish authorities punished the family that did not plant coconut. That is why coconuts took the place of the "romblon" and Romblon has the distinction of being the island having the greatest number of coconuts planted per unit area of land. Even the slopes, mountains, ridges, plateaus and hillsides of Romblon Island are all covered with coconut trees. The recent typhoon "Wanda" (1951) and other typhoons were not a deterrent to the coconuts of Romblon. At present the plantations have rehabilitated in the lapse of eight (8) years.

Unlike the interest of the Romblon inhabitants to the "romblon" plant, many itinerant peddlers and fishermen that touched Romblon Island in the pursuit of their trades, their families back home were engaged in the home industry of weaving hats and mats, so much so that when these traders and fishermen found a new and more useful and beautiful material for weaving in the leaves of the "romblon" plant,

they brought with them seeds and seedlings to their faraway homes and cultivated and cared for them, and they named that plant species as "romblon", after the name of the place where it originally came from. A Bohol fisherman exchanged his fast sailing boat ("solohan") with these plants and later the natives of Romblon accepting the boat's design copied it from generation to generation. Today this type of sailing boat in Romblon is popularly called "Binolanon" in honor of the place where it was originally designed.

As the old adage says, "No matter how long a procession is, the procession will return to the church just the same." The honor and distinction of bringing the "romblon" plant to Romblon Island and Odioñgan, Tablas Island in the form of beautiful and colorful woven mats and hats, is Mr. Severo Alvares, of Bo. Nueva Estrella, Talibon, Bohol, the home town of President Garcia. The Romblon natives are tired of their "buri" mats. They are not smooth as the "romblon" mats nor are they colorful and beautifully-designed as the "romblon". Thousands of these mats and hats have circulated the town of Romblon, Romblon, and thousands found its way to Odioñgan (Tablas Island) Romblon. The dyed "romblon" mats and hats have finally found their ancient home.

Hundreds of these "romblon" plants in the form of suckers had been planted in barrio Agnay, to rehabilitate these plants and to pave the way for an industrialized home industry in Romblon Island, the weaving industry. Romblon Island lacks the materials for its weaving not even to mention the fact that the natives are importing "buri" leaves from Occidental and Oriental Mindoro, because their buri plantations found locally could not support the mat weavers of Romblon. The beautiful "locab" and the useful "tinagsa" are very popular in Manila coming from Romblon, Romblon. These mats are made of buri. But they can not compare favorably with "romblon" when it comes to comfortability, beauty, smoothness, etc.

The writer had the occasion to study and research on the origin of this plant and the conclusion is true that it originated from Romblon, Romblon. A native of Otod, Baybay, Leyte was interviewed by the writer.

Our weaving industry should be bolstered by the government where our products should not only be sent within the Philippines but throughout the world, U.S.A., Europe, China, Cambodia, Britain, India, where it will have a place for exhibition and utility.

AGRICULTURAL AND INDUSTRIAL LIFE, October, 1958 issue Vol. BB, No. 10.

NBI 'BLACKLISTS' ILLEGAL LOGGING OPERATORS, DUMMIES

Rep. Jose Nuguid of Bataan has received from the national bureau of investigation a "blacklist" of illegal logging operators, dummies of concessionaries and aliens involved in the illicit cutting of timber on US naval reservations and national park areas in Bataan.

Nuguid got the blockiest as he blamed the national parks and wildlife commission for "maladministration" of timbered areas in Bataan reserved for the preservation of Bataan flora and fauna.

Conferring with Acting NBI Director Jose G. Lukban, Congressman Nuguid explained that the blacklist will help guide PC checkpoints in blocking illegally cut logs being shipped out of the province.

Nuguid said the PC has completely stopped the shipment of logs from Bataan to the prejudice of concessionaries cutting timber within their concessions.

The Bataan congressman said a realistic examination of the current restriction was necessary because of the socio-economic factors involved. He said a presidential proclamation reducing the areas reserved for parks would be helping thousands of Bataan residents who depend on forest products for a living.

He revealed that out of Bataan's total area of about 130,000 hectares, only about 30,000 hectares are available for farming purposes for a population of 120,000.

He said the rest have been declared as reservations, distributed as follows: 30,000 hectares for the US naval reservation; 600,000 hectares for parks, and the rest for experimental stations of the bureau of forestry.—*Sunday Times, February* 22, 1959.

* * *

NBI PROBES LOGGING FRAUD

The national bureau of investigation yesterday said that it might invoke the US-PI bases agreement in recommending prosecution of concessionaires, sawmill operators and truckers involved in the million-peso, illegal logging operations in Bataan.

This followed the revelation yesterday that most of the logs stolen from Bataan forests were cut from the US naval reservation near Dinalupihan, Bataan, and Olongapo, Zambales.

NBI agents returning from Bataan reported that vital evidence has been found supporting the NBI theory that a number of forest concessionaires in Bataan were "renting out" their foresting rights to illegal log cutters and haulers.

The NBI probers said a woman log dealer has admitted having paid royalties estimated at ₱70 to ₱300 a week to two concessionaires for the privilege of using haul logs away from the US naval and Philippine wildlife reservations in Bataan.

The woman has also admitted having paid the forest charges and license fees of the two concessionaires and having accepted cash advances from an alien-owned sawmill in Manila to continue her logging operations.

The NBI fraud branch, which is investigating the million-peso anomally, said disposition of 1,000 logs recently seized in Bataan by the NBI has been placed in the hands of a committee composed of representatives of the provincial governor, bureau of forestry, national park and wildlife, and Philippine Constabulary in the province.

The NBI said it has recommended suspension of logging and shipment operations in Bataan and it is now up to the PC command in Bataan and Pampanga to prevent the smuggling out of logs cut from prohibited areas.—*Manila Times, February* 17, 1959.

* * *

GOV'T SLATES FOREST PERSONNEL EXAMINATION

The bureau of civil service announced the holding of examination for forester, forest station warden and forest guard, on April 3, in the following places:

Manila, Bacolod City, Baguio City, Butuan City, Cagayan de Oro City, Cebu City, Cotabato, Cotabato; Davao City, Iloilo City, Ilagan, Isabela; Laoag, Ilocos Norte; Naga City, Tacloban City and Zamboanga City.

Applications must be filed on or before the close of office hours on March 6, in the bureau of civil service or with the chairman, local examining committee from which application forms may be secured.—*Daily Mirror, February* 16, 1959.

* * *

PELAEZ ON FOREST DESTRUCTION

Senator Emmanuel Pelaez called for swift congressional action to stop the alarming rate of forest destruction.

Citing official data, Pelaez said most provinces had dissipated their forest resources below safety levels. Forest destruction in the Philippines is one of the highest in the world, he added.

Pelaez revealed that in 31 provinces, timber stands were already below the level required for preservation of soil cover. The remaining forests in Bohol, Capiz, Cebu, Ilocos Sur and Iloilo are less than 30 per cent of what these provinces should have, he said.

The Mindanao-Sulu-Palawan solon pointed out there are only 13 provinces that have substantial forests left. But even in these provinces, forest destruction is very rapid. It will be only a matter of time before serious soil erosion and flash floods will appear in these provinces, he said.

"People must be jarred out of the complacement illusion that we still have 14 million hectares of forest resources," Pelaez stated. "We have only seven million hectares of accessible commercial forests left. If these forests are not conserved, the fate that overtook northern China and Lebanon could be repeated here."

Pelaez hit the belief that reforestation alone could make up for the rapid drain in forests. Just to reforest critical water-shed-areas would cost ₱250 million and take 230 years, he said. Forest conservation and protection must be given priority, Pelaez added.

Congress can help plug this drain by approving legislation to prevent arbitrary releases of permanent forest areas, Pelaez asserted. Congress could also examine the way reforestation funds are spent. This would prevent its use for unauthorized purposes.

Pelaez stressed that the government must adopt far-sighted policies in the conservation of remaining forest resources. He pointed out that the rapid population growth and new scientific processess would cause demand for wood to rise in the years ahead.

We must use our forest in such a way that the generation that will come after us will have enough to meet their needs," Pelaez said. "Foresight coupled with a sense of responsibility is the only sound basis for management of our forest.

* * *

Senator Emmanuel Pelaez pointed out the factors that have led the Philippines to be among the "most science-impoverished nations of the world".

Addressing the Fourth Annual Convention of the Philippine Association for Technological Education (PATE) at the J. Mapua Memorial Hall, Manila, Senator Pelaez said that two of the most decisive causes for our science backwardness have been our educational policies and attitudes and, our failure to organize our people's intellectual effort and apply them vigorously to the problems that beset us.

"As to our educational policies, every treaties and study on the subject that I have come across points to the lack of consistency and of well-defined objectives. With few ex-

ceptions, our elementary and secondary schools have failed in their primary mission of training our youth to think. We have so cluttered up our curricula with inconsequential things that we have failed to inculcate in our students the mental discipline and vigor that is the hallmark of the truly educated man", Pelaez deplored.

The Mindanao-Sulu-Palawan senator also lamented our utter failure to cultivate the scientific spirit in our youth saying that "our graduates do not come out of school fired by a quest for discovery, by an intense desire to know about the things around them, by an impatience with the old inefficient, traditional ways". "On the contrary," he continued, "they simply take things for granted, drift along with the crowd, obssessed only by the necessity of landing a job — any job provided it is a paying one — and the less work it requires, the better".

"As exceptions", the Chairman of the Senate Committee on Scientific Advancement said, "we have a few talented, brilliant young men and women who are fired by the pursuit of excellence. But we have neglected them. We have failed to provide incentives for them, levelling them down to the mediocrity that has resulted from our haphazard educational effort".

At the same time, Pelaez advocated the clarification of our educational objectives and the reexamination of our methods to the end that the products of our schools will come out of them not only with a capacity to understand and to think but with a continuing urge to exercise the mind and to broaden their mental horizons. He also underscored the necessity of inculcating in the youth the conviction that in the present day age some basic knowledge of nature and the scientific spirit of investigation are indispensable to everyone, no matter what career he may wish to pursue.

Pelaez was introduced by Oscar Mapua, President of the Mapua Institute of Technology and of the PATE.

* * *

PLYWOOD MAKERS EYE WORLD MART

The Plywood Manufacturers Association, in its annual meeting held at the Elks Club last week, elected two new members of the board and reelected seven members. The new directors are Leonides S. Virata and Richard Bartlett while the members reelected were N. N. Kosloff, Manuel Diaz, Ricardo Garcia, Benigno Lim, John Gotuaco, Hector Lacson and Jose Monfort.

In an election held immediately after the stockholders meeting, the directors unanimously reelected N. N. Kosloff as president for the year 1959, together with Leonides S. Virata as vice-president, Ricardo Garcia as treasurer and Benigno Lim as secretary.

In submitting his annual report to the stockholders of the association, Kosloff said that "1958 was an eventful year for the plywood industry. It was a year of challenge — a challenge to its very existence. From within the country, the industry faced major problems — the problem of lack of government support and understanding; the problem of existing conflicts with the glue, cassava and logging industries; and the underlying difficulty of understanding the objectives and the true concept for which the Plywood Manufacturers Association was organized. From without, the industry faced the problems of increased tariffs and quota limitations in the United States market, if not total exclusion therefrom."

In concluding his report Kosloff said: "In this connection, I should like to invite attention to objectives one and two of our articles of incorporation which have something to do with the standardization and improvement in the quality of our products to meet the needs and requirements of both the domestic and foreign markets, and the development of outside markets for plywood and veneer . . . these two objectives should now be in the forefront and should occupy the attention and concern of all those engaged in the industry. We all know that there are threats to the further entry and increase in the exports of Philippine plywood in the United States market, I feel that it is logical, reasonable and necessary that we develop markets other than the United States market."

The plywood industry is now composed of the 17 major plywood and veneer manufacturers in the country, having total capitalization of ₱50 million and employing more than 15,000 laborers in 22 plywood and veneer plants scattered all over the country. Last year the industry brought into the country approximately $280 million of export receipts.

* * *

WAPCO

Director Felipe R. Amos of forestry advocated recently a re-study of the WAPCO standard classification of positions and staffing pattern to fit the present setup of his bureau.

In a letter to Senator Gil J. Puyat, senate finance committee chairman, Director Amos said the WAPCO plan is good but its implementation causes complaints and dissatisfaction among government employees of all levels.

The forestry head suggested legislative remedial measures to correct some WAPCO classification defects felt by his staff, most common

of which are: 1) the salary of the assistant director is lower than those of the division chiefs; 2) the requirement that no promotion would be given except when there is a change of work and designation; 3) the classification of some technical personnel as clerks; 4) the deprivation of agency head the authority to assign personnel to other work when the exigency of the service demands; and 5) the non-enforcement of WAPCO salary adjustments on appointments effective on or after November 7, 1957.

The director believes that unless the discrepancies were remedied, the WAPCO good intention of "equal pay for equal work" would be defeated.—ag.

MODESTO T. TOBIAS
Chief, Forestry Information Section

* * *

COMMUNITY DEVELOPMENT ORIENTATION IN-SERVICE TRAINING

By TOMAS M. BINUA
Forester I, B.F.
(Third In-Service Participant)

Under Executive Order No. 57, the Community Development Planning Council was created with the Department Secretary of Agriculture and Natural Resources, seven other departmental heads and three private citizens appointed by the President of the Philippines, as officials and members. This was later absorbed by Executive Order No. 156, promulgated on January 6, 1956 which made the Presidential Assistant on Community Development Office to coordinate all government efforts on rural improvements. To get all the needed cooperation, the office offers familiarization and orientation training for personnel participants from almost all governmental agencies.

Hitherto, the PACD so far has given three orientation In-service triangles to participants from bureaus or offices under the DANR, Department of Health, Department of Education, Department of Public Works and Communications, Department of Commerce, DND, SWA, NWSA, PHILCOA and ACCFA. The last training was held from April 26 to June 7, 1958.

SUBJECTS IN THE CURRICULUM

The curriculum for the orientation training deals with understanding of community development as a world-wide and local movement, the role of different governmental agencies in CD, community development through groups (Group Dynamics), rural sociology and agricultural economics, laboratory and teamwork and extra curricular activities.

To enable participants to learn other practical skills outside their professions, a departmental class was given every Saturday morning. Resource persons from different offices discussed and explained the functions and works of their own agency. They also gave practical demonstrations on many subjects desired and selected by the trainees. In practical skills one could learn about communication, fruit preservation, time and energy management, ham-butter-cheese making, castration and caponizing, scientific plant propagation, credit unions, control of soil erosion and reforestation, cooking and canning, organizing producers' marketing and consumers' cooperatives, swine and poultry raising, handicrafts, control of plant and forest pests and diseases, culling and selection, artificial insemination, modern methods of rural sanitation, etc. These skills would later on be practiced, demonstrated and taught to rural folks in a barrio selected by a group of participants as their field laboratory.

GROUPINGS AND SECTIONING

After the trainees were briefed about the CD Center facilities and faculty, U.P. Campus rules and regulations, activities for participants for their own interest, each member was requested to present himself to the group. Each trainee and faculty was called by his or her nick-name and there was no required formalities for any occasion that dealt with public relation and friendship. The group then was divided into four sections. Each section was at least a member from each participating office.

Each section then was formed as B (Big) group or a section is divided into two and as S (Small) group or a section into four parts. Small groupings gave each participant chances to partake in discussions on any problems being presented in agenda for solutions, to be approved by each of them. All suggested solutions to problems were then brought for the whole section and the agreed remedial curse then presented to all participants for discussion. All possible solutions were then approved by CD authorities. This system of group dynamics had been so far the most effective way of getting full cooperation from every trainee.

Applying this method into the Office-to-Office level, the different members could formulate plans and solutions to problems of any community.

IMPORTANCE OF THE TRAINING

The orientation in-service training was of great value specially to young employees of any governmental agency sharing the experience of old-timers in the government service.

First hand information about any agency in the government was learned. New researches already complete and being studied were explained, solutions of problems of any agency to

perform were presented for speedy action; discussed and solutions of problems of priorities were easily given or suggested thru the cooperation and understanding of all governmental agencies.

* * *

DANREATAR

District forester Toribio V. Manzano of Tarlac was elected recently as chairman of the Department of Agriculture and Natural Resources Employees Association of Tarlac during the livestock and poultry production week celebration held on January 14, 1959.

The newly elected officers of the association were inducted by Tarlac provincial governor Arsenio Lugay. The program was highlighted by a visit of national and provincial ranking officials at the different projects of the bureau of animal industry in the province. Speaker pro-tempore Constancio E. Castañeda and Major Pedro Soliman of the Philippine Constabulary were guests.

MODESTO T. TOBIAS
Chief, Forestry Information Section

* * *

BSP AWARD

A ranking forestry official was the recipient of a bronze thanks badge from the national council of the boy scouts of the Philippines.

Forester Jose A. Rayos of the bureau of forestry received the award from field scout executive Simplicio M. Tiglao, BSP Quezon City council, for his unselfish interest and valuable services rendered for the welfare of the youth in scouting movement. Presently assigned in the forest management division, he was the officer in charge of the Diliman forest nursery, Quezon City.

Rayos assured the scout officials that with or without the badge of merit awarded him, he would continue to render his services to further the cause of scouting.

MODESTO T. TOBIAS
Chief, Forestry Information Section

* * *

SURVEY

The joint survey team of the PCAPE and the bureau of forestry was impressed by the extensive reforestation work and forestry researches done at the Magat reforestation project and the Magat forest experiment station at barrio Diadi, Bagabag, Nueva Vizcaya.

The team made recently on on-the-spot observation of the accomplishments and problems of forestry personnel in the area. The Malacañang team composed of Zoilo Tex Carillo and Mauro Duatin told the personnel that it would submit appropriate recommendations based upon its findings to the President to help solve the problems relating funds and personnel management.

The bureau of forestry team was composed of domain use division chief Braulio Cristobal and foresters Florentino Fontanilla and Martin R. Reyes.

MODESTO T. TOBIAS
Chief, Forestry Information Section

* * *

CORRECTION

The Director of Forestry wishes to correct a PNS item carried by the metropolitan dailies on November 18, 1958, to the effect that his bureau refused to grant the Sta. Clara Lumber Company additional logging areas. It was the Office of Parks and Wildlife and not the Bureau of Forestry which awarded the company a concession area of 1,300 hectares inside the Basilan National Park, Basilan City.

Request for an additional area by the company was disapproved by the Parks and Wildlife Office.

MODESTO T. TOBIAS
Chief, Forestry Information Section

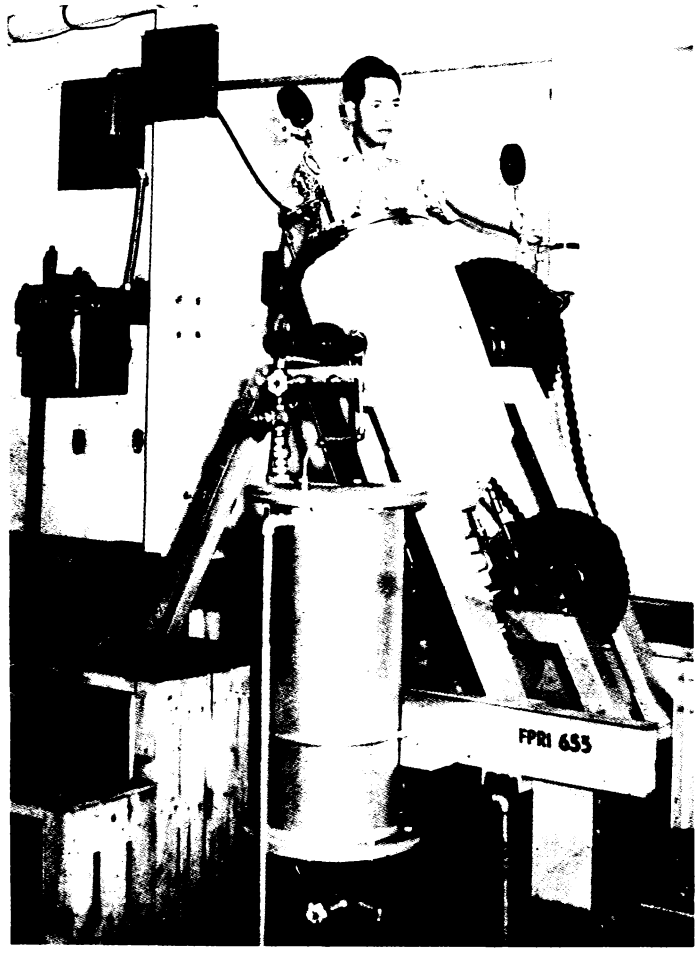
F.P.R.I. HIGHLIGHTS

Dr. George M. Hunt conferring with Dr. B. R. Sen, FAO General Director and DANR undersecretary Jose M. Trinidad.

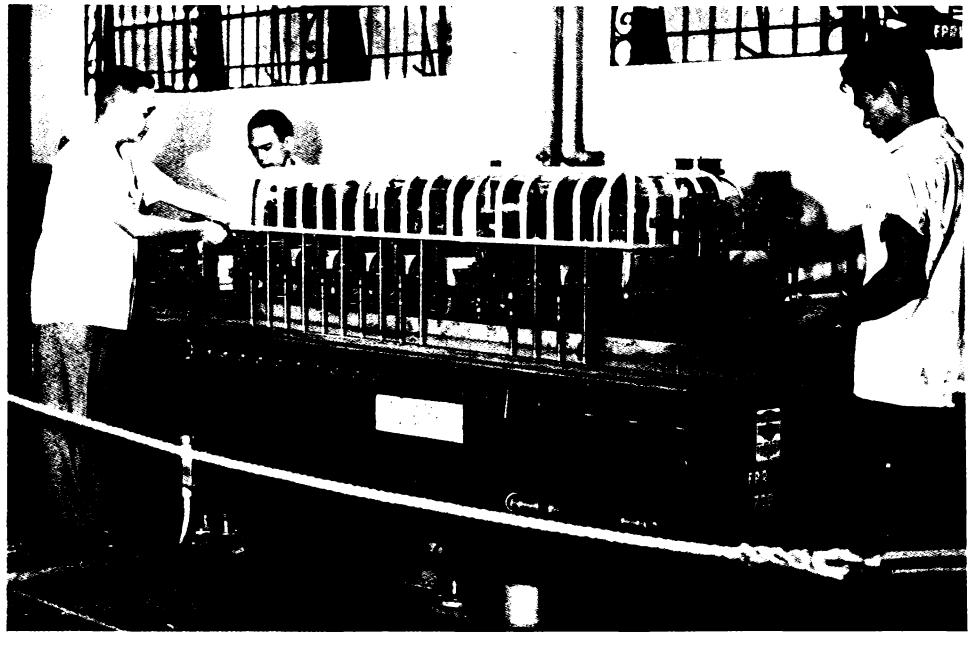
The Visitors with Dr. Hunt and Mr. Monsalud at the Pulp and Paper section of the FPRI.

Dr. George M. Hunt showing the visitors some rattan poles treated at the Forest Products Research Institute.

Dr. Hunt shows the visitors wood samples in the Wood Anatomy Division, FPRI.



Picture No. 1. Showing the Stainless Steel rotary Digester of the Forest Products Research Institute.



Picture No. 2. Showing the "Midget" Fourdrinier Paper Machine of the Forest Products Research Institute.

• FPRI Highlights •

By ULPIANO S. DE LEON

With the completion of the lines and accessories connecting the FPRI to the electric power lines of National Power Corporation early this year, the Institute has become a real bee-hive of activities. No longer is the work held up by lack of electric power.

This activity was prompted by Director Eugenio de la Cruz' appeal to his subordinates, urging them to work double time to make up for the time lost when research operations had to be suspended for long periods of time due to lack of electric power. In a weekly conference with his staff, Director de la Cruz pointed out, "Let us not feel that we are being exploited in rendering real hard work although we are receiving low salaries." "I am aware," he emphasized, "that most of us here are underpaid, but before asking for salary increases let it be our first concern to get our work done and done well, to justify our claim," the Director added.

He also advised everybody not to be content with knowing only one specific line of work. He said, each person should learn as many kinds of work as possible, to be prepared for more responsible positions not only in the Institute but also outside the government service.

In bringing home his point, the Director informed his staff that many a private firm planning to put up pulp and paper plants, charcoal briquetting plants, veneer and plywood plants and others, has already sought the assistance of the technical personnel of the Institute. This, the Director remarked, offers bright hopes to our researchers.

* * *

TANNING MATERIAL FROM KALUMPIT

An important project aimed at finding potential sources of tanning materials from barks of Philippine woods is now being conducted in the Chemical Investigations Division. Currently, the study covers kalumpit barks.

According to Mrs. Esther V. Gonzales, a senior forestry research scientist of the Institute who is conducting the study, her preliminary experiments show that kalumpit bark contains a large amount of pyrogallol tannins. Mrs. Gonzales believes that this bark extract can be a possible tanning material for sole leather.

This project, like other projects of the Institute, may be continued for many years.

FPRI Building

CHARCOAL BRIQUETTING

By the time this number comes off the press, the newly installed charcoal kiln of the Institute shall have been in full operation. This equipment will be used in making charcoal from sawmill and logging wastes as well as rejected veneer cores.

Expected to operate also within this month, March, 1959, is the charcoal briquetting plant. Installed in a new building adjacent to the boiler building, this machine will be used in the study of the manufacture of charcoal briquettes. It will use the charcoal produced by the charcoal kiln, with starch as binder, in making briquettes.

The study of the manufacture of briquetted charcoal is one of the projects of the Institute believed to be of immediate benefit to the public. Lumber producers and others who wish to make use of waste wood have already inquired from this Institute about the feasibility of converting it into charcoal briquettes.

It is believed that charcoal briquettes may be a good substitute for imported coke which is very important in smelting iron and other metals in the metallurgical industry. They can also find use in the flue-curing of Virginia tobacco leaf, for domestic fuel, and in the manufacture of certain chemical products. During the recent months, the Institute has received letters asking for a source of regular supply of this product in good quantity.

* * *

VENEER AND PLYWOOD

Rotary veneer cutting—Studies on the production of veneer and plywood made another

long step forward during the recent months. A continuation of the work started over a year ago on rotary cutting of red and white lauan logs from Tagkawayan, Quezon, the current investigations cover the cold rotary cutting of tanguile, bagtikan, and red lauan from Agusan province.

As in the first part of the study, the object is to determine the optimum lathe settings for cutting 1/8", 1/16", and 1/32" thick veneers at ordinary temperature. Rotary cutting is also conducted on pre-heated bolts, but this is limited to 1/16" thick veneer only.

Initial results of the study tend to show that lathe settings established for cutting red lauan and white lauan logs from Tagkawayan, Quezon, are suitable also for the same species from Agusan province.

With proper lathe adjustments, it has been observed that bagtikan yields good quality veneer. In cutting tangile, there is an indication that a little less compression is required than is necessary for the successful cutting of red lauan.

Veneer drying is another important phase of plywood manufacture because newly cut veneers contain a high percentage of moisture and cannot be made into plywood successfully in that condition.

In order to establish the optimum drying schedules for different thicknesses of veneer, as well as of different species, the Institute has included in its research program a project on veneer drying. With the use of a mechanical veneer dryer, this project was started recently with bagtikan veneers of three thicknesses, ie; 1/10", 1/16", and 1/20". More species will be studied later.

Gluing Studies—Mr. Jose B. Orozco, Chief, Veneer, Plywood and Gluing Section, reported recently that from studies of his section some important data have already been obtained regarding flour-water dilution of urea-resin glue and the amount of glue spread as they affect working characteristics and plywood bond strength, and regarding cassava starch as an extender of urea-resin glues.

Other gluing studies in progress include those that relate to the effect of pressure on plywood compression set and bond strength, the effect of differential moisture content of individual plies on plywood quality, the glueability of binuang species for plywood, and laminated gluing of native woods.

WHY MANGGASINORO IS DIFFICULT TO SAW

In the past, wood workers were wondering why manggasinoro is difficult to saw in the sawmills or to cut in the veneer lathe. The study of the occurrence of silica inclusions in the Philippine woods which is in progress in the Wood Technology Division seems to have found an explanation.

Rodrigo Valbuena, Actg. Chief of the Wood Technology Division, under whose supervision this study is being conducted, reported that manggasinoro contains an appreciable quantity of silica. The silica is visible under the microscope, occurring as rounded crystals in the cells and easily accounts for its rapid dulling of saws. Analysis by the Chemical Investigations Division showed a silica content of about one percent (based on oven dry weight) in a sample of manggasinoro.

* * *

TIMBER TESTING

In timber testing, thirteen research projects are currently in progress. Of particular interest to engineers, contractors, and builders is the study on the strength and related properties of Philippine woods. One important object of this study is to provide the basic data for determining the allowable working stresses of different species of timber. The data to be gathered in this project will provide a basis for the efficient and economical designing of structural members in buildings and for other purposes for which the strength of the wood is important.

In this study, about 200 trees representing 80 species have been partly or completely tested already. This project will continue for many more years until all species whose strength is a matter of concern have been tested.

* * *

NEW EQUIPMENT

Riehle plywood shear testing machine

A brand new 28-inch high Riehle plywood shear testing machine has been recently added to the equipment of the Institute. To be used for testing the bond strength of plywood, this machine has a maximum capacity of 1,000 lbs with beam graduations in units of 5 lbs. It is equipped with complete grips for plywood specimens up to 1/2" thick, 1" wide and 3-1/4" long. This machine, which cost over $2,000.00, will facilitate studies in plywood gluing.

Water storage tank

The ellipsoidal water storage tank, mounted on a 40-foot tower in the inner courtyard of the Institute's main building, is expected to function anytime these days. This tank will

be used to store softened water for pulping and other laboratory uses. It has a capacity of 3,500 gallons and it is believed that it can supply the amount of softened water necessary to carry on research operations in the different research divisions.

* * *

WHAT THE PAPERS SAY ABOUT THE FPRI

Dr. B. R. Sen, Director General of the United Nations Food and Agriculture Organization, said yesterday that the Forest Products Research Institute still needs much technical assistance in order to cope with its many pronged research activities for the more profitable utilization of wood and other forest products.

The highest official of the FAO world organization, having headquarters in Rome, Dr. Sen made this remark after a four-hour tour of the Institute, during which he was shown the various research activities and equipment of that Institute during his visit there yesterday.

He was accompanied by Agriculture Undersecretary Jose M. Trinidad, Dr. Pedro S. Salas, chairman and secretary of the Philippine FAO Committee, respectively, Dean Leopoldo Uichanco of the U.P. College of Agriculture, Plant Industry Assistant Director Marcelino Constantino, Atty. Cesar L. Pangalangan of the Office of the Secretary of Agriculture, and others.

Upon previous agreement with Director Eugenio de la Cruz of the FPRI, who at the time was attending a budget hearing in Manila, FPRI Adviser George M. Hunt of the FAO briefed the visitors on the history and development of the Institute, its research projects, funds and assistance, and its problems.

Mr. Hunt pointed out to the visitors that one of the main problems of local forest products utilization is how to make use of the huge amount of wood now being wasted for lack of profitable markets. He stated that about 60 to 70 percent of the wood cut is going to waste, adding that this could be made into useful items such as paper, boards, charcoal and other products.

The visitors were taken through the different laboratories by Mr. Hunt and ranking FPRI officials to see the research apparatus, machines and equipment in operation.

In a brief informal talk following the guided tour, Dr. Sen told FPRI officials of the plans for the 1960 appropriation of the FAO.

He also remarked that the Institute deserves much more technical assistance to undertake its more urgent projects that will be of immediate benefit to the wood user.—*Manila Daily Bulletin, March* 5, 1959

A technical article on the papermaking properties of some 83 species of Philippine wood was published recently by TAPPI, a monthly publication of the Technical Association of the Pulp and Paper Industry in the United States. This was learned from Director Eugenio de la Cruz of the Forest Products Research Institute.

Director de la Cruz said the paper which is entitled, *Fiber Dimensions of Certain Philippine Broadleaved and Coniferous Woods, Palms and Bamboos,* is based on the partial results of a continuing project being conducted by the FPRI toward finding species possessing long fibers.

Explaining the importance of this project, the Director pointed out that generally long-fibered wood species are preferable for the manufacture of pulp and paper.

The article carries information on the length of fibers, cell wall thickness, width of the lumen, and other fiber characteristics having something to do with the papermaking properties of wood.

Mr. de la Cruz mentioned that most of the 83 species covered by the article appear very promising or promising for the manufacture of pulp and paper because they have sufficiently long fibers and other fiber characteristics suitable for the purpose.

All of the species considered promising and very promising, as indicated in the article, will be pulped and made into paper by the Institute, the Director said.

He also mentioned that this article which is the second of a series, the first having been published by the same journal in October 1957, was written by research scientists of the Institute. They are Francisco N. Tamolang, supervising research scientist; Rodrigo Valbuena, senior forestry research scientist; Benigno A. Lomibao and Emma A. Artuz, junior forestry research scientists; and Conchita Kalaw and Arsenio Tongacan, forestry technicians.

Director de la Cruz also announced that reprints of both articles are available in the Institute to interested parties.—*Manila Times, January* 15, 1959

* * *

"Can you live a single day without wood?"

In the booth of the Forest Products Research Institute at the Philippine Exposition a display of wood products ranging from small articles like popsicle sticks to complicated items as laminated arches and a complete piano will give you the answer to that question.

Among the more interesting features that will attract your attention there is the display of different kinds of papers including bond,

wrapping, mimeograph, newsprint, book, onion skin, and others, all fabricated by the FPRI from native woods, bamboos, and agricultural fibrous waste. In this department there is a flow chart showing the different steps of paper production from the time wood waste is made into chips until it comes out a finished product.

Other items also made from residues are charcoal briquettes, hardboard, wallboard, particle board, paper plates (from pulp), egg trays, and related products. Toys of different sorts, such as bowling pins and balls, trucks, domino sets, novelites and many other wood-waste products are also on display.

Items produced from scraps including serving trays, ash trays, baseball bats, tool handles, artificial limbs and gunstocks were made from native woods.

A furniture display includes a coffee table made from acacia and a latest style sala set.

Another interesting feature that catches the attention of visitors to the booth is the miniature of a 60 ft. wide building illustrating the use of laminated archs in place of steel for buildings where middle posts are not desired.

A miniature upright piano made locally from native woods is also on display. Minor items are shoe heels, shoe lasts, toilet seat covers, battery separators and related products.

There are also finished pencils and the different stages in pencil production, and brushes made from local fibers similar in durability to those made from the imported palmyra type.

Besides these products, the exhibits include models showing methods recommended in piling lumber for efficient air-seasoning, and basic tests to determine the strength of Philippine woods.

Insect and fungus destruction of wood are illustrated by damaged wood and forest products, and papers on the prevention are available.

Director Eugenio de la Cruz said that some of the finished products on display were not produced by the FPRI but by different wood-using industries, with whom the Institute and its technical staff have been collaborating in various ways, and were collected for the public view to stimulate the development of new industries and the judicious utilization of wood and other forest products.—*The Lumberman*

* * *

A group of 12 Chinese on an economic goodwill mission to the Philippines visited the Forest Products Research Institute this morning.

They were accompanied by Salvador F. Cunanan, Head Executive Assistant, Office of the Secretary of Agriculture and Natural Resources, officials of the Bureau of Plant Industry, and Dean Gregorio T. Zamuco of the U.P. College of Forestry.

Chang Tse-kai, Chairman of the mission, expressed appreciation for the general set up of research equipment and research projects of the Institute. He was particularly interested in the study on paper making and the production of briquetted charcoal, while Jerome Sinnan Hu asked questions on the production of petroleum asphalt binder.

They were shown around by Mr. George M. Hunt, FAO Adviser to the FPRI who answered all questions they asked about wood utilization during a brief talk at the FPRI conference room following the 30-minute tour to the different laboratories of the Institute.

The party which composed a cross section of big industries in Taiwan included Chang Tse-kai, Chairman, Board of Directors of the Bank of Taiwan, head of the mission; Lin Chi-yung, deputy chairman, Board of Directors, China Productivity Center; George Y.L. Wu, deputy general manager, Central Trust of China; Sun Yun-suan, vice president and chief engineer, Taiwan Power Corporation; Y.C. Ho, Vice President, Taiwan Metal Mining Corporation; Jerome Sinuan Hu, General Manager, Kaohsiung Refinery Chinese Petroleum Corporation; Chi Shih-chi, Executive Secretary, Industrial Planning and Coordination Group, Ministry of Economic Affairs.

Chu Yen-shou, Factory Manager, Yue Loong Engineering Co., Ltd; Bunton Wu, Manager, Sin Tong Chemical Works Co., Chairman, Taiwan Regional Association of Pharmaceutical Industries; Director, Taiwan Provincial Association of Glass Industries, and Inspector, Taiwan Glucose Mfg. Co., Ltd.; Chang Hsuin Shwen, Specialist, Plant Industry Division, JCRR; Chow Tsai-ye, Sr. Specialist, and concurrently Section Chief, Animal Husbandry Division, Department of Agriculture and Forestry, Taiwan Provincial Government; and Chen Chia-shih, Editor, Government Information Office.—*Press Release, December* 12, 1958

* * *

Thomas S. Buchanan of the U.S. Committee on Foreign Agricultural Research was favorably impressed by the activities of the Forest Products Research Institute in College, Laguna upon its four-hour visit there yesterday afternoon.

Buchanan visited the FPRI to acquaint himself with the Institute's research activities, equipment and personnel.

He was briefed on the Institute's research program by officials of the FPRI headed by

(*Continued on page* 107)

• Excerpts & Abstracts •

A preliminary experiment on the impregnation of rattan pieces with chemicals to prevent fungal stains using the gravity method

By

JESUS R. TADENA

ABSTRACT

No extensive study has so far been made regarding chemical treatments of rattan canes to prevent fungal stains. Since stained rattans are constantly discriminated against by buyers and because of the fear that rattan problem might lose their market value due to these blemishes, solving this problem might insure the perpetuation of the industry. The study therefore deals with (a) the description of the stain and (b) the determination of the efficacy of the different fungicides in preventing and minimizing stains on rattan.

In this experiment, 185 pieces of green rattans cut at about three feet long were used. These were divided into 37 lots in which nine series of treatments were conducted in the 36 lots and the remaining lot was used as control. The chemical solution used were: series 1, Lignasan; series 2, Crysilic acid; series 3, Woodlife; series 4, Mercuricbichloride; series 5, Copper sulfate; series 6, Acetic acid; series 7; Pentachlorophenol; series 8, Permatox 10-S; and series 9, Dowicide G. Each series has four different concentrations.

The rattan canes were tied upright to a bamboo horizontally fastened to two posts about 10 feet apart. The chemicals were allowed to pass through the canes using rubber tubings fitted at the top ends as funners. After the rattans were chemically treated, they, including the control lot, were placed in a place most favorable for the growth of fungi-causing stains.

Observation revealed that two to three days after gathering, untreated rattans, when fast drying was not possible, were infected with stains. It has been reported that the species of fungi responsible for these blemishes are *Melomastia; Diplodia; Ceratostomela; Helminthosporium; Cladosporium;* and *Curvolaria.* However, the occurence of stains on rattan could be prevented not only through fast and proper drying but also by impregnation of rattan pieces with chemical fungicides. The chemicals found to be effective in preventing the growth of staining fungi are Lignasan, Dowicide G., Pentachlorophenol, Permatox 10-S, Copper sulfate, and Acetic acid. —By E. Fabian

A preliminary trial on soil depth distribution of damping-off fungi in the forest nursery, Makiling National Park, Laguna

By

HERMOGENES D. MAON

ABSTRACT

Damping-off disease, a very vicious seedling disease consistently take a heavy tool of Benguet Pine (*Pinus insularis* Endl.) and Agoho (*C. equisetifolia* Linn.) seedlings and of other seedlings of deciduous trees of the Makiling National Park, College, Laguna. The extent of the losses has reached such proportions as to require strenuous efforts to find ways of raising seedlings on a scale sufficient to cope with the demand in reforestation work by the Bureau of Forestry in the Philippines and in keeping the rehabilitation of public parks and lawns.

A study was therefore conducted to find other possible means of reducing losses caused by the disease. There have been various experimental attempts to control the disease effectively. The control measures consisted of soil sterilization, soil disinfection and seed treatments with chemicals. The present work deals with the use of soil taken from different depths to be used for germinating seeds.

The results of the experiments showed that damping-off fungus population decreases proportionately to the depth of the soil. That the fungus is most abundant in the top soil and gradually diminishes as the depth increases.

At the fourth layer the fungus population was very insignificant, indicating that soil from the fourth layer would be safe to use for germinating seeds.

—By E. Fabian

* * *

Hagakhak (Dipterocarpus warburgii) branches and Palosapis (Anisoptera thurifera) (Blanco) Blume stands in the plantation

By

EULOGIO T. TAGUDAR

ABSTRACT

The study on the life history of any species is indispensable if it is to be put under sustained yield management. In fact no sound management can be effected without a fair knowledge of the silvicultural characteristics of the species. The present paper deals with the behavior of hagakhak (*Dipterocarpus warburgii*) and palosapis (*Anisoptera thurifera*) in the

plantation in the Makiling National Park. It covers chiefly the growth of the species. The study was conducted in the Dipterocarp Plantation of the Bureau of Forestry at the foot of the mountains in the Makiling National Park, from July 1950 to February 1951, covering a period of eight months.

Growth measurements for the diameter, total height, clear length and crown width were taken at breast height (1.3 meters from the base of the tree) with the use of a caliper. Total heights and clear lengths were measured with the use of any abney hand level calibrated in per cent. Crown width was measured to the nearest tenth of a meter with the use of a standard chain.

The results found in the study are the following:

1. Young hagakhak trees in plantation showed a comparatively fast rate of growth, consequently five years difference in age will mean a significant difference in the sizes of trees.

2. The total heights of hagakhak trees 17 years old, and larger than 5 centimeter in diameter, were greater than the 16-year old palosapis trees while in the smaller trees, they were about the same. Seven-year old hagakhak trees were significantly larger than 16-year old palosapis trees in the Bureau of Forestry Plantation, Makiling National Park. Based on mean annual growth, the former species has a faster rate of growth than the latter species.

3. The 17-year old hagakhak trees have longer clear length development than the 16-year old palosapis trees.

4. The development of clear length tends to increase in rate with the increase in diameter of 1-year old hagakhak trees and 16-year old palosapis trees.

5. For every meter increase in crown spread there is a corresponding increase in clear length of 0.22 meter in the younger hagakhak trees, 1.44 meters in the older hagakhak trees and 0.73 meter in the palosapis trees.

— By E. Fabian

* * *

A study of the propagation of Albizzia moluccana; Terminalia edulis, Blanco; Dipterocarpus warburgii, Brandis; Terminalia nitens, Presl.; Syzygium clausum (C. B. Rob., Merr.) and Lagerstroemia periformis, Koehne by cuttings without treatment

By

POLICARPIO M. NARCISO, JR.

A B S T R A C T

There are seven different species conducted for this experiment. Each species is represented by 100 cuttings grouped into different diameter classes of 2, 4, 6, and 8 centimeters planted in separate plots. One plot which is planted to narra is a comparison species.

Daily and weekly observations were made from the time the sprouting began until the time when sprouting stopped. This was done to determine the survival and mortality.

It was noted that narra cuttings sprouted earlier than batitinan and sakat. It sprouted 10 days after planting. Batitinan and sakat sprouted 20 and 23 days after planting respectively. The former produced roots and survived until the end of the experiment. The latter died earlier. Narra produced also roots. Batitinan under 4 and 6 cm. diameter classes developed the greatest number of sprouts in a 5-week period. Narra, under 8 cm. showed the highest results. It was also noted that a number of sprouts died during the months of November and December. This was due in part to the scantly rainfall of 2.4 and 0.74 inches and to low relative humidity of 74.4 and 77.3% respectively, as shown in table 4. The average temperature for those months were 79.2°F and 77.7°F. Termites were also observed to damage the cuttings after the protection value of the paint applied on the ends have lapsed.

The cuttings of kalumpit, hagakhak, moluccan sau, and panglomboien did not produce any sprouts. Sakat produced sprouts but none survived until the end of the experiment. Out of the seven species studied, only two successfully survived — batitinan and narra. The results in narra showed that the cuttings under the bigger diameter classes were more successful than those of the lower classes. The 8 cm. diameter class exceeded the 2 cm. diameter class in percentage of survival by 34%. It was shown that batitinan could be propagated by cuttings. Sakat may be propagated by this method under partial shade.

By:

N. Busa

* * *

A study on the percentage of survival of paper Mulberry (Broussonetia papyrifera Vent.) by root sprouts planted at different elevations

By

JUDHA KRISHNAMRA

A B S T R A C T

This paper deals with the determination of the percentage of survival of Paper mulberry (*Broussonetia papyrifera Vent.*) planted at different elevations by root sprouts to find out the suitable elevation for planting. The rate of growth at each elevation is considered as well as the influence of the chemical and mechanical properties of the soil.

(*Continued on page* 12)

• Sunshine Corner •

Compiled by E. G. DIZON

"Melchor," the father told his son, "you're a pig. Now do you know what a pig is?"

"Sure," said Melchor. "A pig is a hog's little boy."

* * *

A father took his young son to the opera for the first time. The conductor started waving the baton, and the soprano began her aria. The boy watched everything intently, and finally asked: "Why is he hitting her with a stick?"

"He's not hitting her with the stick," the father explained.

"Then why is she screaming?"

* * *

During supper, the small boy asked his father. "Dad, are caterpillars good to eat?"

"Ebiong, how many times do I tell you to stop talking while eating", shouted the father angrily.

"Why son?", querried his mother.

"Oh, I just saw one on Dad's plate and now it's gone".

* * *

Doctor Adams had completed his examination, and he turned to the young lady before him with a smile on his face. "Mrs. Jones," he began, "I have good news for you."

"Miss Jones," the lady corrected him.

The doctor raised his eyebrows.

"Miss Jones," he started again, "I have bad news for you."

Said one coed to another: "Why do you go out with that guy? He can't dance at all."

"You're right", her friend said. "But boy, can he intermission!"

* * *

This guy took a little trip in an airplane. When they were in the air, speeding along, the pilot suddenly began to laugh hysterically.

"What's wrong?" the passenger asked. "What's so funny?"

"Oh", said the pilot, "I'm thinking of what they'll say at the assylum when they find out I've escaped."

* * *

After an absence of several days, Adam returned to find Eve sulking and suspicious. "But darling," Adam said "how could you possibly be jealous? Don't forget that I'm the first and only man, and you're the first and only woman. Who could you possibly be jealous of?"

"I know all that," Eve said. "Still" ———— And that night, after Adam was already asleep, Eve got up, pulled the bearskin off him, and carefully counted his ribs.

* * *

The unhappy old gentleman emerged from his club and climbed into a waiting taxicab.

"Where to, sir?" said the driver gently.

"Drive off to a cliff." the gentleman replied. "I'm committing suicide."

FPRI...

(*Continued from page* 104)

Director Eugenio de la Cruz and FAO Adviser to the FPRI, George M. Hunt. He was also shown the different machines and equipment of the laboratories and was told how the various research projects are being conducted.

Buchanan also visited the U.P. College of Agriculture and College of Forestry. He was accompanied by ICA's G. L. Boykin and Dr. Casimiro del Rosario, Vice Chairman and Executive Director of the National Science Development Board.—*Press Release, December* 18, 1958

* * *

Pancracio V. Bawagan, a research chemist of the Forest Products Research Institute, arrived via Northwest Airlines from the U.S. recently.

An NEC-ICA trainee-grantee, Bawagan specialized for one year in semi-chemical pulping of hardwoods at the U.S. Forest Products Laboratory in Madison, Wisconsin.

After completing his training at Madison, Bawagan also went to New York University, Syracuse, New York to discuss subjects related to semi-chemical pulping with professors there.

Bawagan is a chemical engineer. He is an alumnus of the Mapua Institute of Technology and was among the first five in the board examinations for chemical engineers given in 1954.

FPRI Director Eugenio de la Cruz said that Bawagan will be assigned in the work on pulping of Philippine hardwoods and agricultural wastes.—*Press Release, January* 5, 1959

Republic of the Philippines
Department of Public Works and Communications
BUREAU OF POSTS
Manila

SWORN STATEMENT
(Required by Act 2580)

The undersigned, EDILBERTO Z. CAJUCOM, business manager of FORESTRY LEAVES published quarterly in English at College, Laguna after having been duly sworn in accordance with law, hereby submits the following statement of ownership, management, circulation, etc., which is required by Act 2580, as amended by Commonwealth Act No. 201:

Name	*Address*
Editor, Nicasio N. Mulato	College, Laguna
Managing Editor, Angelo G. Mordeno	College, Laguna
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If publication is owned by a corporation, stockholders owning one per cent or more of the total amount of stocks:

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In case of daily publication, average number of copies printed and circulated of each issue during the preceding month of NONE, 19....;

1. Sent to paid subscribers	NONE
2. Sent to others than paid subscribers	NONE
Total	NONE

In case of publication other than daily, total number of copies printed and circulated of the last issue dated November, 1958; Vol. 11, No. 1 (FORESTRY DAY ISSUE)

1. Sent to paid subscribers	520
2. Sent to others than paid subscribers	480
Total	1,000

(Sgd.) EDILBERTO Z. CAJUCOM
Business Manager

SUBSCRIBED AND SWORN to before me this 22nd day of September, 1958, at Los Baños, Laguna, the affiant exhibiting his Residence Certificate No. A-0388951 issued at Manila, on June 5, 1958.

GENARO V. CATALAN
Mayor, Los Baños, Laguna

ACT 2580 REQUIRES THAT THIS SWORN STATEMENT BE FILED WITH THE BUREAU OF POSTS ON APRIL 1 AND OCTOBER 1 OF EACH YEAR.

NOTE: This form is exempt from the payment of documentary stamp tax.

58 Granja Avenue
Lucena, Quezon
February 19, 1959

The Editor In-Chief
The Forestry Leaves
U.P., College of Forestry
College, Laguna

S i r :

Your Forestry Leaves, the official organ of the student body and alumni of the College of Forestry, U.P., is indeed one of the best reading materials in all the universities and colleges here in the Philippines and comparable too, to those in the U.S. and other European countries.

From my friends in the Bureau of Forestry, I have received many copies of your organ and learned great knowledge that can not be bought by wealth. With the help of my friends, I came to understand the scientific notes and articles of your paper, for my profession is not forestry. I learn to love the trees and wildlife that most of the time I help my forestry friends in desiminating forestry education among the masses.

I only regret that in your Sunshine Corner, that makes me laugh often times, the names of the contributors were not being given their due honor by placing their names just under their contributions and that copied jokes from other reading materials appears also in your organ.

Hoping that my suggestion will be taken in the forestry way of friendship and will be done for the sake of giving initiative both to the students and the alumni to contribute their hidden knowledge in writing.

Sincerely,
JAMES MACABINGUEL

Mr. Macabinguel,

Thank you very much for your kind suggestions. I regret to say too that as for the jokes in the Sunshine Corner of which I had my byline during the Forestry Day issue of the 'Leaves', I just compi'ed them from jokebooks and magazines because of the lack of contributions from the students. This, I hope, would not give you the slightest idea that we forestry students are losing our humor nowadays, but I am expecting that sooner, the Sunshine Corner will be something original in its contents. Anyway, I hope you'll have a good laugh at this new set of compilations.

Yours for a good reading,
E. G. Dizon

* * *

January 12, 1959

Dean Gregorio Zamuco
College of Forestry, U.P
College, Laguna

Dear Dean Zamuco:

Yours of the 2nd instant has just been received. Thanks for the kind thoughts and the trouble you went through.

Mr. Cajucom is right, I received four (4) copies from him, but those were all sent to Stateside consulting foresters, including former Director of Forestry and Dean of the College of Forestry, Arthur F. Fischer. And what I have requested you was additional copies of the Arbor Week issue of the *Forestry Leaves.*

Also send me copies of the recent issue of the same publication. This could be its anniversary issue for which I have solicited ads from my friends.

Thanking you again for this and past troubles, I am

Very sincerely yours,
AGAPITO L. CENABRE

* * *

The Editor
Forestry Leaves
College of Forestry
College, Laguna, Philippines.

12 February 1959

Dear Sir,

ASIA-PACIFIC REGIONAL GRADING RULES FOR TEAK SQUARES

The above grading rules have been printed and copy is forwarded under separate cover for your use. As mentioned in paragraph 2, page 3 of this publication, we earnestly hope to have your comments in due course. The Third Session of the Teak Sub-Commission is now scheduled to be held in the second half of January, 1960 at New Delhi in India, where necessary revisions, if any, will be deliberated. If you are in need of additional copies, please let us know.

Yours faithfully,
AUNG DIN
Regional Forestry Officer

SEATTLE

January 20, 1959

Mr. Felipe R. Amos
Director of Forestry
Department of Agriculture
and Natural Resources
Manila, Philippines

Dear Sir:

Thank you for your letters of November 10 and December 9 as well as for the shipment of bark which arrived a short while ago. A bank draft to cover your expenses of collection and shipment should be on its way to you now.

I should like to express my thanks for the speed with which you obtained the samples and for the wealth of material you provided. It was much more than I had hoped for, and it will be of great interest to us to see what can be obtained from the various species.

I hope that you will be able to provide us at a later date with larger quantities of the barks which prove to be interesting chemically. Are there seasonal problems involved in the collection of these barks making them available only at certain times of the year? If so, will you please let us know so that we may arrange our work accordingly.

Again, my warmest thanks for your help.

Sincerely yours,
(SGD.) GEORGE H. STOUT
Assistant Professor

* * *

Republic of the Philippines
Department of Agriculture and Natural Resources
BUREAU OF FORESTRY
Office of the District Forester
Odiongan, Romblon

January 19, 1959

The Editor in Chief
Thru the Adviser
Forestry Leaves
College, Laguna

S i r :

I have the honor to submit herewith reprints of the "The Story of the "Romblon" Plant" and "The Romblon" of Romblon from the September, 1958 issue of the The Cooperative Farmer and the October, 1958 issue of the Agricultural and Industrial Life, respectively, requesting favorable editorial consideration, in the next issue of the Forestry Leaves.

Very truly yours,
TEODORICO MONTOJO
Forester I

Republic of the Philippines
HOUSE OF REPRESENTATIVES
Manila

February 27, 1959

Mr. Angelo G. Mordeno
College of Forestry
College, Laguna

Dear Mr. Mordeno:

We regret very much that due to volume of work as Congress is now in session, the enclosed message has been delayed. But as Congressman Jacobo Z. Gonzales can not disappoint you, we are still sending it notwithstanding the deadline you gave us, hoping that you can still find a way of including it in your publication.

Please accept the warmest personal regards of the Congressman to you and thru you, to all the graduates.

Very sincerely yours,
ENRIQUE I. ZANO
Secretary

* * *

D-16, Cooperation
Philippine Red Cross
(1958 Nat. Fund Campaign)

February 24, 1959

Director of Forestry
Manila

S i r :

I have the honor to inform you that the Bureau of Forestry (Camarines Norte District Office) has been awarded CERTIFICATE OF APPRECIATION for distinguished service in the 1958 NATIONAL FUND CAMPAIGN by the Philippine National Red Cross.

Very truly yours,
JORGE MIRANDA
District Forester

* * *

February 24, 1959

The Editor
Official Gazette
Executive Bldg., Malacañang
Manila
(Thru the Honorable, the Secretary of
Agriculture and Natural Resources, Manila)

S i r :

I have the honor to enclose herewith the two (2) copies of Forestry Administrative Order No. 11-13, dated December 1, 1958, with the request that same be published in the Official Gazette in conformity with Section 79 (b) of the Revised Administrative Code, as amended, and Section 11, C.A. No. 638.

Very truly yours,
FELIPE R. AMOS
Director of Forestry

Republic of the Philippines
Department of Agriculture and Natural Resources
FORESTRY ADMINISTRATIVE ORDER.....
Forestry Administrative Order)
:
No. 11-13)
December 1, 1958

SUBJECT: *Grant of License Agreement Without Bidding to Certain Applicants.*

Implementing in some measure the industrialization program of the government through the promotion of the establishment in the country of veneer, plywood or wallboard factories, pulpwood and paper mills, and other wood processing plants; to help solve local unemployment; and to encourage domestic use and manufacture of our local log production, now therefore, pursuant to the provisions of Sections 79 (b) and 1817 of the Revised Administrative Code, as amended, and Section 4 (b) of Executive Order No. 216, series of 1956, this Order is hereby promulgated:

SECTION 1 — Notwithstanding the provisions of Forestry Administrative Order No. 11-12, license agreements covering a forested area not exceeding 50,000 hectares may be granted to a duly qualified applicant who can show to the satisfaction of the Director of Forestry and the Secretary of Agriculture and Natural Resources that he possesses the necessary capital and other resources to install veneer, plywood and wallboard factory, pulpwood and paper mill, or other wood processing plants within two (2) years from the date of the grant, or within three (3) years from said date, in the case of pulpwood or paper plants.

SECTION 2 — It shall be a condition precedent to the grant of a license agreement under this regulation that the grantee shall first make known in writing and under oath his offer to be bound by the following terms and covenants:

(a) That upon failure of the grantee to comply with the essential condition of the grant, that is, the establishment of the foregoing log-processing concerns within the specified period, the license agreement shall be deemed cancelled:

(b) That all improvements that have been introduced by the grantee in the area under license agerement shall be forfeited in favor of the Government without claim to reimbursement for any expense incurred in connection therewith, upon the cancellation of the license agreement or its termination thru the fault of the grantee, and that the bond posted in connection therewith shall also be forfeited in favor of the Government; and

(c) That the grantee shall faithfully comply with all forestry and internal revenue rules and regulations now or hereafter enforced in the operation of his license agreement.

SECTION 3 — Applicants for a forest concession under this regulation shall support their application with duly verified papers evidencing the following:

(a) Cash capital and other evidence of financial capacity of the applicant; if a corporation, a financial statement showing its assets and liabilities, shall accompany the application;

(b) Adequate means of procuring the necessary machinery and equipment for the purpose;

(c) Technical know-how to assure efficient operation of the concession;

(d) Appropriate plan of operation and development of the forest area applied for, including phasing of the plan and the fund requirement therefor, consistent with selective logging method and sustained yield policy of the Bureau of Forestry;

(e) A statement that it shall be the obligation of the applicant to reforest the area under license at his own expense, unless exempted from doing so by the Director of Forestry with the approval of the Secretary of Agriculture and Natural Resources in certain places where reforestation is not deemed necessary; and

(f) Such other inducements to the grant as may serve the public interest.

SECTION 4 — Present owners of the foregoing log processing concerns who are not holders of forest concessions and not otherwise disqualified under existing regulations, may also be granted a forest concession under this regulation, PROVIDED they can show that they have the capacity to maintain continuous and efficient operation of such concession, and PROVIDED FURTHER, that they shall accept such terms and conditions consistent with the purposes of this Order that may be prescribed by the Director of Forestry subject to the approval by the Secretary of Agriculture and Natural Resources.

SECTION 5 — All rules, orders, and regulations inconsistent herewith are hereby repealed.

SECTION 6 — This Order shall take effect upon its approval.

APPROVED: *December* 15, 1958.

(SGD.) JUAN DE G. RODRIGUEZ
Secretary of Agriculture and Natural Resources

January 29, 1959

Forestry Leaves
College of Forestry
University of the Philippines
College, Laguna
PHILIPPINES

Gentlemen:

The Librarian of Congress has requested me to acknowledge, with many thanks, the material mentioned below which we have credited to your exchange account.

Sincerely yours,

ALTON H. KELLER, *Chief*
Exchange and Gift Division

The material received:
Forestry Leaves, Vol. XI, No. 1, Golden Jubilee Issue, November 30, 1958.

* * *

REPUBLIC OF THE PHILIPPINES
Department of Agriculture and Natural Resources
BUREAU OF FORESTRY
Vigan, Ilocos Sur
Office of the District Forester

D-2, Public Relations
(Vigan Carnival & Fair 1959)

February 12, 1959

The Director of Forestry
Manila

Sir:

I have the honor to inform you that our bureau participated in the Vigan Carnival and Fair held on January 20-28, 1959, at Vigan, Ilocos Sur, by putting up a forestry float at the opening parade on January 20, 1959, a picture of our decorated truck TPI-795 of which is herewith enclosed, and a forestry booth inside the carnival city where exhibits were displayed, in order to sell to the public our functions and activities in the province.

Very truly yours,

BERNABE S. ZUMEL
District Forester

EXCERPTS...

(*Continued from page* 106)

The planting areas where this experiment was conducted ranges in elevation from 300 up to 2100 feet above sea level with the interval of 300 feet. At each site, 200 root sprouts with uniform height class of about 50 centimeters were planted.

The planted areas were cleaned of underbrush and the best sites were selected considering slope, exposure and light intensity. The planting areas were located so that they receive sunlight at mid-day.

After planting, the observation was done twice a month. The observation was ended after 5 months. The number that survived at the end of the experiment at each elevation was counted and measured.

The chemical properties of the soil were determined to find out the percentage of nutrient deficiency and pH values. Soil texture was determined by the hydrometer method.

The studies revealed that the area at elevation 1200 feet gave the highest percentage of survival and highest percentage of growth. The chemical properties of the soil had no influence on the percentage of survival although there might have been a possible effect of the mechanical properties. The highest percentage of survival at elevation 1200 feet is 54%, while the lowest at elevation 300 feet is 2.5%. The other factors that affected the survival of the sprouts are light intensity, amount of water in the soil, snails and termites.

By N. Busa

Editorials

THE NEED FOR THE EXPANSION OF THE COLLEGE FACULTY

When the College of Forestry was still jointly operated by the Bureau of Forestry and the University of the Philippines, it had enough faculty members for administrative and teaching routines. Bureau personnel assuming research responsibilities at the then Forest Products Laboratory were made available to teach, comprising almost one half of the college teaching staff.

However, the College suffered a sudden reduction of faculty members in 1957 by virtue of the Reorganization separating the College from the Bureau and transfering full responsibility for the operation of the College to the University of the Philippines. Although the Forest Products Laboratory where most of the faculty came, together with the Forest Products Research Section of the Bureau were combined to form the Forest Products Research Institute and still attached to the Office of the President of the U.P. for policy purposes, no provision had been made providing for the replacement of the Bureau-supported faculty that the College lost. As a result, only about one half of the original faculty remained in the University payroll. This, in addition to the retirement of Dean Mabesa, has greatly paralyzed the College faculty.

At present, there are twenty faculty members including the five Forest Products Research Institute personnel who have academic appointments from the University and one from the College of Agriculture personnel who is assigned full time to the College. This, however, is not sufficient to meet the growing student population and the increasing demands for forestry research information. The teaching load per instructor is compara-

Forestry Leaves

Organ of the Student Body and Alumni of the College of Forestry, College, Laguna

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tively heavier than in the former years and administrative officers have to assume much of the teaching responsibilities as well. It is not surprising to note that some students sometimes complain of less-inspired instruction as well as the failure of the instructor to devote full attention to the subject. This is attributed to the fact that the instructor has to handle a series of teaching hours aside from attending to administrative matters. Oftentimes, faculty members, especially those from the F.P.R.I., have to sacrifice their research hours in the Institute for teaching assignments in the College.

The College might have been able to manage to operate under such a situation, but this cannot go on forever, on account of the following: (1) a number of the present faculty members are due for unavoidable retirement soon. This calls for replacements who will be mature enough to assume leadership in the different proposed departments when retirements will further decrease the College faculty; (2) increase in faculty is so necessary when the proposed new curriculum will finally take effect. This would mean the addition of new courses for the B.S.F. degree which will naturally require more instructors; (3) increase in faculty will remedy the heavy teaching and administrative loads which hampers the expansion of the college program, especially in research; (4) and increase in faculty will also increase the number of advanced trainees necessary to provide academic training in keeping abreast with rapid Philippine forestry technological advances.

It is, therefore, hoped that this planned expansion of the college faculty as submitted by Dean Zamuco to the proper authorities will be approved. — A.G. Mordeno

LOCAL INITIATIVE

It is heartening to note that the national government is finally realizing the futility of trying to do everything from a central authority in Manila. President Garcia has told Congress in his state of the nation address that more local autonomy is needed to spur public interest and support in local developments. In Congress, a move is on to raise local revenues for local education, and it is even proposed that much of the local taxes should revert to the local authorities as incentive to increase local tax collections.

We in the timber industry believe this move should result in improved management of the nation's timber resources. If, for example, the funds collected from forest fees were allocated for the protection and reforestation of the areas from which the funds were raised, there would be proportionate benefits accruing to those who carry the tax burden.

As it is, most of the funds seem to be reverted to the general fund or, in any case, sunk into projects of little or no direct bearing to the improvement of the areas which actually put up the money.

We are therefore in favor of encouraging local initiative. The taxes we pay in Agusan, for example, should be for the most part used in protecting the forests from which the funds come. In this way we can guard the forest more adequately and keep up a consistent forestation program that can assure permanent sources of forest raw materials.

This way, local governments will be encouraged to exert more efforts to collect taxes all the way around. In the process, the national government stands to benefit just as much, since there will be a proportionate increase in the share of the national treasury.

President Garcia and Congress deserve commendation for this progressive trend in their thinking in favor of more local initiative and responsibility. — The Woodsman, Feb. 1, 1959

GRADUATION THOUGHTS

This year's graduation exceeds all others in the number of students who will soon join the rank of the Country's Custodians of our forest resources. However, it should not be the quantity but the quality of graduates that should be considered when we speak of the potential output of these foresters-to-be, in terms of service to their fellowmen and to the country at large. In recent years the complaint has been the deteriorating quality of our graduates. It has been contended by the College authorities and faculty that the materials that we have been getting lately are not of excellent or superior quality. No amount of efficient teaching, modern equipment and facilities can turn out superior graduates out of poor materials. True it is that before the beginning of classes, entrance examinations and personal interviews were used to screen the entering freshmen. But in view of the poor quality of the entering freshmen, the best 120 students, from the applicants are not necessarily A-1 students. This has been attested by the fact that out of this number generally around thirty students finish the Ranger's Course in two years, and about eight, the B.S.F. Course in four years. This year's graduating class is, therefore, composed of the regular 1958-59 Class, that came to College four years ago, and the left-overs of previous classes.

Attempts have been made to attract better types of students. A brochure entitled "A forestry Career... For You?" has been sent to the different high schools in the hope that we shall be able to attract students of excellent quality.

Through the recommendation of Dr. Dalisay, Undersecretary of Natural Resources the sum of ₱50,000 was included in this year's DANR budget for scholarships: ten for selected Bureau men in the field, and twenty for chosen High School Students after a rigid screening.

In previous years, there were pensionados from among the Bureau men, selected by a committee composed of the Director as chairman, and the different B.F. Division Chiefs. In some cases, the choices were a disappointment and this was due to the defective screening system mostly by, what one facetiously called, "horse trading", in which one Division chief votes in favor of another chief's candidate in the hope that his will get a reciprocal vote.

Then there was again the pensionadoship under the DANR, under the then Secretary Araneta and the former Director of Forestry, Tamesis. This was offered to High School Valedictorians and Salutatorians and and First Class Boy Scouts with a general average of 85%. While not all the scholars had come up to the expectation of the College authorities, it gave to the DANR, rangers that the College and the Bureau can be very proud of.

It is hoped that this year's selection will be more systematic and effective. It is hoped, too, that better types of students will apply for admission. Then we can hope that we shall have better rangers who will carry on the thankless task of conserving our country's forest resources, a credit to their College and the University of the Philippines.

—N. N. Mulato

INCIDENTALLY

VERY few know that our Guest Speaker, the Honorable Juan de G. Rodriguez, fondly called by his colleagues and friends, "Johnny" had played a part in the realization of one of the fondest dreams of every college alumnus, a new and beautiful College building.

When Dr. Roland Rene, the first MSA (now ICA) Chief arrived, Johnny, an old friend and classmate, in the University of Montana, called up his friends and alumni from the different universities in the Pacific Northwest, and at a pow-wow, decided to tender a luncheon in honor of the newly arrived MSA Director.

As usual, after the luncheon at the New Selecta, there were postprandial talks. One of the speakers, a member of the College faculty asked the kind Dr. whether in the overall program of the MSA for agricultural aid and expansive projects, there was something for the College of Forestry. And Dr. Rene answered that agriculture and forestry are inextricably linked, that one cannot talk of agriculture, without thinking of forestry. He promised to do something concrete. The building is here now. As we survey the building, we cannot help remembering Dr. Rene and "Johnny", among those who, in one way or another, had made possible the realization of the alumni dream.

Of course, he had done greater things than these for his is a rich and colorful career, fruitful of human service. We would rather that his biodata be given in this morning's celebration by one who knows him intimately and with whom he has worked all these years as an efficient and conscientious public servant.

* * *

It has been said that if a Filipino expert were to talk to a group of his own people, his ideas would not be taken seriously or, worse still, skeptically. But if a foreigner expressed the same opinion, the same group would listen to him, and applaud him. One of the best things that happened recently was the visit of Dr. Gill, Executive Director of the Charles Lathrop Pack Forestry Foundation. A fellow of the Society of American foresters, he was awarded the Sehlich Medal in recognition of his most outstanding contributions to the advancement of international forestry.

His frank appraisal of the our country's dwindling forest reserves, as well as his grim warning that unless something is done to protect these, the country will experience the same tragedy that befell previous empires, made our congressmen sit up and take notice. It took US Congress to put forestry on its present solid foundation. Can our Congress do something for the Bureau of Forestry and its men?

* * *

It is seldom if ever that we meet men in the course of our lives with whom we would wish to be with us forever. Among such men have been Dr. Pentoney and Dr. Farnsworth, who, despite their 18 months' stay with us, have so endeared themselves to us that we wish they could be made permanent members of the faculty. The Faculty and the Student Body are profoundly grateful for all the things they did for the College. — *Bon Voyage and Au Revoir.*

* * *

SENIOR CLASS DONATION

The Senior Class Organization, in its meeting on February 21, 1959, decided to donate to their Alma Mater this year, the following: (a) A replica of the Ahern Medal, in cement and ½' thick and 5' in diameter, to be attached to the wall outside the College building between the Offices of the Dean and the Math & English Department; (b) Extensions on both sides of the front sidewalk in the form of 2' wide flower beds; and (c) Five 1' x 1' x 2' flower beds, of cement, to be placed and arranged strategically on the lawn before the College building.

The ₱300 class project was motivated by the desire of the Seniors to have the College building and grounds appear more prominent in the Park and be more appropriately called the site of the only forestry college in the country.

* * *

ANOTHER PROJECT

Meanwhile, Mr. F. P. Mauricio initiated the putting up of signboard with the inscriptions;

University of the Philippines
COLLEGE OF FORESTRY
College, Laguna

U.P. SEAL AHERN MEDAL

The signboard will make the college better known to the public and attract our youths to its portals.

Alumni Directory

RANGER'S COURSE

1912

Amarillas, Fernando †
Angeles, Agustin P.†
Barros, Cayetano
Contreras, Aquilino
Domingo, Damian
Fajardo, Ramon
Ferrariz, Ceferino †
Franco, Felix
Leaño, Eladio C.
Mesa, Alejandro de †
Miranda, Donato P.†
Muñasque, Cruz †
Pascual, Ysmael
Racelis, Antonio P.†
Rendal, Bernardo
Tamesis, Florencio

1913

Abellanosa, Ricardo
Achacoso, Isabelo
Atrebido, Numeriano †
Belen, Leon
Cailipan, Catalino †
Cruz, Florencio †
Fernandez, Rafael
Hirro, Jose B.†
Leuterio, Eusebio †
Lomuntad, Eustaquio
Lopez, Ciriaco
Lopez, Juan †
Maceren, Felix
Maneja, Cecilio
Manuel, Fortunato †
Nano, Jose F.
Nave, Eleuterio
Oro, Maximo
Peñas, Nazario
Ponce, Severo S.†
Recio, Eulogio †
Reyes, Luis J.
Sabino, Rufino
San Buenaventura, Porfirio
Soriano, Doroteo
Suyat, Apolinario †
Tabat, Evaristo
Valencia, Numeriano
Velasco, Vicente
Villamil, Aniceto

1914

Acuña, Ramon A.
Adduru, Marcelo
Agama, Jose
Alejandro, Benigno †
Baldemor, Julio †
Cardona, Francisco †
Castillo, Mariano O.
Castillo, Vicente
Cenabre, Agapito L.
Dacanay, Placido †
Duran, Jesus O.
Edmilao, Emeterio †
Fajatin, Felipe
Gañgan, Pedro
Guerrero, Carlos
Hsia, Chin Shi †
Kapuno, Filemon
Labitag, Gregorio J.
Larracas, Ramon †
Martinez, Antonio
Mayor, Pacifico F.
Natividad, Peregin
Oliveros, Severo
Pascual, Justo M.
Razon, Maximiano †
Riego de Dios, Gorgonio
Roque, Tomas N.
Santos, Adriano V.
Tansioco, Crispino
Tomeldan, Santiago †
Valderama, Felipe
Villavicencio, Vitaliano N.

1915

Amos, Felipe R.
Bawan, Felix †
Catalan, Juan
Ceballos, Vicente
Franco, Leon C.†
Jurado, Mariano †
Lazaro, Jose †
Mabesa, Calixto
Mariano, Macario A.
Miras, Gregorio
Pacis, Jose G.
Peña, Pastor de la †
Samonte, Antonio
Sandique, Julian
Soong, Ding Moo
Sulit, Carlos
Tecson, Teodoro †
Tocmo, Bernardo †
Victorio, Urbano
Villanueva, Provo T.

1916

Ablaza, Mauro †
Alviar, Enrique
Azurin, Mamerto C.†
Babaran, Santiago
Catalan, Nemesio
Catambay, Atanasio B.
Daclison, Juliano †
Fernandez, Maximo E.
Guerrero, Joaquin
Guzman, Lorenzo de
Li Shen Tuan
Lopez, Melecio
Madrid, Edilberto
Mallonga, Angel C.
Manzano, Tomas
Mendoza, Deogracias
Resultan, Enrique
Rola, Francisco †
Roque, Benito L.†
Salas, Jose Blas
Serrano, Luis
Shi Ping Chi
Tan Ti Shen
Versoza, Juan S.

1917

Afalla, Pedro A.†
Babao, Sixto †
Baculi, Mauro
Causing, Ptolomeo†
Colcol, Teodoro †
Cristobal, Braulio
Defensor, Vicente J.†
Guieb, Bernabe †
Guzman, Deogracias †
Laguio, Leonardo
Laraya, Sixto
Legaspi, Nicanor †
Malana, Manuel M.
Martelino, Pastor †
Montalvo, Manuel
Ramirez, Inocencio
Sajor, Valentin
Santos, Nicanor E.
Simeon, Macario
Tomeldan, Perfecto
Villaflor, Vicente

1918

Abarro, Domingo
Amor, Roman
Arizabal, Gregorio J.
Baltazar, Alejandro
Cruz, Eugenio de la
Damo, Ambrosio
David, Aniano
Elumir, Gregorio †
Flores, Jose G.
Fo Huang Kuang
Quevedo, Felipe †
Reyes, Silvino †
Rojas, Leon
Rondario, Maximino †
Salvosa, Felipe M.
Soloria, Norberto
Tupas, Manuel
Valdez, Jose †
Villanueva, Alberto
Zosa, Vicente †

†—deceased

1919

Aduviso, Pedro
Aguilar, Luis
Andrada, Juan C.
Barros, Alberto
Caguioa, Vicente
Corales, Juan
Cruz, Leoncio A.
Daproza, Juan
Gellidon, Quintin
Hsia David S. N.†
Logan, Jose B.
Mabbayag, Felix
Mataya, Ramon †
Parras, Vicente
Quimpo, Timoteo
Salazar, Angel †
San Pedro, Rafael †
Selorio, Getulio †
Valentin, Pedro
Vega, Pioquinto de la †

1920

Acenas, Juan
Adona, Luis
Asiddao, Florencio
Curameng, Amando †
Fontanoza, Juan †
Galisim, Ambrosio †
Lee Nien Sung
Lin Yien Ying
Lizardo, Leonor
Logan, Lorenzo
Medrano, Celso
Montero, Pedro
Oblina, Juan †
Pato, Miguel
Perez, Bonifacio
Rarang, Gervasio
Rebong, Leoncio
Siriban, Francisco
Songco, Florencio
Tin Me Hai
Versoza, Florentino

1921

Abalos, Lucio
Allas, Daniel B.
Bautista, Hermenegildo †
Dagang, Gregorio L.
Granada, Leonardo F.†
Gomez, Celestino
Macaraeg, Cayetano
Makil, Jose D.
Montero, Simon †
Poblacion, Gregorio
Quiaoit, Antonio †
Seguerra, Justino †
Sulit, Mamerto D.
Tugade, Magdaleno
Zamuco, Gregorio

1922

Adamos, Perfecto †
Apostol, Lamberto
Batica, Luis †
Denoga, Norberto
Diaz, Lorenzo D.
Dres, Eulogio
Estrada, Joaquin †
Florita, Prudencio
Gimeno, Pedro
Icarañgal, Primo †
Jucaban, Felix
Lara, Victor †
Lemos, Andres
Masias, Andres †
Mendoza, Nicolas †
Miguel, Cornelio
Pacheco, Juan
Porcioncula, Aquilino
Quidilla, Rafael
Rabaya, Constantino
Raboy, Tomas
Salomon, Pio L.
Udarbe, Marcelo L.
Umadhay, Pablo
Viado, Balbino

1923

Agaloos, Pedro †
Alviar, Hermenegildo
Antonio, Doroteo †
Arafiles, Ricardo
Bitonio, Ambrosio
Brillantes, Buenaventura †
Cauagas, Ignacio
Cortes Roberto
Daza, Raymundo
Eugenio, Miguel A.
Evangelista, Basilio
Flores, Fausto †
Genove, Marcelino
Guerrero, Faustino A.
Melegrito, Fortunato
Orolfo, Pastor
Rola, Cecilio †
Ruiz, Quirino
Suarez, Valeriano
Sulit, Aniceto †
Tabamo, Geronimo †
Vega, Primitivo de la
Willie, Saquiapao
Zambrano, Zoilo A.†

1924

Abijay, Francisco
Antonio, Fabian †
Bañez, Emilio
Colinares, Clemente
Cruz, Vicente de la
Delizo, Teodoro
Dumlao, Alfredo
Galenzoga, Mariano
Guerrero, Martin
Guillen, Gabriel
Jundak, Castor
Loyola, Estanislao
Miranda, Jorge
Orillo, Gregorio †
Pascual, Gabriel †
Ramel, Domingo P.
Sabado, Sabas †
Santos, Calixto
Santos, Pantaleon J.
Semilla, Valentin, Jr.
Seneca, Jose
Tamayo, Gerardo B.
Tongco, Conrado
Valdez, Adriano
Yutoc, Melencio

1925

Abella, Ceferino S.
Antonio, Leandro A.
Buhay, Ricardo †
Cabiling, Rafael †
Castillo, Alfredo R.†
Dayao, Leonardo
Durian, Juan
Fernandez, Regino
Lagrimas, Martin
Lardizabal, Agapito
Mencio, Jose B.
Miguel, Isabelo
Pascua, Agustin
Pura, Amado
Reyes Dalmacio †
Reyes, Rafael de los †
Sales, Julio G.
Simbajon, Tiburcio
Tomboc, Jose
Torrea, Lucilo

1926

Agullana, Basilio
Alomajan, Jose †
Aquino, Sulpicio †
Basconcillo, Marciano
Bisuña, Bernardo
Croox, Delfin †
Dayag, Alfonso †
Dumlao, Pablo L.
Enrique, Benigno
Galan, Victorio
Paz, Januario de †
Ponce, Guillermo
Pulido, Telesforo
Roca, Jose †
Rondilla, Ramon
Sabalo, Celestino
Salvilla, Roman
Soriano, Wenceslao
Tabbang, Abraham †
Ulep, Nicolas
Valdez, Andres
Vedad, Vicente

1927

Acosta, Francisco A.†
Aviguetero, Victoriano B.†
Barte, Canuto O.†
Berbano, Santiago A.
Bucaycay, Osencio
Claveria, Jose P.
Clemente, Perfecto G.†
Doza, Luis C.
Esguerra, Pastor
Espinas, Anacleto B.
Espiritu, Arsenio G.
Faustino, Dominador G.
Garcia, Anselmo A.
Gobuyan, Vicente
Guyguyon, Jack M.
Mercado, Casimiro P.
Perez, Antonio V.†
Principe, Jose D.
Rasul, Abdul Patta †
Santos, Narciso C.
Serevo, Tiburcio S.
Tamayo, Mariano A.

1928

Altamirano, Gil M.†
Balanon, Evangelista B.
Baluyot, Ambrosio M.
Bello, Concepcion †
Brillantes, Demetrio
Bucoy, Macario
Cabrera, Cenon M.
Chunuan, Teofilo
Cuasay, Alejandro L.†
Daoey, Mark
Ellazar, Narciso G.
Española, Delfin P.
Felix, Maximo G.
Gibson, Adriano T.
Gray, Rosendo M.
Ilustrisimo, Juanito S.
Juson, Salvador
Ladia, Onofre †
Lalog, Nicanor P.†
Mendoza, Demetrio R.
Miguel, Angel F. :
Salvosa, Jose R.
Sim, Esteban S.
Villamater, Jose D.†
Weinmann, Bernard
Yolores, Bernardo R.

1929

Arce, Pedro
Barrios, Primitivo
Busque, Jose
Cuenco, Antonio
Dagñgalan, Arsenio
Dañez, Irineo †
Dueñas, Irineo
Estabillo, Nicolas O.
Fernandez, Epifanio B.
Hill, Eduardo M.
Lagaya, Alfredo A.
Libadia, Braulio
Luczon, Cornelio
Madlangbayan, Eugenio
Malaggay, Teodoro
Montillo, Gavino P.
Nablo, Severino U.
Payumo, Francisco A.
Rayos, Jose A.
Santos, Salvador S.†
Tuaño, Lorenzo S.†
Ulangkaya, Ebad

1930

Agaloos, Vicente A.
Alcantara, Urbano
Alojipan, Eligio
Andrada, Jose R.
Ariola, Ciriaco A.
Asagra, Pedro B.
Caayupan, Magdaleno
Caccam, Daniel R.†
Catindig, Brigido
Chinte, Felix O.
Contreras, Leonardo
Cunanan, Carlos D.
Dolendo, Domiciano M.†
Fajatin, Tomas M.†
Flores, Casimiro S.
Leaño, Celestino M.
Ledesma, Santiago A.
Mabesa, Juan S.
Malacoco, Evangelino †
Malibiran, Eufrasio
Manalo, Tomas
Manuel, Marcelo
Mapiscay, Pablo T.†
Mariano, Cipriano S.†
Mella, Leocadio B.†
Regondola, Segundino
Solsona, Floro A.
Tuting, Manuel L.
Villanueva, Mamerto M.
Yap-Diangco, Vicente
Zablan, Dalmacio A.

1931

Abellera, Pedro C.†
Abiog, Bruno
Aller, Arsenio B.
Amon, Leoncio
Andrada, Cirilo
Anulao, Eusebio P.
Arana, Augusto R. de †
Bayle, Rafael
Cagalawan, Pedro
Cañete, Genovevo †
Cariño, Vicente A.†
Doroin, Regino
Guzman, Domingo S.
Juni, Deogracias
Lansigan, Nicolas P.
Lascano, Felipe L.†
Madarang, Antonio V.†
Marquez, Vicente
Mole, Antonio
Ongchangco, Bayani
Rubiano, Jose D.
Salinas, Gregorio
Santos, Gregorio L.
Sulit Amado A.
Versoza, Manuel F.
Viado, Jose B.
Yjares, Inocente
Zambrano, Rufino Z.†

1932

Acedo, Pedro L.
Aragones, Francisco P.
Balajadia, Deogracias
Banaban, Federico F.
Baroña, Prudencio B.
Bayle, Higino P.†
Belmonte, Mariano
Blancas, Victoriano U.
Calip, Jose E.
Camero, Melquiades †
Cebedo, Barbio
Figuracion, Santiago
Fortes, Pedro O.†
Garduque, Bernardo
Genio, Alfredo L.
Gojar, Jose G.
Hernandez, Anacleto A.
Insigne, Magno
Jastive, Alvaro G.
Labasay, Laureano
Leon, Domingo A. de
Moroña, Loreto G.
Paa, Ramon
Reyes, Aproniano Q.
Rivera, Remigio P.
Selga, Nicanor O.
Utleg, Juan L.
Valenzuela, Patricio
Valera, Federico V.
Valera, Jose V.†
Valera, Pedro B.†
Velasco, Domingo C.†
Viste, Esperidion B.
Yadao, Fausto P.

1933

Abuan, Maximino E.
Acenas, Calixto
Agcaoili, Faustino
Aguinaldo, Felicisimo
Aguto, Cornelio
Aliñabon, Apolonio
Añonuevo, Leonardo E.†
Aquino, Roman R.†
Araneta, Teodoro
Baja, Honorato
Bautista, Ariston G.
Bersamira, Jose V.
Biscarra, Jose V.†
Cardinez, Hermogenes †
Cortes, Jose M.
Datoon, Doroteo D.†
Davocol, Baldomero
Difuntorum, Pedro R.
Estrella, Ricardo T.†
Etcubañas, Monico T.
Felix, Gaudencio L.
Fontanilla, Luis R.
Go, Gavino
Gubatan, Nemesio
Lacza, Antonio Q.
Layus, Pedro R.
Lim, Diego
Manzano Toribio V.
Marcelo, Hipolito B.
Marquez, Hermogenes
Milan, Mariano †
Mondragon, Crispin
Monsalud Epifanio R.†
Morao, Santiago R.
Narciso, Policarpio S.
Olay, Rufino P.
Palos, Bonifacio A.
Pascua, Fernando A.
Perez, Cristobal P.
Reyes, Maximino R.
San Pedro, Pedro
Sibuma, Bernardo V.
Uranza, Luis A.
Urquiola, Juliano V.
Victa, Mateo C.
Ysit, Francisco †

1934

Aquino, Jose D.
Asuncion, Alfredo R.
Balaton, Valentin M.
Baroña, Felipe B.
Benavidez, Regalado B.
Bersamin, Constante
Biscarra, Julio T.
Bolante, Pablo A.
Bringas, Jesus C.
Caayupan, Vicente F.†
Capili, Eleno C.

Carbonel, Filomeno V.
Castro, Estefanio R.
Castro, Marcelino R.
Chica, Pedro Y.
Cosico, Artemio B.
Crispin, Josefino A.
Cuesta, Herminio de la
Ergino, Valerio O.
Estaniel, Antonio P.
Fajardo, Valentin M.
Furigay, Salvador
Galera, Emilio A.
Garcia, Lorenzo A.
Genio, Artemio A.
Guillermo, Valentin B.
Guirnela, Floreño J.
Juni, Rosales A.
Lopez, Martin P.
Luna, Julio P. de
Medenilla, Pablo B.
Micu, Federico O.
Nacario, Narciso C.
Odañga, Francisco D.
Orbigo, Norberto
Parado, Froilan B.
Pascual, Andres B.
Ravelo, Juan R.
Recto, Caesar
Reyes, Martin R.
Rimando, Paciano R.
Sequerra, Antonio †
Taeza, Bernardino T.
Taliwaga, Bernabe Y.
Torres, Honesto V.
Vargas, Carlos O.
Vega, Cipriano de la
Versola, Pio A.

1935

Afalla, Resurrecion E.†
Andres, Primo P.
Baroña, Eustaquio B.
Barros, Francisco B.
Bautista, Sergio M.†
Bayabos, Constante
Borja, Bernardo T.
Borja, Joaquin B.
Cabuling, Patricio C.
Espejo, Patricio Q.†
Ferrer, Florentino
Gomez, George C.
Jacinto, Luciano D.†
Jimenez, Jose V.
Juinio, Ambrosio D.
Macabeo, Marcelino
Madamba, Feliciano †
Madrid, Domingo J.
Mancao, Maximo B.
Mariñas, Felipe V.
Mejia, Aurelio S.
Menchavez, Sinforiano R.†
Nobleza, Luis G.
Ocampo, Benito R.†
Orden, Tranquilino Jr.
Parado, Domingo D.†
Punzalan, Marcelino E.
Rico, Jose †
Rocamora, Sergio D.
Sabado, Rufino A.
Salazar, Pedro C.
Salvoza, Cenon M.
Saura, Adriano E.
Sevilla, Teotimo S.
Sontillano, Librado S.
Tabion, Leonardo B.†
Velasco, Eustacio S.
Viado, Lorenzo T.
Villacarillo, Valentin A.
Viray, Pablo R.
Ybañez, Justino A.
Zalun, Eustaquio

1936

Garduque, Eulalio C.
Lasam, Damian M.
Mong, Tunga T.
Navallasca, Rafael

1948

Alabazo, Jose C.
Astudillo, Resurreccion
Llapitan, Eduardo A.
Micu, Carlomagno A.
Roy, Fernando A.

1949

Angelo, Sixto B.
Antonio, Doroteo U., Jr.
Aquino, Enrique D.
Caleda, Artemio A.
Estrada, Deogracias A.
Lantican, Domingo M.
Mabesa, Edgardo O.
Salvador, Pedro B.
Santos, Tito C. de los
Siapno, Isidoro B.
Tagudar, Eulogio T.
Valderrama, Osiris M.

1950

Agbayani, Wenceslao
Agruda, Francisco A. Jr.
Ballesteros, Juan S.
Corpuz, Florencio M.
Diasanta, Amando D.
Eusebio Mario A.
Francia, Faustino C.
Meimban, Julian R., Jr.
Orbita, Alfredo B.
Sardiña, Amado C.
Sario, Inocencio H.
Tadena, Jesus R.

1951

Almonte, Benjamin D.
Ardieta, Rodrigo R.
Avellano, Julian L.
Balcita, Brigido B.
Cruz, Jose A.
Esteves, Honorato D.
Galutira, Ciriaco A.
Guerrero, Urbano
Leproso, Moises R.
Mabanag, Francis S.
Meniado, Jose A.
Pascua, Emilio R.
Reyes, Constancio F.
Serna, Cirilo B.
Siruno, Perfecto S.
Turqueza, Alejandro

1952

Agustin, Pedro S.
Alop, Jose B.
Barrer, Feliciano V.
Bernardo, Justino B.
Buenaflor, Silvestre B.
Cimatu, Domingo P.
Cruz, Damaso F. de la
Estoque, Hipolito O.
Ganapin, Delfin G.
Gonzales, Jose A.
Gonzales, Urbano G.
Jasmin, Bernardo B.
Lucero, Alfonso A.
Madrid, Filemon
Marin, Enrique T.
Milan, Francisco D.
Navarro, Lauro D.
Orantia, Julio G.†
Pollisco, Feliberto S.
Ramirez, Vicente A.
Rivera, Enrique E.
Sagrado, Maximo J.
Santos, Rosauro S.
Serrano, David
Sivila, Hilario S.
Soliven, Marcelo V.
Soria, Radigundo A.
Tamis, Epifanio L.
Tiam, Alfonso I.†
Urbano, Marcelo J.
Vergara, Napoleon T.
Versoza, Celso N.

1953

Acosta, Raymundo P.
Agaceta, Camilo E.
Agaloos, Bernardo C.
Batoon, Benjamin M.
Battad, Meliton T.
Bautista, Pelagio D.
Borre, Calvin R.
Burgos, Bernardo L., Jr.
Cabanday, Artemio C.
Cabebe, Pablo S.
Cañeda, Generosa F.
Cardenas, Conrado L.
Corpuz, Edmundo A.
Dacumos, Cresenciano Q.
Fabian, Virgilio R.†
Falloran, Geronimo P.
Flores, Francisco M.†
Garcia, Hari
Gulle, Marciano E.
Gutierrez, Ernesto R.
Ingosan, Douglas L.
Jucaban, Santos M.
Japson, Basilio
Leal, Ascencion L.
Mandocdoc, Gabriel L.
Mangantulao, Ernesto B.
Mauricio, Florencio P.
Miras, Roman B.
Obay, Eufemio E.
Pagaduan, Fernando M.
Paterno, Luis E.
Peralta, Mariano R.
Pinalba, Salustiano O.
Reyes, Bartolome R.
Reyes, Pedro C.

Rodulfa, Emeterio V.
Rojas, David M.
Sunico, Emiliano S.
Supnet, Prudencio S.
Tandingan, Geronimo L.

1954

Abraham, Felipe B., Jr.
Agbisit, Candido T.
Alegre, Simplicio S., Jr.
Antonio, Victorio C.
Ayuban, Ernesto S.
Babiera, Tito S.
Baggayan, Rogelio B.
Batoon, George T.
Bugarin, Jone L.
Canave, Modesto O.
Espiritu, Roberto G.
Eugenio, Alfredo A.
Halasan, Trifon M.
Ilagan, Jose
Ladero, Victoriano V.
Malvas, Jose D., Jr.
Martinez, Narciso P.
Marvil, Jose M.
Noriel, Resurreccion J.
Oriel, Alfonso L.
Palacay, Leopoldo G.
Quimbo, Lucio L.
Reyes, Eufracio L.
Sarinas, Prajedio S.
Tadle, Josue F.
Tomas, Flordelino M.
Valdez, Romeo S.
Visperas, Emigdio B.

1955

Agpawa, Herman A.
Antonio, Marciano B.
Araojo, Loreto N.
Arcangel, Fortunato S.
Bernardo, Anacleto B.
Camacho, Juanito A
Caronan, Avelino C.
Columbres, Epifanio L.
Cortes, Edmundo V.
Cuenca, Hermetes T.
Empedrad, Francisco
Eusebio, Teodoro V.
Garnica, Florencio A.
Goze, Rosalio B.
Gumayagay, Julian T.
Lagura, Damian B.
Lizardo, Antonio M.
Llena, Herminio A.
Lomibao, Benigno A.
Lubrin, Andres C.
Mariano, Angel A.
Padrones, Conrado P., Jr.
Paragas, Bienvenido G.
Picardo, Alberto C.
Pintor, Alfredo D.
Ragus, Patrocinio S.
Retino, Carlos R.
Sana, Macario S.
Sanchez, Alfredo V.
Sison, Anastacio B.
Soriano, Victoriano P.
Sumabat, Pelagio T.
Tan, Quirico D.
Tobias, Isabelo Jr. C.
Tobias, Modesto T.
Tolentino, Tomas B.
Tomas, Jose C.
Tosco, Catalino F.
Udaundo, Zcilo L.
Urbanozo, Dionisio C.
Valera, Mariano Z.
Yadao, Filamor M.

1956

Aborka, Alberto P.
Amihan, Jessie B.
Andalis, Sofronio A.
Angeles, Leonardo D.
Anuma, Roberto K.
Aspiras, Elpidio D.
Baniqued, Jose O.
Briones, Jaime C.
Capili, Alberto B.
Castriciones, Juan T.
Cuadra, Helano P.
Cubero, Ruben P.
Ellazar, Magdaleno B.
Esber, Aquiles G.
Esber, Gayred G.
Felix, Remedios E.
Fontanoza, Manolo V.
Francia, Gregorio P., Jr.
Francisco, Apolo B.
Galam, Adolfo L.
Galang, Gonzalo M.
Lamanilao, Juanito D.
Lazo, Aejandro P.
Lazo, Pedro P.
Mangadap, Saturnio L.
Mejia, Isabelo M.
Menor, Venancio A.
Orallo, Juan L.
Paet, Eustaquio M.
Pareja, Bernardo L.
Peig, Florencio Q.
Ramos, Dalmacio C., Jr.
Rendorio, Francisco C.
Romero, Jose C., Jr.
Salvador, Petronilo T., Jr.
Serrantes, Isidro M.
Tabangil, Siegfred U.
Tongacan, Arsenio L.
Ulangkaya, Romeo U.
Vedad, Azuero T.
Veracion, Vicente P.
Villaflor, Armando A.
Wandisan, Carlos L.

1957

Abadilla, Francisco C.
Ablaza, Juan
Abraham, Emerson B.
Abugan, Eddie D.
Acosta, Roy C.
Aggabao, Policronio G.
Agpaoa, Alfredo C.
Agra, Melecio S.
Alcos, Augusto L.
Bacdayan, Andrew W.
Baliton, Sixto A.
Banaag, Valeriano S.
Barlicos, Manuel G.
Batcagan, Sabado T.
Bautista, Inocencio G.
Baysa, Andres A.
Blando, Andres C.
Bote, Roberto P.
Bote, Teodora P.
Borre, Arnaldo R.
Caday, Esteban S.
Calabia, Benson A.
Camacho, Serafin A.
Castillo, Romulo A. del
Castillo, Simplicio T.
Castillon, Aldrico A.
Cebuano, Pedro B.
Diaz, Dante G.
Domingo, Ireneo L.
Enriquez, Dominador
Fabian, Elpidio R.
Federico, Manuel G.
Flores, Alfredo M.
Flores, Vicenta F.
Flotildes, Pompeyo V.
Galang, Manuel B.
Galapia, Pedro S.
Galutera, Ruben E.
Gerardo, Julita A.
Gonzales, David C.
Guadalupe, Nicolas R.
Guillen, Gabriel Jr. A.
Guzman, Enriquito D. de
Guzman, Gildo G. de
Liganor, Ricardo T.
Lorenzo, Zoilo G.
Mabesa, Benjamin C.
Martin, Ricarte A.
Molina, Severino B. Jr.
Mordeno, Angelo G.
Narciso, Policarpio Jr. M.
Pauig, Roger G.
Pobre, Marceliano A.
Ponce, Saturnino A.
Poquiz, Andres M.
Quiray, Segundino J.
Quitoles, Rodolfo M.
Raiz, Robinson A.
Reprado, Benedicto T.
Reyes, Tomas S.
Rivera, Artemio J.
Rodrigo, Wilfredo T.
Seraspi, Elias Jr. R.
Solarta, Francisco M.
Tagorda, Jose Jr. R.
Tesoro, Florentino O.
Tolentino, Melchor G.
Torre, Samuel F.
Tullas, Antonio Jr. P.
Valdez, Cresencio C.
Villarino, Antonio C.
Zamuco, Isidro T.

1958

Acain, Jose
Acosta, Restituto
Agleam, Romeo B.
Arellano, Laurentino R.
Arevalo, Bienvenido C.
Baliquig, Angelico
Balod, Marcelo Jr.
Barcarse, Bienvenido A.
Battung, Benito C.
Buenaflor, Felipe D.
Busa, Napoleon D.

Cajucom, Edilberto Z.
Cadeliña, Oscar B.
Calija, Felipe T.
Chavez, Eugenio
Collado, Paulino G.
Decena, Adolfo S.
Esperanzate, Orlando A.
Esteban, Isidro D.
Farrales, Mariano D.
Gabot, Victorino
Gonzales, Rogelio
Lacerona, Fernando A.
Lechoncito, Jose L.
Lee, Lucio O.
Lindayen, Teofilo
Mulato, Nicasio N.
Najera, Felizardo
Orantia, Elias A.
Palacay, Federico
Parilla, Carlito
Pastores, Domingo B.
Rimbon, Adela
Rodulfa, Cayetano
Rojo, Justo P.
Rosario, Emilio A.
Rufo, Avelino Q.
Salazar, Corazon L.
Sardiña, Flaviano G.
Somera, Ruperto P.
Tagorda, Jose F.
Valdestamon, Jaime V.
Valdez, Angelino P.
Valerio, Romulo R.
Villanueva, Adolfo I.
Zapanta, Vicente A.

Bachelor of Science in Forestry

1915

Villamil, Aniceto

1916

Racelis, Antonio P.†

1923

Nano, Jose F.

1928

Cenabre, Agapito L.
Lopez, Juan †
Mariano, Macario A.
Roque, Tomas N.

1929

Achacoso, Isabelo
Ponce, Severo S.†
Santos, Adriano V.

1930

Tabat, Evaristo

1931

Castillo, Vicente
Soriano, Doroteo

1932

Oliveros, Severo
Parras, Vicente
San Buenaventura, Porfirio
Sulit, Mamerto D.
Versoza, Juan S.

1933

Barros, Alberto
Buhay, Ricardo †
Dumlao, Pablo L.
Gellidon, Quintin
Seguerra, Justino †

1934

Acuña, Ramon A.
Altamirano, Gil M.†
Atmosfera, Fernando
Castillo, Alfredo R.†
Cuico, Engracio A.†
Daclison, Juliano †
Defensor, Vicente J.†
Delizo, Teodoro
Enrique, Benigno
Fontanilla, Florentino
Galgala, Tomas
Guerrero, Martin
Ilustrisimo, Juanito S.
Madrid, Edilberto
Marababol, Vicente R.
Miras, Gregorio
Montillo, Gavino P.
Paz, Januario de †
Qiaoit. Antonio †
Reyes, Felipe R.
Sales, Julio
Santos, Saivador S.†
Soriano, Emilio A.
Varian, Harry F.
Versoza, Lorenzo F.

1935

Aguinaldo, Felicisimo
Aquino, Roman R.†
Azurin, Mamerto C.†
Cagalawan, Pedro
Cristobal, Braulio
Datoon, Doroteo D.†
Datoon, Jose T.
Denoga, Norberto
Espinosa, Longinos M.
Ferreria, Catalino Q.
Go, Gavino
Guzman, Emiliano
Lopez, Melecio
Perez, Cristobal P.
Reyes, Alfredo de los

1936

Catambay, Atanacio B.
Elayda, Emmanuel A.
Garcia, Loreno A.†
Genio, Artemio A.
Gobuyan, Vicente G.
Mabbayag, Felix
Madrid, Domingo J.
Poblacion, Gregorio
Ponce, Guillermo
Rimando, Paciano R.
San Pedro, Rafael †
Taliwaga, Bernabe Y.
Vargas, Carlos O.
Verendia, Conrado P.
Weinmann, Bernard

1937

Asiddao, Florencio
Bautista, Sergio M.†
Galsim, Ambrosio †
Lalog, Nicanor P.†
Lizardo, Leonor
Menchavez, Sinforiano A.
Mendoza, Demetrio R.
Miranda, Jorge
Paa, Nicomedes F.
Pato, Miguel
Punzalan, Marcelino S.
Quimpo, Timoteo
Rico, Jose M.†
Sabado, Rufino A.
Santos, Calixto
Sontillano, Librado S.
Suprichakorn, Therd
(Springer, Augustine T.)
Suarez, Valeriano
Tabion, Leonardo B.
Velasco, Eustacio S.
Versoza, Florentino
Viado, Lorenzo T.
Viray, Pablo R.

1938

Allas, Daniel B.
Bala, Regulo D.
Berbano, Santiago S.
Blando, Benjamin B.
Brillantes, Demetrio
Cepeda, Teodorico B.
Dueñas, Santos E.
Lantion, Daniel B.
Lim, Buenaventura N.
Macaraeg, Cayetano
Manalo, Tomas J.
Navallasca, Rafael
Pascual, Andres B.
Rebosura, Higino D.
Ricarte, Leoncio R.†
Severo, Tiburcio S.
Tamayo, Ernesto G.
Tandoc, Nazario Z.
Viado, Jose B.

NON-GRADUATES:

Basuil, Pulcrado
Capellan, Nestor
Quevedo, Eusebio
San Luis, Mario F.

Simon, Pedro †
Singson, Manuel P.
Tremor, Alejandro T.

1939

Aguilar, Luis
Antonio, Fabian †
Belesario, Santos B.
Cabrido, Faustino S.
Cruz, Vicente de la
Esperanza, Vicente C.
Ibarra, Pastor O.
Laudencia, Calixto M.†
Mallonga, Angel C.
Merin, Juanito R.
Pascua, Irineo R.
Pillai, Nicalanta Kessava
Ramirez, Inocencio
Rodriguez, Juan C.
Ruiz, Quirino
Santos, Teofilo A.
Sison, Francisco N.
Sonico, Emiliano
Vadil, Cipriano M.
Yolores, Bernardo R.
Zumel, Bernabe S.

NON-GRADUATES:
Banayat, Patricio A.
Bandian, Ulpiano L.
Dumayas, Casiano D.
Fortich, Samuel R.
Gimentera, Jose
Kiocho, Narciso
Lampoon, Rathadara
Macasa, Oscar †
Rosales, Justo
Salvador, Andres

1940

Calija, Santiago †
Cerna, Policarpo de la
Dagondon, Democrito L.
Dologuin, Felix C.
Estillore, Florentino E.
Garcia, Mario
Lampoon, Phatana Na
Manahan, Mamerto C.
Mendez, Conrado B.
Pascua, Agustin
Perez, Cenon A.
Quidilla, Rafael
Siriban, Francisco
Sulit, Mario
Tiongson, Crisostomo E.
Valdepeñas, Carlos
Villanueva, Juanito B.

NON-GRADUATES:
Aglugub, Leon I.
Cabiles, Justiniano
Gamayon, Policarpo
Pimentel, Juan C.

1941

Anastacio, Oscar A.
Astudillo, Jose V.
Barnachea, Cosme P.
Batuyong, Teodoro T.
Calabas, Arcadio V.
Capili, Eliseo T.
Cauilan, Getulio L.†
Flores, Felix F.
Franco, Andres A.
Galindo, Primitivo D.
Germise, Felicisimo †
Hambananda, Pit
Hernandez, Anacleto
Jesus, Justino de
Lansigan, Nicolas P.
Nablo, Severino U.
Naraballabha, Vallabha
Peralta, Joaquin D.
Quejas, Conrado P.
Santos, Bienvenido de los †
Sumabat, Ambrosio P.
Turiñgan, Miguel R.
Vadil, Daniel A.
Valera, Roman B.

NON-GRADUATES:
Aganad, Pedro
Agudo, Toribio P.
Ampeso, Alberto
Araneta, Lorenzo
Bobon, Ricardo
Burgos, Jesus B.†
Buyao, Francisco V.
Caguioa, Ramon P.†
Castillo, Inocencio
Dacanay, Luis G.
Esteves, Abundo A.
Melchor, Cipriano
Ordinario, Buenaventura M.
Parado, Geronimo O.†
Pulanco, Emilio O.
Queturas, Rafael
Salgado, Maximo B.
Teodoro, Diogenes R.†
Trinidad, Jesus †
Tunque, Domingo G.†
Valera, Rotiman

1942

Abijay, Francisco
Banihjatana, Dusit Thongkrob
Bisalbutra, Parakich Vudh
Borja, Alejandro S.
Chan, Huadsuvan
Faustino, Dominador G.
Fernandez, Epifanio B.
Jucaban, Felix
Malapaya, Ruperto A.†
Mehudhon, Saneh †
Naraballabha, Bhitchara
Ocampo, Sotero de
Rimando, Constancio T.
Utleg, Juan L.
Zambrano, Rufino Z.†

NON-GRADUATES:
Bigornia, Santos
Boncato, Angel C.
Costales, Ildefonso U.
Elpa, Agelico B.†
Elpa, Jose B.
Gapero, Eulogio
Guazon, Benjamin
Manioang, Jose
Manzano, Resurreccion †
Misamis, Segundo
Ordinario, Benjamin

1943

Eusebio, Pablo A.
Oro, Maximo

NON-GRADUATES:
Baguinon, Wenceslao
Cabotaje, Luis C.
Castañeto, Rafael A.
Esmade, Feliciano S.
Mesa, Gregorio
Rodrigo, Florentino M.

1944

Balasoto, Lorenzo B.
Bonilla, Luciano A.†
Castillo, Alejandro
Juan, Gaudencio P.

NON-GRADUATES:
Dominguiano Clodualdo D.

1946

Chinte, Felix O.
Maun, Marcelino M.
Micu, Natalio
Natonton, Jesus

1947

Azurin, Arsenio C.
Banzuela, Nestor A.
Baysa, Manuel T.
Tamolang, Francisco N.

1948

Bermillo, Tomas F.
Borillo, Angel A.
Clemente, Genaro M.
Cortes, Manuel P.
Esteban, Eusebio C.
Fabia, Marcelino P.
Gamboa, Teofilo L.
Guzman, Manuel M. de
Maon, Hermogenes D.
Nastor, Monico N.
Ompad, Lucio S.
Ordoñez, Orlando
Serquiña, Buenaventura G.
Villanueva, Mamerto M.
Zamuco, Bartolome E.

NON-GRADUATES:
Makil, Jose
Cac, Mariano
Rombaoa, Pablo O.

1949

Allado, Adolfo E.
Arellano, Cirilo A.
Bacena, Macario R.
Basconcillo, Marciano B.
Bersamira, Jose B.
Claveria, Jose R.
Diaz, Lorenzo
Fabro, Rodrigo C.
Juni, Rosales
Marcelo, Hipolito B.

Miguel, Angel F.
Ramirez, Domingo O.
Recto, Caesar
Viado, Hilarion B.

1950

Alabazo, Jose C.
Alojipan, Eligio
Balanon, Evangelista B.
Balbuena, Delfin
Cunanan, Carlos
Dotimas, Victor L.
Embernate, Isidro P.
Garcia, Anselmo
Jacalne, Domingo V.
Lagrimas, Martin Q.
Moroña, Loreto G.
Muñoz, Mariano A.
Nañagas, Filemon
Rivera, Remigio P.
Rodriguez, Leonidas B.
Roy, Fernando A.
Santos, Enrique K.
Santos, Gregorio L.
Siapno, Isidro B.
Valbuena, Rodrigo
Viste, Esperidion B.

1951

Andres, Primo P.
Antonio, Doroteo U.
Ballesteros, Juan S.
Caleda, Artemio A.
Calip, Jose E.
Corpuz, Victorino M.
Diasanta, Amando D.
Estrada, Deogracias A.
Juni, Deogracias
Lantican, Domingo M.
Lopez, Martin P.
Luczon, Cornelio U.
Mabesa, Edgardo O.
Narciso, Policarpio S.
Salvador, Pedro S.
Santos, Tito C. de los
Sardiña, Amado C.
Sario, Inocenio H.
Tadena, Jesus R.
Tagudar, Eulogio T.
Valderrama, Osiris M.

1952

Eusebio, Mario A.
Fernandez, Segundo P.
Francia, Faustino C.
Gautane, Feliciano B.
Leon, Domingo A. de
Malacoco, Evangelino F.
Mejia, Aurelio S.
Orden, Tranquilino R., Jr.
Reyes, Martin R.
Tadeo, Conrado B.

1953

Almonte, Benjamin D.
Ardieta, Rodrigo R.
Avellano, Julian L.
Cruz, Jose A.
Esteves, Honorato D.
Galutira, Ciriaco A.
Genio, Alfredo L.
Harnsongkram, Suthi
Juinio, Ambrosio J.
Macabeo, Marcelino E.
Marin, Enrique T.
Prakongsai, Likhit
Reyes, Constancio F.
Sagrado, Maximo J.
Serna, Cirilo
Siruno, Francisco S.

1954

Agaloos, Bernardo C.
Jasmin, Bernardo B.
Meimban, Julian R., Jr.
Rodrigo, Buenaventura B.
Santos, Rosauro R.
Vergara, Napoleon T.

1955

Aganidad, Kaspa
Alconcel, Melanio S.
Arayasastra, Patived
Batoon, Benjamin M.
Battad, Meliton T.
Bautista, Pelagio
Burgos, Bernardo Jr., L.
Cabanday, Artemio C.
Llapitan, Eduardo A.
Malvas, Jose D., Jr.
Mauricio, Florencio P.

1956

Abraham, Felipe B., Jr.
Alegre, Simplicio S., Jr.
Baggayan, Rogelio B.
Balcita, Brigido B.
Batoon, George T.
Cañeda, Generosa F.
Champhaka, Udhai
Columbres, Epifanio L.
Empedrad, Francisco A.
Eugenio, Alfredo A.
Galinato, Primitivo
Galo, Juan B.
Gulle, Marciano
Ilagan, Jose M.
Kittinanda, Som Pherm
Lomibao, Benigno A.
Pollisco, Filiberto S.
Serrantes, Isidro M.
Tadle, Josue F.

1957

Esber, Aquiles G.
Meniado, Jose A.
Milan, Francisco D.
Pachotikarn, Somphong
Pareja, Bernardo L.
Prichananda, Chongrak
Sabhasri, Boonsong
Sindhipongsa, Thaew

1958

Angeles, Leonardo D.
Amihan, Jessie B.
Lamanilao, Juanito D.
Ingosan, Douglas L.
Krishnamra, Judha
Narciso, Policarpio Jr. M.
Quimbo, Lucio L.
Tobias, Modesto T.
Tongacan, Arsenio L.
Udom, Krachangros
Veracion, Vicente P.

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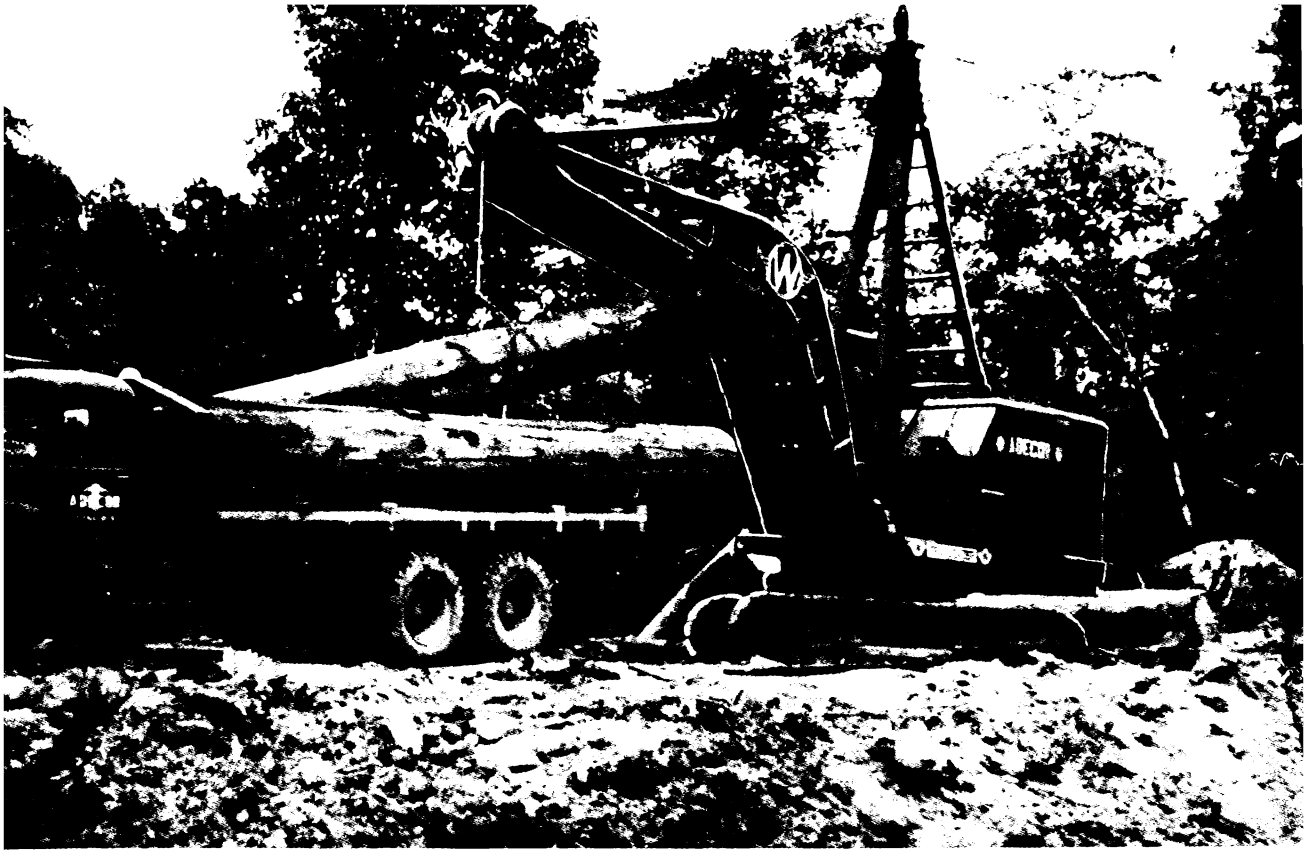
The Makiling National Park Gate



Above picture shows the Model TL-6 Trackloader at Aguinaldo Development Corp.

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