

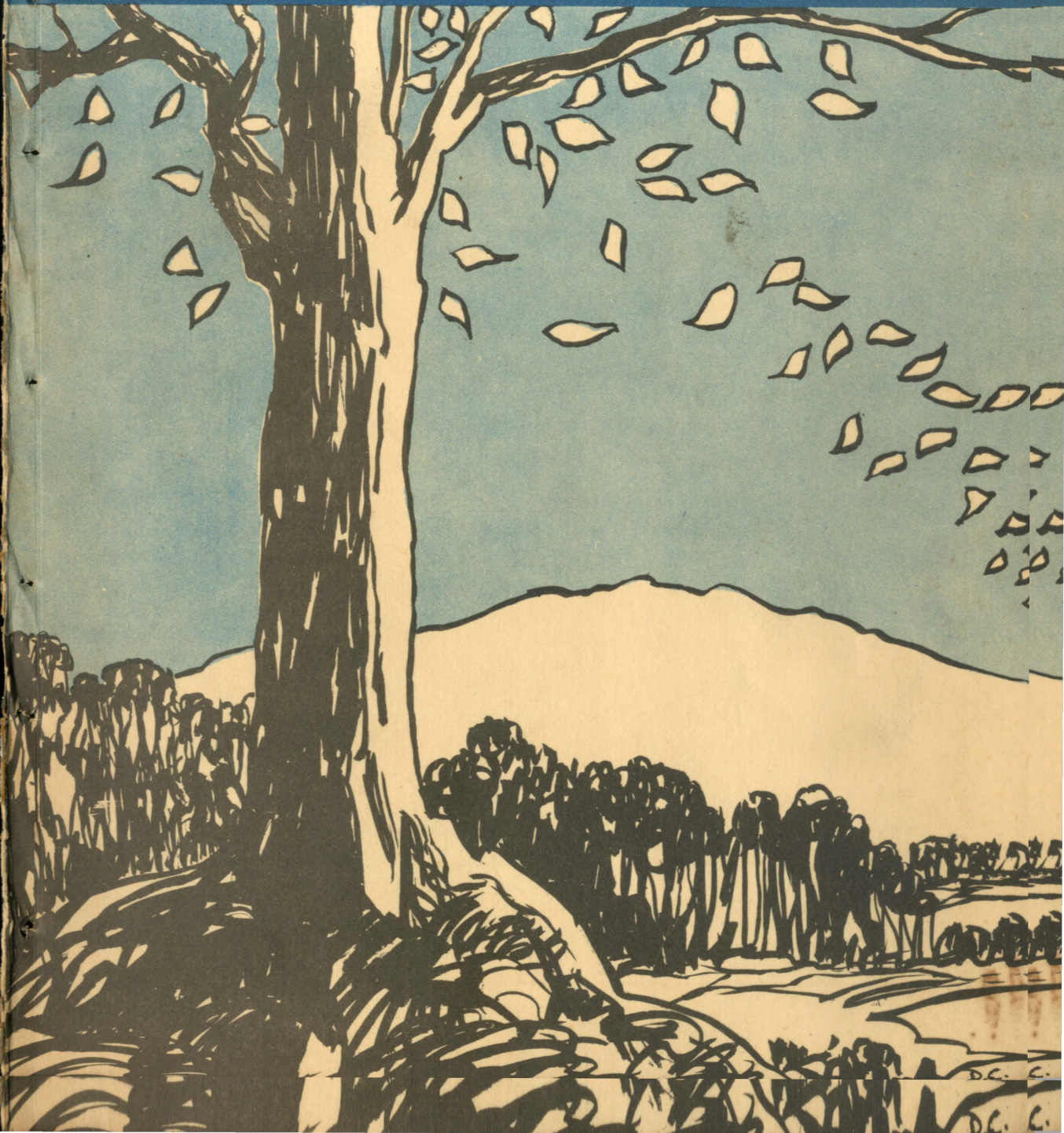
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# FORESTRY LEAVES



*Golden Jubilee Issue 1960*

**VOLUME XII      NUMBER III**



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*Malacañang*  
*Munila*

M E S S A G E

The joint celebration of the Golden Jubilee of the U.P. College of Forestry and the Diamond Anniversary of the Bureau of Forestry should impress upon the public mind the importance of these institutions which are dedicated to safeguard and protect our national forests.

Our country is immensely rich in natural resources. Hence there is a constant need for trained men and devoted public servants who are especially qualified to see to it that such national assets are not in any way wasted. It is with this thought in mind that I convey my warmest felicitations to the faculty, alumni, and student body of the U.P. College of Forestry as well as to the officials and personnel of the Bureau of Forestry who are deeply involved in the great task of assuring that our timberlands remain perennial sources of wealth for our people.

I congratulate our foresters and their colleagues for their past achievements and wish them all a successful observance of their joint anniversary festivities this year.

  
President of the Philippines



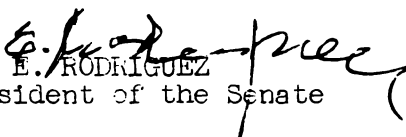
Republic of the Philippines  
Office of the  
President of the Senate

M E S S A G E

I convey cordial greetings and felicitations to the administration, the faculty and the student body of the University of the Philippines College of Forestry on the occasion of the celebration of this institution's Golden Jubilee. Likewise I greet and congratulate the officials and employees of the Bureau of Forestry as it celebrates its Diamond Jubilee.

It is significant that both the Bureau of Forestry and the College of Forestry are jointly celebrating their jubilees. For in the hands of those Filipinos who work and study in both entities lies the future of our timber resources, and to a certain extent, the future of our country. They are the ones who know best how to utilize as well as conserve these resources, so that they may provide livelihood not only to those who live today, but also to those who shall follow us as citizens of our country.

I therefore urge the administration, the faculty and the student body of the College of Forestry, as well as all the officials and workers in the Bureau of Forestry, to rededicate themselves to the unending task of nation-building, specifically to the task of making the Philippines always one of the richest timber countries in the world.

  
E. RODRIGUEZ  
President of the Senate

Manila, Philippines





REPUBLIC OF THE PHILIPPINES  
HOUSE OF REPRESENTATIVES  
MANILA

OFFICE OF THE SPEAKER

M E S S A G E

Through this special souvenir issue of the Forestry Leaves, I am happy to extend my warm felicitations to the UP College of Forestry on the occasion of its Golden Jubilee and to the Bureau of Forestry on the celebration of its diamond anniversary.

These two agencies have, working together in close cooperation, contributed much to the conservation of our forest resources and to the generation of a proper sense of appreciation on the part of our people of the importance of our forests in the promotion of the national economy. If today our timberlands have not been indiscriminately denuded but, on the contrary, have been wisely conserved and utilized, the credit may justly be claimed in large measure by the Bureau of Forestry and the UP College of Forestry.

It is, therefore, with the greatest pleasure that I express my heartfelt commendation to these two important government entities and offer them my sincere wishes for their continued success in the discharge of their important functions.

A handwritten signature in cursive script, appearing to read 'Daniel Z. Romualdez'.

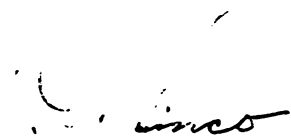
DANIEL Z. ROMUALDEZ



UNIVERSITY OF THE PHILIPPINES  
QUEZON CITY

MESSAGE

There is one thought I would like to commend to you on this happy occasion. Our vaunted forest assets are not limitless. They may easily be dissipated through our carelessness and neglect. It should be our constant endeavor to conserve this rich natural wealth for it is an enduring legacy we can bequeath to the many generations yet to come.

  
V. G. SINCO  
President

November 11, 1960

# The History of the College of Forestry

To-day the College of Forestry celebrates its Golden Jubilee. This celebration closes the Fiftieth Chapter of its History. It is fitting for every alumnus on this day to pore on each past chapter and reminisce its days in "swadling clothes" as it were, its struggles, trials and tribulations before attaining its noteworthy present. It stands to reason that the Alumni in reviewing the past will feel happy and proud that their Alma Mater which was formerly a mere department of the College of Agriculture has become a sister college, a proud Mother of over a thousand sons, in the government service and in private enterprises, contributing their share, in no small measure, to the national economy, progress and prosperity.

The task of conserving our vast forest resources with which Nature has so generously endowed us belongs to the graduates of the School (now College) of Forestry. Since 1910, young men have kept coming to learn the science of forestry because it has been felt since then that there is an urgent need for young men to husband our forest wealth and to perpetuate it for posterity. From year to year the small force of soldiers of conservation has kept growing and now the College can count on over nine hundred loyal sons, all of whom are doing in their own zealous way their share of perpetuating our forests.

The school has a unique history of its own. As early as 1901, the first bureau director, George P. Ahern, saw the need for technically trained personnel in forestry. In his first annual report submitted to the U.S. Secretary of War, he recommended the establishment of a forest school. Likewise, Gifford Pinchot, then Chief of the U.S. Forest Service, who arrived in Manila a year later, after making a rapid but thorough survey

of the forest resources of the Philippines, reiterated the need for a forest school. The proposed school site as well as the course of study and method of selecting the students were embodied in his report to His Excellency William H. Taft who was the first Civil Governor of the Philippine Islands. The original plan was to establish it at Tablan Banak, near the Lamao river, at the foot of Mount Mariveles. As a matter of fact, the Lamao Forest Reserve was set aside in 1903 for instructional purposes for such school. The need for Filipino trained forest officers was so keenly felt that as early as 1908 a sort of vocational or practical short course was organized in a big lumbering camp in Bataan.

In 1907 the subject of a forest school was broached anew at a foresters' conference. Director Ahern corresponded with foreign countries asking information about their forest schools and their methods. Dr. H. N. Whitford was sent to look into and report on the method employed in training men for the forest service in neighboring countries. With this information, and with the willing cooperation of Filipino leaders, legislation was enacted establishing the Forest School at Los Baños in 1910.

In April, 1910 the Honorable Jaime C. de Veyra successfully sponsored a bill, Act No. 1989, creating a department in the College of Agriculture for the training of men for forestry service. The Director of Forestry as provided by law was made ex-officio head of the department. It also authorized him to pension 20 students who had at least completed two years' work in the public high school and who had been recommended by the Director of Education to take up the ranger course. He was further



authorized to detail to the Forest School such members of the Bureau of Forestry as were necessary for giving instruction to students in the school without additional compensation. The forest school was to be maintained out of the regular appropriation of the Forest Bureau. As the College of Agriculture, established in June 1909, provided a number of the courses needed in elementary forestry training, the forest school was made a department of said College.

The first class began in June, 1910. The students, all pensionados, were selected from all over the islands. They were given traveling expenses from their homes to Los Baños, Laguna, free living quarters, free tuition and a monthly allowance in cash of ₱20.00 during the two-year period of training.

Since the goal was to produce a high quality ranger, only students who were high school graduates or had completed at least the second year's work and had a strong physique, good character and high class ratings were selected for the scholarship. Students were selected *pro-rata* from all provinces. During their two years' stay in the campus, they lived in government quarters and trained to be self-reliant. Under faculty supervision they were given every opportunity to govern themselves. They ran their own mess and cooperative store, cleaned their quarters, and raised their own vegetables. Students showing excellent work in certain forestry subjects were given opportunity to develop their special aptitudes, such as work in the wood technologist's office, in lands and maps office or in the field.

The need for initiative and responsibility which would be most often called upon when they would join the service was strongly emphasized. After graduation, they would be assigned as rangers in the provinces other than their own not only to acquaint them with the customs of the people of other regions and the different forest types, but also

to relieve them especially while young and easily influenced from the pressure that might be brought upon by friends and others to obtain favors. Later they were returned to their home province to assist in educating their own people in forest conservation.

In 1910 when the plan was to train young men to fill the subordinate positions in forestry work, the two-year course sufficed. But as years wore on, there grew a need for men to handle the more responsible positions and to promote investigation and research. This led to the offering of the degree course (BSF) which was introduced in June, 1923.

In 1912, three courses were authorized namely: the two-year ranger course and the four and five-year courses leading to the degree of Bachelor of Science in Forestry. The ranger course was opened to students who had completed at least two years of high school work or its equivalent. When successfully completed, it entitled the student to a certificate. Candidates for the degree of Bachelor of Science in Forestry must have completed the high school course or its equivalent. The time required to complete the course was four years of continuous work at the school or two years of ranger course, followed by, at least two years' work in the Bureau of Forestry and a final year in residence at the school. Two rangers were given a chance to enroll in the second type to complete the degree course. However, after their graduation in 1915 and 1916, the course was discontinued.

In 1912, the first Chinese student was admitted to the School. During 1915 there were five private students besides the regular pensionados: two from Guam and three from China.

An appropriation of ₱25,000.00 was asked in 1912 but the temporary buildings built in 1910 were still in use in 1913 and 1914.

In 1913 a move was started to make the Forest School a separate unit under the

University of the Philippines. A bill was passed by the Philippine Assembly for that purpose but the Philippine Commission objected to the form rather than the substance of the bill.

In 1914 another bill was presented in the Assembly asking for the consolidation of the Bureaus of Agriculture, Lands, Forestry and Science on grounds of economy, efficiency and closer coordination of work. A committee composed of delegates Romualdez, Reyes, Leuterio, Mahinay, and David was appointed to look into the proposed consolidation. Although the committee was of the belief that the fusion might bring about some measure of economy as the proponents of the bill claimed, it feared that it might defeat the separation of the duties of the bureaus concerned. The committee, moreover, did not merely confine its investigation to the consideration of the consolidation. It went further by recommending that a "Distinct forest academy in the University of the Philippines be created."

During the period from 1915 to 1916 a concrete building of the school was finished by virtue of Act No. 2494. Act No. 2583 provided money for the erection of quarters for the pensionados, replacing those built in 1910 which were badly damaged by typhoon in 1915. These were built on the present site of the forestry campus inside the Making Forest Reserve.

On February 11, 1916, Act No. 2578 was enacted creating a "Forest School as a distinct unit in the University of the Philippines to carry on the work of the forestry department of the College of Agriculture." As in the case of Act No. 1989, the law made the Director of Forestry ex-officio Dean of the School without additional compensation. It also stipulated that all expenses incurred in the maintenance of the school should be paid from the regular appropriation of the Bureau.

In November, 1918 owing to the influen-

za epidemic then raging all over the country, the school was closed for the first and only time in its history. Only thirteen students of the total enrollment were strong enough to look after the sick.

During 1920, a number of improvements were made. Two cottages were erected, and a plant for boiling water and an electric light plant were installed. A tragic event was the loss of a collection of mounted birds which was burned in the carnival fire that same year.

During the year 1921, the advanced course leading to the degree of Bachelor of Science in Forestry was again taken up and approved by the University Council and the Board of Regents. This was made necessary in order to supply men for more responsible positions.

In 1922 such rangers as were in residence and who had time were allowed to take the degree course.

By June, 1923 the degree course was in full operation with four students taking full time work and seven on part time basis. Those taking part time work were graduate rangers acting as assistant instructors in the ranger course.

On March 16, 1924, Act No. 3095 was approved amending Act No. 2578 by changing the name of the School into "The School of Forestry" and eliminating the provision (Sec. 3, Act No. 2578) that "all expenses incurred in the maintenance of the Forestry School shall be paid from the regular appropriation of the Bureau of Forestry." Because of the elimination, the University began to bear the part of the expenses for the maintenance of the School including the employment of a few instructors and professors.

About 1926, the cramped quarters were providing every inconvenience. It was even necessary to use the library for holding classes. A most notable advance in the

school was the allotment of ₱30,000.00 by the Board of Regents (1928) for the construction of a new building.

From 1928 the Bureau of Forestry sent regularly to the school a group of carefully selected ranger graduates from the field men for the degree course. The institution of the degree course made it more inconvenient to hold classes in the cramped building which housed both the School of Forestry and the Division of Forest Investigation. In this year the allowance of the pensionados was reduced from ₱30.00 to ₱25.00 in order to allow the appointment of a greater number of students. When the school officials felt that the popularity of the forestry was on the increase, the pensionado system was abolished and an entrance examination was given to applicants to reduce the freshmen class to a size that could be conveniently handled by the faculty. By June, 1930 all entering students, except those sent by the Bureau of non-Christian tribes and those pensionados of the British North Borneo government, were private students. Students from India, China, and Siam, some as pensionadoes, continued to apply for admission. This change from the pension to non-pension system did not cause any decrease in the enrollment.

Partially as a result of the abolition of the old method of selecting pensionados it was noted in 1930 that a more thorough physical examination of the applicants was and for the benefit of the service. It had been the policy to require a physical examination of the applicants before they came to school and later an examination by the College physician. It was noted, however, desirable both for the good of the applicant that examinations by outside physicians were all too frequently superficial or perfunctory and as there was only one College physician at Los Baños, and he was expected to examine all students during the registration week, it was impossible for him to determine with proper care the condition of each student.

For twenty years, the School had to offer

pensionadoships. This it had to do because since its foundation forestry was then unknown and did not have the glamorous appeal of the other professions. But in 1931, the School took what was considered a daring step. It abolished the pensionado system and for a time the school officials had misgivings that the enrollment would be adversely affected. But the students that sought admission were so many that an entrance examination had to be given to reduce the freshmen class to a size that could be handled by the faculty. Since then the enrollment, except during the occupation years, had to be limited for lack of classroom space, facilities and equipment and a small faculty.

*Conditions during the war*—The Japanese occupation brought about some changes and difficulties in the School. Believing that the Pacific War would be short-lived, it was thought advisable to continue the instruction and take care of the property and equipment of the government and also of the students who were stranded on the campus. The official sanction of its continuance was not known, however, until after the investigation committee consisting of three Japanese advisers to the then Department of Education, Health and Public Welfare submitted its report and a copy of Instruction No. 72 dated August 25, 1942 of the Director General of the Japanese Administration was received. The said instruction authorized the continuation of education and researches in the College of Medicine, the College of Agriculture, and the Rural High School and the School of Forestry. The teaching of English was prohibited. It was later on restored on the condition that it be used only as a medium of instruction until Nippongo was made a prerequisite to graduation. However, the stationing of Japanese professors to teach Nippongo was made not necessary because one of the members of the faculty was able to pass the examination given to teachers of elementary Nippongo.



As an economy measure the number of the faculty and employees was reduced and their salaries and wages slashed. Instructors in English were eliminated possibly to insure that the language was not taught and the instructor who taught English and Spanish was allowed to teach Spanish only and his previous salary reduced to more than half.

Enrollment in the School dropped considerably. The reduction in enrollment became more marked when the "Ganaps" and the Japanese made it unpleasant to stay in the community on account of searches and investigations. Even the Faculty was reduced on account of resignations and other causes.

The Japanese forces unmindful of the appeals made to them to spare the plantation of trees around the College kept cutting every tree that took their fancy and met their needs. The beautiful bagtikan grove northwest of the school building was cut for bridge purposes; the cedrelas and mahoganies and others in the area were likewise cut for firewood.

*Condition after liberation:*—As a result of the destruction brought by the Japanese and "Makapilis" on the forestry campus in February, 1945, only five government buildings were found serviceable aside from the laborers' and rangers' quarters near the rubber plantation. It is a fortunate thing that the school building built in 1929 did not burn. However, it was found looted of all furniture and equipment including locks. The students' dormitory, mess hall and faculty houses were totally destroyed by fire. The school library which was housed in the building used by the Division of Forest Investigation, Bureau of Forestry and all records, equipment, herbarium and other collections of the school which were stored there when the school building was occupied by the Japanese during the latter part of 1944 were also burned.

After liberation, on July 23, 1945 arrangement was made with the commander of the 15th Company of the Military Police Command for it to vacate one-half of the School building so that it could be used for offices and class room purposes. Since then news was spread that the School would soon be reopened. Registration of students was started on August 2 and classes began on August 16, with 9 students; 4 freshmen, 1 sophomore, 2 juniors and 2 seniors. One freshman decided to withdraw soon after the opening of classes and two (2) seniors registered later so that the total number of students who studied during the first semester, 1945-1946 was 10. In the second semester, the enrollment increased to 16.

The difficulties of the faculty were great due to lack of texts, references books, apparatus and even paper and pencils. Desks, chairs, and benches were conspicuous by their absence. Tables were improvised by mounting some of the specimen planks of the Bureau of Forestry which had escaped burning and looting in some of the houses and later a few scattered benches and one desk were recovered.

One of the U.S. artillery units (F.O.B. 624) furnished the School with coupon bond, pencils, ink and other stationary as well as a number of textbooks on Mathematics and assorted subjects, in appreciation of the cooperation of the College in offering two courses, viz., *Introduction to Forestry* and *Spanish* in the I & E Section of said unit.

Surveying was taught by using a borrowed transit and other surveying equipment such as chains, poles, etc. Lack of texts forced the faculty to concentrate on lectures or dictation. In short it was largely due to the cooperation of the alumni and friends of the school that it was able to function as well as it could under the circumstances.

The postwar years are marked by four outstanding events: (1) the Republic Act No. 352 approved on June 4, 1949; (2)

Republic Act No. 989; (3) the Reorganization Act; and (4) the ICA-UP-Cornell University Contract.

Republic Act No. 352 which was sponsored by former Senator Geronima T. Pecson before the senate and approved on June 4, 1949 changed the name of the School to "College of Forestry". However, there were no provisions regarding the maintenance of the College and of the entity to provide it.

Republic Act No. 989 approved on January 25, 1954 was formerly House Bill No. 324 sponsored by Congressman Jacobo Gonzales before the Lower House appropriated the sum of Two Hundred Thousand Pesos as counterpart fund of the Philcusa Allotment for the rehabilitation and expansion of the College of Forestry building. Inasmuch as this is one of the greatest events in the history of the College, since its foundation, we shall dwell at length on the several factors that contributed to its approval.

The history of the MSA aid to the College of Forestry may be traced back to an incident during a luncheon given in honor of Dr. Roland R. Renne, Chief of the U.S. Special Technical and Economic Mission to the Philippines by the alumni of the different universities of the Pacific Northwest, officials of the Department of Agriculture and Natural Resources and faculty members of the U.P. Los Baños Colleges. At this luncheon, Secretary Juan de G. Rodriguez at that time a candidate for governor of Pangasinan was the master of ceremonies. He asked everyone present to say a few words on behalf of the office he came from and one of the speakers from the College of Forestry asked Dr. Renne whether or not there was something in store for the College of Forestry from the MSA outlay. Dr. Renne, in making the response said that in the University and State he came from (Montana) one could not mention agriculture without at the same time thinking of forestry because agriculture and forestry are inextricably linked.

"Development of the Forest resources

of the Philippines" he said, is an important part of the ECA. We do not wish to see repeated here a certain lack of planning that we experienced in the United States and in those earlier days when forest exploitation was 'cut and getout'. Rather we would wish to encourage a strong public opinion appreciative of the forest wealth of this country and supported by a progressive program of good forest housekeeping that will contribute so much all these years for the prosperity of the people."

At the 1953 Loyalty Day parade in the College of Agriculture, the College of Forestry's float depicted the urgent necessity of enlarging the College. The College building in miniature was presented as being so overcrowded with students that its sides were about to burst open and the other students had to scatter themselves all over the campus under the trees doing their laboratory work. With the slogan "A STICH IN TIME WILL SAVE THESE SIDES OF MINE" Juan dela Cruz was shown holding a big needle labelled "University of the Philippines" being helped by Miss Forestry with a thread coming from a huge spool marked "PHILCUSA-FOA AID". The Board of Judges composed of President Vidal A. Tan as chairman and Mrs. Henry Brenn and Dr. Gumersindo Garcia, as members awarded the Forestry float the first prize for being the most symbolic.

At that time the morale of the students of the College of Forestry was very low because they noted that while the other Colleges of the University of the Philippines were getting their share for their rehabilitation and building programs, the College of Forestry was being overlooked. And so they moved heaven and earth to bring this said fact to the attention of the U.P. authorities. Several articles and editorials appeared in the *Philippine Collegian* and the *FORESTRY LEAVES*, the College organ, and copies of these were sent to the parties concerned. One can easily imagine the happy atmos-

phere that pervaded the campus when the late Mr. Winslow L. Gooch, the MSA Forest Products Utilization specialist assigned to the Bureau of Forestry, came to the campus showing blueprints of the plan for a new College building, faculty and student dormitories, guest and seed houses under MSA project. "The blueprints are finished" he said, "all that is to follow is the construction."

But this joy was short-lived. A change of policy of the MSA regarding the building program made clear to them that all programs or building construction were cancelled and among them was that of the College of Forestry building and the other buildings that had been previously planned. However, the College faculty and the student body did not give up hope and kept praying that something would turn up. And sure enough the arrival of Paul Bedard, Forest Management Adviser to the Bureau of Forestry, brought the answer to their prayer. In his recommendation for MSA projects for the Bureau, he included the College of Forestry and although there was no dollar allocation for the College building in the FOA-PHILCUSA counterpart Project No. 482, the amount of P167,500 was appropriated for the counterpart amount. It was understood, however, that unless the University of the Philippines could produce the amount to match the said counterpart, the FOA-PHILCUSA fund would not be released. The problem, therefore, was how to make the U.P. authorities realize their job of producing the required amount. However, when the U.P. President was approached, he made it clear to the Forester-in-Charge that there were "no funds" available for the purpose. By way of consolation, however, he suggested that a bill be prepared and presented in Congress for the appropriation of the required counterpart. A bill was accordingly prepared but the next question was, "who was going to present it?" The Forester-in-Charge Professor Calixto Mabesa (now Dean) went to Congress and fortunately

Congressman Jacobo Gonzales gladly accepted the task. Then the necessity of "lobbying" became evident. The faculty, to a man, agreed to work for the bill by approaching personally or writing to the congressmen from their districts, and their congressmen-friends, requesting them to work and vote for the bill. The adviser and the President of the College of Forestry, Student Body drafted a resolution urging Congress to pass the bill for the appropriation of P200,000 as counterpart for the rehabilitation and expansion of the College building. This resolution was signed by the faculty and the student body of the College. Professor Eugenio dela Cruz and Professor Gregorio Zamuco, president and secretary of the College of Forestry Alumni Association, respectively, drafted a similar resolution and all the members of the Board of Directors of the Forestry Alumni Association signed it. Professor Calixto Mabesa, then Forester-in-Charge, wrote personally to the alumni to rally behind the move. Every alumnus responded to his letter spontaneously and warmly and many of them wrote to their congressmen or went to see them personally in Congress.

Instead of keeping their fingers crossed, the Forester-in-Charge and some of the faculty members in their off-hours followed the progress of the bill in Congress from day to day, until it was finally passed unanimously in both houses, and enacted into law as Republic Act No. 989 upon the signing of President Magsaysay on June 3, 1954. It can be safely said that the passage of the bill was due to the combined and enthusiastic efforts of the faculty, the alumni and the student body and their friends who left no stone unturned to insure its approval in Congress.

No one predicted that the bill would be approved, as most bills asking for appropriations, unless certified to as urgent by the President of the Philippines or met the approval of the majority of the congressmen. Even the President of the University of the



Philippines at that time was rather skeptical as to its approval. But God was kind not only to the University but to the whole country, because with the completion of the College of Forestry building the problem of accommodating the ever-increasing enrollment from year to year and of acquiring the facilities to make teaching more efficient and vital was solved.

In the letter to the Forester-in-Charge, former Director Fischer and one of the American professors in the early days of the School wrote, "looking at the sketch of the Forest School it is a dream come true from the old nipa shacks I was greeted with in 1911 to the strong material buildings you are now putting up. I sometimes feel that the destruction of the war and the sacrifices in lives have given impetus to more interest in education and development of human engineering and better preparing the incoming generations for their life work..."

Reorganization Plan No. 30-A of the Government Survey and Reorganization Commission which provided among other things the separation of the College of Forestry from the Bureau of Forestry marked, one might say, the end of the dual personality of the College. Since its foundation, the College had for its ex-officio Dean, the Director of Forestry. For some years, its faculty, the American pioneer professors, drew their salary from the Bureau of Forestry, having been assigned by the Director to Los Baños to teach in the Forest School, then a department in the College of Agriculture. It was not until 1916 when it became an independent unit, but the Director was still its ex-officio Dean, and the faculty was composed mostly of men paid from the Bureau of Forestry Payroll. This arrangement continued until June, 1957 when by virtue of the provisions of Reorganization Plan No. 30-A the College became divorced from the Bureau and its Dean became an appointee of the Board of Regents, and all the mem-

bers of the faculty had to be paid by the University of the Philippines.

Since pre-war days, there was an agitation to separate the College from the Bureau of Forestry and the alumni were most vocal in their wish to have the separation brought about because they felt that the dual personality of the College was doing it more harm than good. According to their consensus, its growth and development was being retarded because as one of them pictured it, it was "like a pig with two masters, each one passing the buck to the other at feeding time, so that the poor pig was dying of starvation." The simile might be exaggerated, but it cannot be denied that there were several occasions in the past when the ex-officio Dean faced with providing equipment or facilities for the College had to ask the U.P. President and this would just say that there were no funds available, citing among other things that the law also provided that the Bureau was supposed to take care of some of the needs of the College. There were several incidents of this nature but the most notable examples was the University's apparent indifference and non-committal attitude towards the rehabilitation and expansion program for the College when the President told the Dean and the Forester-in-Charge of the College that the University could not provide the counterpart fund. And as it has already been described, the Dean, the Faculty and the Alumni and Student Body had to take upon themselves the task of asking Congress to appropriate the required counterpart fund.

Even the implementation of the Reorganization Plan has not improved the lot of the College with respect to faculty and personnel. The University due to lack of funds was not very enthusiastic to assume the full responsibility of taking care of the College so that when the newly appointed Dean asked the University to provide the funds for the salaries of the faculty members assigned by the Bureau to teach in the College without

*then ....*



**The Old School of Forestry Building.**

*.... and now*



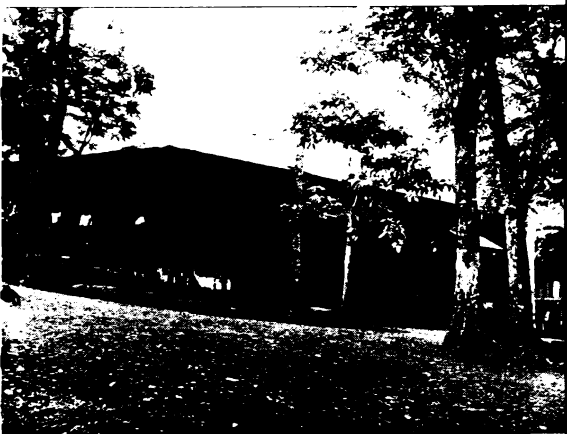
**The New College of Forestry Building.**



**Room 11 of the old school showing back of old School.**



**Back of the New College Building.**



**"The Army Barracks" . . . now serves as Student and Faculty Quarters.**



**Student Quarters.**

# Class '37-- Founders Of Forestry Day



Sitting l. to r.: V. Suarez, A. Galisim,\* L. Lizardo, J. B. Blando, Class Adviser, Dean F. Tamesis, U.P. Pres. Jorge Bocobo, U.P. Registrar Leandro Fernandez, M. Pato, C. Santos, and F. Assiddao. Standing: T. Quimpo, S. Bautista,\* N. Paa, L. Viado, J. Miranda, M. Punzalan, J. Rico,\* B. Lim, S. Menchaves, N. Tandoc, F. Versoza. E. Velasco, R. Sabado, L. Tabion.\*



Dean Tamesis signing his message for the First Forestry Day.

l. to r.: Professor Antonio Racelis (deceased), Mr. T. Quimpo, Bus. Manager of the Narra Chips (Organ of the Makiling Literary Club), Dean Tamesis, and J. Blando, Adviser, of the Narra Chips and Class '37.



First Forestry Day Luncheon in the Old Swimming 'Ole, prepared and served by the Class. The guests were headed by President Jorge Bocobo and first U.P. President Bartlett, Dean Tamesis, and B.F. Officials.



additional compensation, he was told that the University did not have funds for the purpose. Under such circumstances, the College had to distribute the teaching load to the faculty members on the U. P. payroll, six of whom have been teaching in the College since prewar days. Most of those who were assigned by the Bureau had to quit teaching. Two of these were allowed to teach up to the end of the semester, 1957-1958 by special arrangement with the Director of Forestry. It was only recently that an assistant formerly assigned by the Bureau to teach in the College was appointed instructor and a professor of forest pathology is now partly employed to teach in the College after his office hours at the Forest Products Research Institute under the overload teaching arrangement. Obviously, this seems to be a "pennywise and pound foolish" attitude and while the University may be effecting some savings by making the U.P. paid faculty shoulder the work left by those who had to quit teaching because of the reorganization, it is doing, and will continue doing, harm to their health and teaching efficiency.

The coming of the first visiting professors, Dr. C. Eugene Farnsworth and Dr. R. E. Pentoney from the State University of New York College of Forestry at Syracuse under the ICA sponsored U.P. — Cornell contract partly relieved the embarrassment in which the College found itself.

*The Forestry Student Body Organization* — Perhaps no other unit of the University has a more closely knit student body than the College of Forestry. This has been due to the following factors: in the first place, when the College, then School of Forestry, began its first class almost half a century ago, the students lived in huts provided for them by the school and being limited in number, only thirty, the opportunity for camaraderie and lifelong friendship was fostered.

As years wore on, the enrollment increased but the close relationship among the

students has not changed nor suffered any letdown. And because of this their loyalty to their Alma Mater has remained steadfast, and this has been tested time and again and found firm and true. The most outstanding proof of this loyalty was shown at the time when all of the alumni, to a man, rallied behind the College' call to work for the approval of House Bill 324 for the rehabilitation and expansion of the College of Forestry.

Every improvement and equipment of which the College of Forestry was in urgent need in the past years but which could not be provided by either the University or the Bureau was made possible through contributions from the alumni and the student body who dug deep into their pockets, even at times when there was not much to spare out of their meager salaries or allowances.

Among the contributions to the College may be mentioned the piano, the public address system, the stringed musical instruments, the college stage curtains, concrete artistic benches, the artistic pergolar fountain in front of the pavilion, the movie projector, and the electric clock and bell.

The Student Body Organization is a hub of all the social, literary and political activities of the students of the College. Besides fostering closer relationship among the students, encouraging the development of their literary activities, and training them for leadership, it instills into each of them loyalty to and love for the Alma Mater. It also goes without saying that generally the students who were active leaders during the College days became outstanding leaders after their graduation not only in their profession but also in well-known national or international civic organizations and their campaigns and projects.

*The two college traditions:* The *Forestry Day* and the *Moving-Up Day* initiated by class 1937 have been responsible in bringing the alumni together during the school year

and at their alumni meetings the opportunity to pass resolutions for the good of the service and the College.

The "Forestry Leaves", College organ, managed by a staff composed of students under a faculty adviser has kept the alumni posted on activities of the College. The Leaves besides purveying articles of interest and importance to those engaged in different fields of forestry work, conservation, utilization and minor forest products, it exchanges with forestry publications abroad and thus it has been able to inform these about Philippine forestry, the activities of the College and the Bureau of Forestry. Through its pages, appeals to the alumni for financial contributions to the different projects of the Student Body have been made possible. Its greatest contribution so far to the College is its work in public relations, especially in campaigning for House Bill 324 for the expansion and rehabilitation of the College of Forestry.

The now beautiful campus which forms a part of the Makiling National Park is a joint effort of various classes from 1912 to 1958. Into what was once a jungle from the foot and up the slopes of Mt. Maquiling the various classes hacked their way with their bolos and axes and after clearing the *cogonales*, planted the seedlings which are now the stately and lovely trees gracing the Makiling National Park. Today these trees are practically the mother trees of other man-made forests in the different reforestation projects and arbor week plantings throughout the country. The pioneer students did not imagine that their silvicultural efforts would be the source of the millions of seeds and seedlings now being handled by forestry men all over the Philippines to keep the Philippines green.

As one looks up from the highway at Paliparan at the West side of Mt. Makiling, one's attention is attracted by the beautiful green mantle rolling up the slopes. In 1912, this was a desolate waste, rolling barren

land, an abandoned kaingin but now it is a fully stocked fire-wood and fence post forest from which the government derives a sizable and perennial income. This forest was established by the College of Forestry, another silvicultural field work of the students.

These two man-made forests are good examples of what an artificial forest can contribute toward the stabilization of labor and industry.

An outstanding feature in pre-war days was the beginning of a cooperation plan between the school with the Army authorities at Fort McKinley for the reforestation of the cogon areas which existed there. This work was undertaken in order to give the students a chance to acquire experience in reforestation on an extensive scale of cogon areas. During a period of two weeks the students, with the aid of soldiers in the Philippine Scouts Division, planted some 65 hectares with ipil-ipil, and some 10 hectares with other trees.

In the various arbor and labor days, on the University campus at Diliman, Quezon City, various classes had cooperated in the planting of trees. It can be said most of the trees that now enhance the beauty of the U.P. Diliman campus were planted by forestry students and many of the ornamental trees have come from the Forestry nursery at Los Baños.

*The Alumni.*—The alumni's role in building up the Forest Service cannot be appraised unless one brings into forms the conditions obtaining from the time the Bureau of Forestry was organized by the pioneer American foresters pursuant to General Order No. 50 on April 14, 1900 to this day. Major George P. Ahern who was then at the head of the Bureau met many stumbling blocks in carrying out his plans and work. Aside from his difficulty of getting men left by the *Inspeccion General de Montes* under the Spanish government, which were very few indeed and not sufficiently trained, most of the few American foresters who answered

his call to come to the Philippines did not care to stay long. Director Ahern, therefore, had to manage to get along with a badly handicapped personnel. He had to order his more experienced men to train the recruited men. This system of training could not cope with the expanding activities of the Bureau. Consequently there was a need for a school for the training of young men to meet the Bureau's demand. The more promising graduates were sent to the United States as pensionados to give them the necessary background for the higher directive posts or for teaching work in the school. Some of the more ambitious rangers returned to the School to take the BSF course on their initiative and at their personal expense. When the pensionados returned from abroad they were drafted to take over the delicate technical tasks on administration, forest management, silviculture, forest research or in teaching in the School of Forestry. Some of these were assigned to the task of drawing plans and policies for running the Bureau. As early as 1919, Florencio Tamesis, CI'12 was appointed acting chief of the Division of Forest Lands and Maps and in 1927, as Assistant Director of the Bureau of Forestry and in 1937 as Director and ex-officio Dean of the School of Forestry. The present director of the Bureau, Felipe R. Amos, CI'15 is also an alumnus of the School. The Director of the Forest Products Research Institute, Eugenio de la Cruz, CI'18 as well as former Dean of the College Calixto Mabesa CI'15 is also an alumnus. And so is Dean Zamuco the incumbent Dean, during whose two years of administration the College has seen many wonderful events such as the increase of ECA aid in the form of equipment, teaching staff and building as well as the transfer of administration of the park from the Parks and Wildlife to the University. Most of the members of the faculty are products of the School. Thus from the directorship down to the bottom ranks in the service, one notes that the alumni in an almost solid body occupy most of the posi-

tions. It can be said, therefore, that all the technical work in the Bureau are handled by the alumni. Thus it can be seen that whatever achievement the service can lay claim to whether in conservation, research, management or education, it can be attributed to the alumni who occupy about 98 per cent of the technical positions in the Bureau of Forestry.

Hence, one can readily appreciate how the graduates of the school since 1912 helped the Forest Service to organize and expand its office and field staff. It is worth remembering that in 1911 Director Ahern had only 45 men in his staff to which the School contribute its first 17 graduates in 1912. This was increased with subsequent graduations to 150 in 1920, 324 in 1930, and 485 in 1940 and 462 in 1957. This decrease was due to deaths during the occupation, resignation and retirements. It stands to reason that this growth of the Bureau personnel would not have been possible if the Forest Service had merely depended on recruiting men from abroad or elsewhere.

This growth also enabled the Bureau to have men to keep a more rigid supervision over the growing lumber industry, to make more scientific the system of disposing of lands from forest zones for agricultural purposes, to map and know more about the forest resources of the country and to prevent forest trespass and destruction, where before these violations went on unchecked for lack of men.

The early graduates of the school were intended for subordinate technical positions. They helped in relieving the full-fledged foresters from the routinary work attendant on administrative work, thereby enabling the latter to focus their attention on the more technical aspects of the administration. Gradually, they worked their way to more responsible positions. Little by little they took over the work from the American foresters and non-alumni veterans. At first they were given assignments to head forest sta-

tions, field parties and special projects. As they gained experience with the passing of years, they were promoted to take charge of forest districts, sections or divisions in the central office. The alumni who had not joined the Bureau after graduation or who resigned after serving it for sometime have distinguished themselves in the other lines of endeavor. Three of the graduates were elected to Congress; one was appointed to a

cabinet post; one is now a member of the Board of Regents, University of the Philippines; 24 are successful lumbermen; 9 are gainfully employed in allied industries; 25 are serving in the Armed Forces of the Philippines. Some have joined other government bureaus or have been in private practice as attorneys, certified public accountants, businessmen and engineers.

When one considers the fact that the Forest Service manned mostly by the alumni, has been taking care of over 9 million hectares of forest lands in the country with a total 458 billion bd. ft. upon which the lumber industry depends, despite financial handicaps and political interference, one realizes the tremendous task which the forestry men have been doing. It is only when one takes into account the achievements of the Forest Service since 1912 that one can appreciate the great contribution of this College to the Nation.

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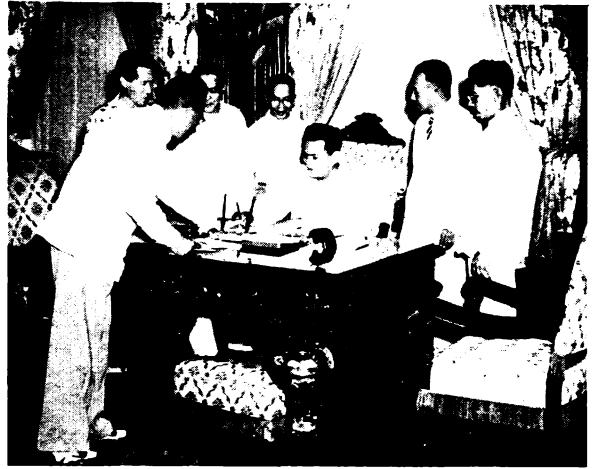
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# U.P. Forestry College Landmarks



Laying of the cornerstone of the FPRI building by President Quirino seven years ago, December 1953.

Signing of RA 989 (H.B. 324) by President Magsaysay on June 3, 1954, appropriated the sum of Two Hundred Thousand Pesos for the Rehabilitation and Expansion of the College of Forestry building.



Unveiling of the College of Forestry Plaque at the Inauguration of the College of Forestry Building ceremonies on March 27, 1955.



Congressman Jacobo Gonzales, sponsor of Bill 324, guest speaker at the 15th Moving Up Day Celebration of the College of Forestry.

# *F.P.R.I. Anniversary Scenes*



**NEC Chairman Jose C. Locsin turning over to the FPRI the "Peso" equipment.**



**FPRI Director, Eugenio de la Cruz accepting the equipment and assets turned over to the FPRI.**



**Director Cruz congratulating ICA Director Paul D. Summers after the turning over to the FPRI the Dollar equipment.**



**President Vicente G. Sinco guest speaker at the FPRI Anniversary celebration.**



**ICA Director Paul D. Summers underscores the necessity for research in forest products utilization.**



**Director Cruz presenting the research program of the FPRI to the public in an open forum during the FPRI Anniversary.**

# Organizing for Forest Products Research \*

by

GEORGE M. HUNT

*Forest Products Consultant*

*Food & Agriculture Organization of the United Nations*

## SUMMARY

There is a growing appreciation throughout the world for the need of forest products research and a desire to organize and equip for it. Countries that have large amounts of timber of their own also need a well-considered program of forest products research and development in order to develop detailed knowledge of properties, uses, protective treatment and efficiency in processing and utilization of their native species. This can also provide specialized consulting services and bring world knowledge to bear on local wood-utilization problems of all kinds. Because the institution is for the benefit of the public, it should be public supported and controlled but it should have a maximum of autonomy in its operation and not be strangled by bureaucratic restrictions. The size and equipment of the institution and the comprehensiveness of its program should be determined by the ability and willingness of the government to provide continuing support for it is useless to start a big program and then have it fail for lack of financial support or trained personnel. Its research program, in the beginning must necessarily be of the survey type and for the solution of immediate technical problems. More scientific research to extend the frontiers of knowledge about wood must wait upon the availability of competent scientists and the opportunity to divert time from more pressing studies. In neighboring small

countries with similar forests and utilization problems, joint operation of an international laboratory or informal agreement to specialize in different fields offer possibilities of broader coverage and more rapid progress than can be expected if each country undertakes to cover the whole field alone.

In a number of countries not now provided with institutions for forest products research there appears to be a growing appreciation of the need for such study and a desire to organize and equip for it. Every country that has a substantial forest industry or that uses wood in large amounts should have an office staffed with competent people who can keep abreast of the world knowledge in this field and carry on an educational program to adapt that knowledge to the needs of the country. In some instances this may be all that is needed. In a country that has large amounts of timber of its own, however, with the consequent need for efficiency in processing and for detailed knowledge of properties, uses, and protective treatment of native species, a well-considered program of research and industrial development should be provided and should include the functions of the information office. Under such conditions, the problem is to determine the size and character of the institution, equipment, and research program required to meet the need without exceeding the capacity of the country to support.

There are, of course, various ways in which forest products research may be car-

\* Fifth World Forestry Congress — Seattle, Washington — August 29-September 10, 1960



ried on. It can be done piecemeal by professors in colleges of forestry, engineering or chemistry, in their spare time. Some very good work can be done in this way and it should be encouraged but it will usually be completely uncoordinated and often of little industrial value. Furthermore, this method does not provide for a center of information.

Private industries of large size such as pulp mills or large sawmills, plywood factories and the like should and sometimes do carry on research for their own benefit. If their research results in better products, lower costs or more complete utilization, the research is good for the country. In industrially advanced countries, much research is accomplished in this way and the results are often published after they have served their private purposes. Such research is very selective and primarily for the benefit of the company that pays the costs. The benefit to the public is incidental and usually delayed. It is not a suitable method for a country needing basic information on the properties and characteristics of its native woods or wanting to educate its people in wood utilization and protection and the avoidance of waste of a valuable resource.

Private research foundations independent of industry can do research in forest products as well as in other fields but generally only by individual projects of limited scope. Such institutions are seldom found except in industrially developed countries. It is possible, of course, to send wood to such institutions from other countries for investigation but it is not practical for them to meet the needs of a country adequately, especially the need for a center of specialized information and consultation freely available to the public.

In countries where there is a need for forest products research and information, about the only way the need can be met is through some form of publicly supported research institution. If the primary purpose

is to meet a public need, the institution should be supported by the public and administered under public control. There are various ways, however, in which such an institution may be organized and administered. For example, it may be a separate institution reporting at a high government level, a branch of a government college of forestry or bureau of forestry, or of a research institution covering a wider field, or it may take some other form. The form that is best in any country will depend upon the conditions existing in that country and the general arrangement of its governmental and research functions. The greater the degree of subordination of forest products research to other interests, however, the less it is likely to accomplish. The outstanding forest products laboratories of the world are those that are devoted entirely to forest products research and are fairly autonomous although reporting to a forestry service, a university, or a national council for scientific and industrial research. In research institutions where forest products is only one of the fields covered, the total amount of time available for forest products will usually be so small that progress will be slow and the field will not be adequately covered.

The size of a forest products research organization should depend on the importance of the subject to the country and the ability of the country to support. It would not be appropriate for a small country with only a moderate forest industry to try to support a large forest products laboratory with a complete research program covering the entire field. Neither is it appropriate for a rich country, in which forest products constitute an important item in the national economy, to neglect or subordinate forest products research or subordinate it too greatly. Careful study and planning are required to arrive at the right compromise between too much and too little. This should include an objective survey of the needs of the country for research and the probable value to the

country of research programs of different size. The survey should include consideration not only of the size of institution and program that can be started but whether it can be maintained. It is not wise to start a broad program covering many projects only to have it emasculated in a few years by lack of financial support or of qualified personnel to carry it on.

A very important function of a forest products laboratory is to develop a corps of specialists who can serve as consultants to the public as well as be leaders of research in their respective fields. A group of specialists working together can be much more effective than the same number of equally competent specialists working independently of each other. The combination of different skills applied to a common problem makes for greater progress and fewer mistakes.

The accomplishments and usefulness of any forest products research institution, regardless of form or size, will depend largely upon the technical skill with which it is administered and maintained. Wise leadership can accomplish much with limited resources. Incompetent leadership and bureaucratic administration can waste large amounts of money and time and show little real progress. The purpose of the entire administrative staff of the institution, from top to bottom, should be to facilitate and expedite the real work of the organization in research and development and in public education and consultation. Too frequently, however, administrative personnel are inclined to become dictators and to feel that their work and requirements are more important than anything else. Then research is hampered, the freedom of the researchers is unduly restricted, the workers are discouraged and progress is delayed.

During the early years of a forest products laboratory, its work must consist largely of two types (a) becoming familiar with the accumulated world knowledge in the entire field of forest products processing and

utilization and adapting it to local problems, and (b) determining the basic properties and characteristics and the necessary processing of its native woods in order that they may be used to best advantage. This work will be largely empirical but may include investigations of special local problems of utilization or processing. There will be little opportunity at this stage in the life of the institution to do highly scientific research to extend the boundaries of world knowledge.

The continued financial support of the institution will depend to a considerable degree on its showing "practical" results. Highly scientific research that is not of immediate application is not likely to impress budget and appropriating officials as much as research to meet a current national need. Furthermore, very few if any members of a new institution in an underdeveloped country are likely to be qualified in the beginning for anything more than the empirical type of research. Ability to do more scientific work will increase with experience and particularly with postgraduate training to higher academic degrees. This type of training is highly important to a growing institution and must be obtained if the institution is to approach the scientific level of similar institutions in technologically advanced countries.

Much administrative skill and judgment will be required in selecting and guiding the research program year by year to insure that the main effort is applied on investigations to meet urgent national needs and not merely to satisfy the current curiosity of some worker or inquirer. The program must include long-time projects, however, as well as those of short duration. Examples of long-term projects are determining and cataloguing the mechanical, chemical, and physical properties of local species. This provides basic information constantly needed in determining the fields of usefulness and the limitations of individual species and in answering the innumerable questions that will

be asked by the public. Such research amounts to getting the answers to questions before they are asked. Examples of short-term projects are (a) determining why the veneer of a certain species is difficult to glue, (b) helping a manufacturer select the best species of wood for the manufacture of venetian blinds, or tool handles, or some other specific product.

In all its basic testing work, it is highly desirable for a new institution to follow closely established international standards. Only in this way will its test data be comparable with those of institutions in other countries. With increased experience and competence an institution may begin to take part in the general search for improved methods and standards but attempting this too soon may result in confusion and loss of confidence. Special problems, of course, may require special methods for their solution but this is not true of the general accumulation of data on chemical, physical, mechanical and other properties of species.

Another precaution of major importance is the thorough authentication of test material used in testing for basic properties. The surest way of obtaining wood for testing that is fully authenticated as to species and is representative of the species is to select the tree in the forest and have it felled under the observation of a competent man who will select botanical samples and save them as evidence of the correctness of identification. Selecting test material at random from lumber yards may be permissible at times for some kinds of testing but not for the task of establishing the basic characteristics of an important species.

A forest products research institution cannot usually be completely independent but its director and workers should have the maximum permissible autonomy in handling their business and technical affairs. Unnecessary regulations, restrictions and delays in making needed purchases, appointments, promotions, contracts and decisions or in

ridding the staff of unproductive or undesirable personnel will reduce the ability of the institution to accomplish its objectives. Rules, regulations and supervision are necessary, of course, but they should be kept at the minimum consistent with good management. If the head of an institution is not doing a good job the cure is not to blanket him with additional restrictions and supervision but to replace him with someone who has the competence, judgment and reliability needed to meet the responsibilities of the job.

While it is not usually practical or profitable for small countries to support a big forest products laboratory with a full program, consideration could be given to the possibility of establishing a large joint laboratory under international control to serve several countries with similar forests and utilization problems. It is appreciated that national pride and language difficulties can interpose many obstacles to the success of such an international institution. Nevertheless, it should be possible in some instances for an organization of this kind to succeed and to be more useful to all the countries concerned than for each country to spend the same amount of money on a small institution of its own, inadequately staffed and equipped. Much of the effort of the small separate laboratories would necessarily be consumed in duplicating the work being done by similar laboratories in the neighboring countries.

Another possibility for neighboring countries with similar species and problems and each supporting a small laboratory would be for each laboratory to specialize in a different field while covering other fields in lesser degree. For example, one laboratory could specialize in pulp and paper manufacture and accumulate the expensive equipment needed for this purpose. Another could specialize in research on saws and sawing, which again requires expensive equipment

*(Continued on page 72)*

# The Development of the Wood Using Industries in the Philippines Through Research

By Forester DOMINADOR G. FAUSTINO<sup>1</sup>

The wood-using industries in a country rich in timber resources contribute a very substantial share to the economic and industrial development of the country. The Philippines abound in wood so that we have here a great number of industries that turn wood into useful articles or use wood as the principal raw material in making a great variety of products necessary in everyday life.

The strong demand for Philippine woods and wood products in the United States, including Hawaii should generate special interest in this country to achieve maximum development of its wood-using industries. The prospects of a good market in Europe for our wood products should the more encourage the attainment of this goal with the least delay.

The various stages of processing operations from the standing tree to the end products represent different wood using industries which directly or indirectly add to the economic well-being of the nation. These industries make possible the direct employment of thousands of people in harvesting the trees from the forest, in sawing the trees into lumber, in processing the logs into veneer and plywood, in remanufacturing the lumber into form and finish to suit certain desired purposes, and in making the wood into a variety of wood products such as furniture, fans, matches, toothpicks, athletic goods cabinets, pencils, toys, gunstocks, handles, bobbins carvings and novelties, battery separators, toilet seats and covers, musical instruments, shoe

heels and lasts, prothesis (or artificial limbs), wooden Venetian blinds, and others. Indirectly, means of livelihood are provided to people who are engaged in the transportation, storage, selling and marketing of those products. The direct income of the Government from those industries in the form of forest charges, permit and license fees, reforestation levies, wharfage and inspection fees, and indirect income representing revenue taxes and customs duties amount to several million pesos annually. In the foreign trade, the wood industries rank third as dollar earners for the country. Our export items of logs and lumber, veneer and plywood, wood carvings, novelties and furniture had a great deal to do in bringing about a favorable balance of trade of the Philippines in 1958. The fact that we are now producing wood products which before were imported entirely has afforded considerable help in reducing the flight of dollars from the country. A number of such products could be cited here. One example is pencils. Several years ago we were importing all the pencils we needed; now we make them here out of native woods, although we still buy from the United States a small quantity of pencil slats of special wood for the highest quality as well as for the blue-red colored pencils. Ax and mattock handles were an import item before; now they are in the list of imports banned because such handles are now manufactured locally from a native species of wood which is almost as good as hickory from the United States. Metal and plastic Venetian blind slats are being imported in considerable quantity. Wooden blind

<sup>1</sup> Chief, Industrial Investigations Division, Forest Products Research Institute, College Laguna, Philippines.

slats are now made here. It is believed this will gradually reduce the importation of this item until wholly stopped.

Lest we forget, the greatest single important service of wood-using industries is that they serve to supply the everyday needs of man for things made of wood. And we cannot easily evaluate this form of service and benefits with a peso (₱) sign.

The wood-using industries may be divided into primary and secondary wood industries. The primary industries are those that manufacture primary products such as lumber, veneer, and plywood from timber or logs. Industries that process wood beyond the primary products are the secondary wood-using industries. In the Philippines we have under this class the industries that produce furniture, sash, boxes, crates, and containers, cabinets tool handles sporting and athletic goods, shoe heels and lasts, toys, carvings and novelties, musical instruments, pencils, picture frames, matches and toothpicks, bobbins, vehicle bodies, parquet flooring, and Venetian blinds. The match, furniture, sash, cabinet and box industries are the biggest five in the secondary class in the Manila area (Manila and suburbs) based on the quantity of wood consumed annually. The rest of the secondary ones are comparatively small and many are in cottage level.

Over the years, the development of our forest products industries was slow and on a small scale. The forerunners of the present lumber industry must have started during the beginning of the Spanish era more than four hundred years ago. The lumber business then possibly consisted merely in the sale and shipment of selected native hardwoods to Spain and Mexico for shipbuilding. It is said also that timber was bartered by our ancestors with Chinese traders even before the coming of the Spaniards. Power logging and sawing logs began with the American regime, and gradually progressed. At the outbreak of World War II there were some 160 sawmills established in the Islands. All but some 40 mills were destroyed during the war. The

repair and servicing of these remaining mills, together with the surplus logging and sawmilling equipment brought in by the US Liberation Army helped greatly in the rehabilitation of the industry soon after liberation. Subsequently, the payment of war damage claims, the extension of credit facilities, the receipt of American financial aid, and the great demand for Philippine logs and lumber abroad, particularly in the United States and Japan, accelerated the development of the industry to its present position of importance.

The plywood industry, on the other hand, is comparatively a young industry in the Philippines. The first plywood factory in this country was established in 1936 in Limay, Bataan by the Cadwallader-Gibson Lumber Company, incidentally the same company that put up in Limay one of the earliest power logging and sawmilling operations in the Philippines. Mr. Fred Cadwallader, the operator, was one of the pioneers in the lumber industry way back in the early 1900s. There was little interest in the plywood industry then because plywood was little known as a construction material, and imported plywoods were available at relatively low prices. However, two other plants were erected before the outbreak of World War II, one in Davao, Davao and one in Polillo Island. During the Japanese occupation another plant was put in Mani'a. These three were all operated by Japanese. After the war the necessity of plywood for local construction and the banning for sometime of the exportation of logs stimulated interest in the plywood industry. The factories in Mani'a and Davao were rehabilitated and resumed operations under the Sta. Clara Lumber Company. One mill followed after another during the next ten years so that at present there are sixteen plywood and eight veneer mills in operation in the country. Some five more factories are expected to be installed in the next two or three years.

The development of the veneer and plywood industry in its relatively short period of existence was phenomenal. During the ten year period from 1949 to 1959, the number

of plants increased from 5 (plywood plants only) to 24 (veneer and plywood factories), and production jumped from 11 million square feet of plywood to 640 million square feet of veneer and plywood annually. This tremendous growth of the industry was made possible principally through the financial assistance of the Industrial Development Center (IDC) in the form of dollar and peso loans. These loans enabled the industry to expand and improve operating factories, and also put up several new veneer and plywood plants in addition. The IDC has also rendered technical assistance for efficient and more economical production so that the producer may make more profit.

The growth of the secondary wood-using industries in general has been steady since Liberation, although far from being as impressive as that of the primary industries. This development since liberation has been characterized by the establishment of many shops, particularly the furniture, cabinet and sash industries, the rise of new industries producing new wood products not made before the war, a more widespread use of woodworking machines, and a general effort, particularly noticeable among big furniture manufacturers, to produce products of the highest grade and quality; and a prevailing attempt to make diversified products.

As has been shown above, our wood-using industries, have developed and grown to their present stature *without the benefit of forest products research*. If our wood-industries attained their present development without having been aided by research it would be safe to assume that with research they would have made greater strides towards further growth and development. We could envisage more efficient production of better quality products at lower production costs, diversification of wood products, development of new forest products industries, more complete utilization of wood and less waste, utilization of waste and of species of wood heretofore utilized for low grade uses, and better selection of wood for specific and special uses.

At this point, a pertinent question to ask is "Who should support or undertake the research?", or "Should the government carry on research that is intended or hoped to result in industrial development or improvement?" The Philippine government, with the financial and technical aid of the American government, answered the question positively six years ago by establishing the Forest Products Research Institute at Forestry Campus, Los Baños, Laguna (Post Office address: — College, Laguna) for many reasons, the most important of which are as follows:

- (a) The Government owns about 97% of all the forest of the country yet the forest products industries are notoriously wasteful. It is estimated that more than 2/3 of the standing tree in the forest is lost in the process of converting it into finished products. These losses are not from wilful waste but result from lack of knowledge or information about how to convert a larger percentage of the wood profitably into useful products. Much is already known about the products that can be made from wood now wasted, but the problem is to make it industrially profitable. Since the Government owned forests are of such high economic importance to the country, the Government, as owner, is justified in spending large sums of money to increase the efficiency of their utilization and thus to increase the national income from the forests, encourage the expansion of existing industries and the development of new ones, and provide more opportunities for employment.
- (b) No country with a large forest resource can afford to wait for the forest industries to carry on the needed research.
- (c) There are more than 3,500 species of wood in the Philippine forest but only about 200 of them are in commercial use at present or likely to find use soon. Fortunately this number includes the more plentiful species. But what is to be done with the other 3,300 species? They now

constitute part of the waste the loggers leave on the ground when harvesting the salable species. It is true that most unwanted species are not plentiful but together they make up a large total. In the United States numerous species formerly considered weeds have been found through research to be commercially desirable. The same process is already beginning to take place in the Philippines.

(d) Forest products industries, with few exceptions are not research minded in any country. A few large companies in the United States and some other countries have research organization but their research is primarily for their own use and benefits the public only incidentally. They began their research many years after the U. S. Government (as owner of large amounts of timber) began research in this field and pointed the way. At present the federal and state governments and universities in the United States are doing much more forest products research than the lumber industry.

(e) Government has also found it necessary to carry on forest products research on a considerable scale, in Austria, Australia, Canada, England, France, India, Japan, and other countries and the government is continually spreading to still other countries.

(f) Government-supported wood research in underdeveloped countries, like the Philippines, is justified in order to increase the freedom of the economy from dependence on imports. For example, it seems proper for the Government to search for wood species that have the toughness, straightness of grain and weight required for the manufacture of tool handles and baseball bats instead of importing wood for these purposes. Similarly, local woods are needed for the manufacture of Venetian blinds in lieu of imported metal and plastic blind slats. Native woods are needed in making shuttles and bobbins in our textile mills to replace imported ones. Through research, the Forest Products Research Institute has found some local woods suitable for tool handles and Venetian blind slats and which are being used. Many other wood products might be listed which small manufacturers could make if a suitable wood is found.

On the other hand the Government should encourage industries themselves to do research in their respective products and should facilitate their work in all proper ways. It should not attempt to do all industrial research and leave industry out of it. Neither should it spend time and money in fields adequately covered by industry unless the interests of the public require it.

A high percentage of the work done at the Forest Products Research Institute, which is considered industrially important, consists in collecting information on basic characteristics of woods and wood processing which furnishes a sound base for progress and improvement in wood utilization and development in wood industries. In effect, it amounts to seeking answers to the questions of the industry before the questions are asked. It is the kind of research that industry needs but is generally not willing to do.

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# The Significance of Forest Products Research In forestry and forest-use Development

By For. EUGENIO DE LA CRUZ  
*Forest Products Research Institute  
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Foresters grow trees because, when standing, they are useful for land protection and water conservation and, when harvested, they are valuable for the wood they produce. Nature is lavish in the production of trees in great profusion and variety, some of which are highly valuable to man but for many species he has found little industrial use. It is a task of forest products research to find profitable uses and markets for these unwanted species. Much has been accomplished already in this direction and numerous species that formerly had little or no market value are now acceptable to industry. The development of the semi-chemical pulping processes, for example has opened up a wide field for the profitable utilization of hardwoods in paper manufacture.

In developing the man-made forests of the future, forest products research will play a significant role, for wise decision as to what to plant or favor must be based on economic utility as well as upon silvicultural suitability for local conditions. Geneticists in developing improved rate of growth, form, and resistance to deteriorating agencies, must also consider the quality of the wood produced in terms of mechanical properties or tonnage of good fibers and other possible industrial requirements.

In growing crops of wood for man to use, the skills of field foresters, geneticists, forest researchers, and forest managers, must be combined with those of the engineers, chemists, foresters, mathematicians, economists and other engaged in forest products research, to make up the science of forestry and to meet the world's expanding need for wood products.

Foresters grow trees because they are useful both when standing in the forest and after harvesting as a crop. In some situations trees are most useful because of their favorable influence upon water run-off, water storage and reduction of erosion. In this field of usefulness, the size or form of the tree and the volume of wood produced are less important than their ability to protect the land. In other situations, such as in parks, trees are grown and protected primarily for their scenic values as well as for land protection but not at all for their value as a crop. The value of most of the trees in the world, however, lies in the crops of wood and other materials they produce and the principal job of foresters, therefore, is crop production.

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\*Fifth World Forestry Congress — Seattle, Washington — August 29-September 10, 1960

Nature, if unmolested, is lavish in the production of trees in great profusion and variety, some of which are highly valuable to man but for many species man has found little industrial use. The forester's job is not only to produce trees but to produce useful trees. He is much more interested than Nature is in the quality of the trees produced, their yield per hectare and their marketability. In commercial forestry, there is no satisfaction in producing trees with little or no sale value. Much forestry research is being conducted throughout the world in efforts to increase the productiveness of forests by improved protection from insects, disease, and fire, by breeding species that are superior in rate of growth or quality and by other means. This is good but not enough.

Forestry must also be concerned about completeness of utilization of the trees produced and about their ability to meet the requirements of the user. If forestry is to prosper, its markets must be maintained despite the displacement of wood for certain uses by the new products developed through research in other fields. In short, forest products research is an important part of forestry and the necessary foundation for forest use development. How else can we hope to develop integrated industries to find uses for the 2/3 to 3/4 of the timber crop that is lost in the conversion of a standing forest to finished products? How else can new products be developed from wood or old products be improved to help retain markets for wood against the encroachments of competing products. The market value of wood of course, can be increased by increasing its scarcity through overcutting, overgrazing, and neglect but no forester wants that to happen. It has happened in some countries and their people are paying the unpleasant consequences in various ways. Maintaining and increasing the marketability of the wood crop by forest products research is much better way. It is an excellent way to increase the incentives for private operators to grow more wood and thus to share with governments the tasks of land protection and providing wood crops for industry.

That the economic importance of forest products research is widely recognized is evidenced by the large and growing number of national institutions established for the purpose throughout the world. In many countries these institutions are an important part of the national forestry service. In other countries they are separate branches of national research commissions such as a council for scientific and industrial research. In practically all industrially developed countries with large forest industries, organized forest products research is a prominent part of the forestry program.

One of these institutions is now observing the 50th anniversary of its founding and

several others approach it in length of service to forestry. Their combined efforts have greatly influenced the utilization of the world's wood crops and have repaid many times their entire costs to date. The original development of the semichemical pulping process by the U.S. Forest Products Laboratory for example and its subsequent elaboration by that institution and others has had a profound and world wide influence on wood utilization and has paved the way for the great expansion in the use of hardwoods for pulp.

In some parts of the world the original forests were removed long ago and dependence for generations has been on man-made or man-controlled forests. In most of the world, however, especially in the tropics, the timber crop is still what nature produced without man's assistance or despite the interference of man. As these forests are harvested they devolve upon the forester to see that the original crop is replaced wherever possible with a new crop that is better. Similarly, on lands that have been devastated and must be replanted, there is the problem of what to plant. It is a joint problem of the forester and the forest products specialist working together. Their collaboration must continue through the years as one crop follows another.

The significance of forest products research lies in the contributions it has made and is continuing to make to the developing science of forestry and wood utilization. When wood was plentiful and cheap, our forebears were able to choose the best species even for common purposes and use them wastefully, ignoring the rest. But as the world's population increased and the forested areas decreased, the supply of best species became inadequate and too costly for general use. Necessity has forced the use of less desirable species and through forest products research we have learned to use what the forests produce even while striving to improve the quality of the crop.

For many years the spruces and pines were the chief dependence of the wood-pulp

industry. But research by many agencies has shown repeatedly how to make perfectly satisfactory pulps and papers from many other species, including hardwoods. As a result aspen, once considered only a weed in the forests of the Lake States region of the United States, now supplies hundreds of thousands of cords of pulpwood to the great pulp and paper industries of those states. Thus good forestry practice in that area no longer condones the killing of good aspen trees even though it may be still preferred to raise more valuable species where they can be grown to advantage. In another area, high grade bond paper is now being produced from mixed hardwoods including oaks, beech, cherry and others. This has been brought about through the forest products research that developed the semichemical pulping processes.

In the early stages of the attempts to develop faster-growing trees by hybridization or by selection of fast-growing natural strains, rate of growth was the principal concern. Foresters and geneticists are now collaborating with forest products research specialists and endeavoring to produce not only quantity but quality. Foresters know that it is unwise to build up man-made forests using seeds that produce scrubby trees, defective in form and deficient in volume. It is also becoming apparent that in growing trees for the use of the wood-pulp industry the value of the tree crop lies not alone in the volume of wood per hectare per year. The industry needs tons of good fibers per year not merely cubic meters. Thus forest products investigations strongly influence the work of the forester. Man-made forests should be tailored to meet man's different requirements and not left to the whims of nature or the chance selection of planting stock.

In the temperate zones of the world the coniferous species are preferred for structural purposes, for pulping and for numerous other uses. These species predominate generally in the cooler region and are available in practically pure stands of a single species or in mixed stands of only three or

four species over wide areas. It is quite different in the tropics where the hardwoods predominate and they occur usually in mixed stands of numerous species. Logging in these forests consists in "high-grading" to remove the trees that can be extracted at a profit and leaving the rest to produce a new forest of less value than the original. It is the burden of forest products research to find profitable uses for the species not now utilized and also to help the forest manager in his problem of deciding what species to favor in growing the next crop.

In the Philippines, loggers are inclined to leave toog (*Petersianthus quadrialata* Merr.) trees standing in the woods as they take out the other species because toog is hard to cut, almost impossible to season satisfactorily and has practically no market value. It can only be handled at a loss. Even the migrant squatters or "kaiñgineros" who, all too frequently, follow the loggers, prefer to leave toog trees standing because they are too difficult to burn after falling. The result is substantial areas where very large toog trees still stand, surrounded by young forest or the inadequate agricultural efforts of the kaiñgineros. But forest products research has shown that toog has exceptional fiber length (2.2 mm) for a hardwood and can be made into excellent kraft or bond paper. Tuai (*Bischofia javanica* Blume) another large Philippine species has no market value for lumber but excellent prospect for pulp manufacture. These two species and numerous others will be marketable wherever they are within economic hauling distance of a chemical woodpulp mill.

Pulp mills in the temperate zones commonly use one species at a time because it is so easy to obtain and store them separately. The great mixture of species in most tropical forests makes such separation much less practicable. Pulpwood, whether obtained as waste from sawmills or veneer mills or logging operations must of necessity be a mixture of species. Complete sorting, and pulping by species would be too costly. Research must show,

therefore, how to pulp the different species together and make them into papers of the desired quality.

These species are what nature produced unaided and research has shown how they can be used. But recent research has also shown that other fast-growing Philippines species are equally good if not better and could be expected to produce crops of highly desirable pulpwood on an 8- or 10-year rotation. These are promising for plantation species to support the paper industry.

Lignin, which constitutes 25 to 30 percent of wood, is not only wasted in pulping or converting wood into cellulose products but frequently involves considerable costs in its satisfactory disposal. Its profitable utilization is one of the major problems facing forest products chemists. They are gradually learning about its chemical composition and reactions and to a small degree have learned to make salable chemicals from it, of which vanillin is

one. In many places it is no longer permitted to dump the waste pulp liquor with its lignin into streams. It is possible that the advancements yet to be made important knowledge and utilization of lignin can result in developing important chemical industries based on this unutilized portion of the foresters' tree crop which is available in quantities of astronomical proportions.

In conclusion, forestry is not just growing trees. It is growing crops of wood for man to use. In this effort the skills of field foresters, geneticists, forest researchers and forest managers must be combined with those of the engineers, chemists, foresters, mathematicians, economists and others engaged in forest products research, to make up the science of forestry and to meet the world's rapidly expanding need for wood products. No country can afford to neglect forest products research in developing its wood-utilization program and conserving its forest resources for wise use.

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# North Borneo Forest Today

By **GEORGE R. LABOUNTY**

Today we are gathered together in Seattle at 122 degrees West Longitude while 9000 miles almost diametrically across from us is situated the Colony of North Borneo.

To differentiate from its large neighbor to the south Indonesian Borneo, now popularly called Kalimantan, rice Colony is properly referred to as British North Borneo. Located between 4 and 7 degrees north of the Equator, it is one of the most primitive countries remaining in the world today. Vast tropical forests cover most of its 29,400 square mile area except for the area commanded by Mount Kinabalu — the Colony's 13,455-foot rocky pinnacle, a small amount of cultivated plain, and a vast network of rivers, the country's primary means of communication.

Approximately 80% of the total area of the Colony can be considered as forest. Ringed with an 850 mile shore line on the South China, Sulu and Celebes Seas the Colony's population of 400,000 travel mainly by boats since there is a total of only 700 miles of all types of roads. Most of these roads, do not connect any towns, but are merely local appendages. The annual rainfall of 60 to 160 inches makes road maintenance practically a full-time job since the Colony does not have a set monsoon, but instead comes under the influence of both the Northeast and Southwest monsoons. That means it may be fair for a week, or rain every day for a month. However rain insures water for the river highways.

With an average year-round temperature of 81 degrees Fahrenheit, and a temperature

\* Fifth World Forestry Congress — Seattle, Washington — August 29-September 10, 1960

variation within a range of only 16 degrees there is consequently no season of cool weather. The average relative humidity is 84% therefore even a 75 degree-day can be considered as hot.

Dipterocarp species account for approximately 60% of the tropical lowland evergreen rain-forest, which is the most important forests type in North Borneo and constitutes about three-fourths the existing forest area. Dipterocarps are by far the most important of the exportable timbers and also represent most of the 30 or so species extracted. Volumes vary considerably, however, an average of 18,000 board feet or greater per acre of the commercial types will classify the area as operable.

A problem common to North Borneo forests is the difficulty which is experienced by dipterocarp saplings in an effort to develop into normal sound trees. With the tall heavy canopy provided by mature trees far overhead, the sunlight is restricted to the forest floor and therefore regeneration and rapid growth of the seedlings is normally not possible. When the mature trees are cut, by virtue of their height sometimes exceeding 200 feet and having large crowns, a considerable area adjacent to the felled tree is rendered devoid of cover. It would seem with the canopy once removed the surviving seedlings would immediately shoot upward; however, as these seedlings are not accustomed to the direct sunlight, many die of insolation or are strangulated by the more rapid-growing weeds, lianas and rattans.

Most of the Borneo dipterocarps are evergreen i.e., where new leaves are formed before

the old leaves fall while only a few are deciduous. It is noteworthy that due to rapid oxidation the accumulation of leaves, humus and litter is practically negligible, allowing one to move comparatively freely through the virgin forests. Once the cover is removed, however, the rapid regeneration of vines and weeds make the forest almost impenetrable. In 1959 on an area in the southeastern portion of North Borneo where merchantable species were being extracted, the recorded growth of one liana exceeded seven feet in one month. Botanists consider these forests as very complex since it is normally possible to classify over 2000 species per acre.

The commercial forests are confined almost entirely to the east coast. The largest per cent of the inhabitants live on the west coast and are considered primitive agriculturists, hence, the practice of shifting cultivation over the years has seriously depleted the once-dense evergreen rain-forests. Because this cycle of clearing and burning has been repeated in many cases, the original tropical lowland evergreen species have, in most cases, been replaced by secondary forests with entirely different predominant growths. This ecological transformation has consequently resulted in the west coast forests consisting mainly of species that are considered non-commercial on the east coast and therefore seldom cut for timber. The west coast forests then, from an exportable timber point of view, cannot be considered although they do apparently fulfill most of the timber requirements of west coast peoples.

On the east coast, the native population is mainly composed of Suluks and Bajaus who are seafaring peoples and the minor cultivation in which these natives have indulged is insignificant with regard to forests as it is generally practiced only in riparian areas.

British North Borneo is made up from several indigenous tribes, Muruts, Dusuns, Ibans, Bajaus, Kayans Suluks and Tidongs, to name the largest ones. Most of these do very little work and keep relatively to themselves.

Some in their remote up-river territories a few in their frail-appearing but very sea-worthy prahus; and others as nomads. The government is administered by England and as in the rest of the Orient, Chinese are responsible for most of the commerce in the Colony, a few Indians merchants are also represented in shops and offices, not to mention several Malays. The Malays however are not very active either in commerce or industry. This then necessitates importing most of the forest labor force into the Colony. Fourteen nationalities can be counted in the various timber operations: British, New Zealander, Australian, Burmese, Thai, Indian Pakistan Indonesian, Timorese, Filipino, Malay, North Bornean, Chinese and American.

Logging operations are conducted on a large scale by four companies. Three of these are British and one American-owned. Many small and medium-sized companies also conduct extraction operations however, most of these are normally limited in size and without modern transportation facilities are necessarily located close to streams with enough water to insure the logs once launched into the water reach the seacoast. Once in the sea, they are pooled with the logs of one of the large concessionaires and loaded on ships bound for Japan, Australia, England, South Africa or Hongkong. The largest shipments by far being consigned to Japan. In 1959 a total of 38,445,350 cubic feet Hoppus measure (587,291,167 board feet) were exported from the Colony.

Very little of the timber is converted locally as any logs that cannot meet the standard grade requirements are shipped to Hongkong where almost 100% utilization of the wood is achieved. There are three sawmills that can be considered in the large category and also a few of varying smaller sizes. As yet there are no other facilities established for veneer, plywood, chip or particle board manufacture or other processing of the timber. Much of the timber converted into lumber is still sawed manually by one or two

men. The first cut being made horizontally and unless the cant is still too heavy to move, the rest of the cuts are made vertically.

In the line of minor forest products, damar, barks, rattan and cutch are of primary importance.

There are several independent operators who contract their services either to local lumber suppliers or to the larger concerns for the extraction of logs. Without using any mechanized equipment at all a considerable amount of timber is still extracted by Borneans utilizing the Kuda-Kuda method. In Malay, the spoken language in North Borneo, Kuda means horse and Kuda-Kuda means many horses. In this system of logging patterned on timber extraction using animals, the trees are selected with an eye to the level or even more favorable grade from the stump to the launching site. Because of large buttresses the trees are felled by chopping with 4-pound axes on about a 5-foot handle with the man standing on a staging made of saplings and tied together with rattan. To get above the buttresses sometimes the staging reaches a height of 18 feet above the ground. Once the logs are bucked, construction of a railroad track system upside down is begun immediately adjacent to the felled log. Two longitudinal members — saplings 4" to 5" in diameter are laid on the ground about 3½ feet on centers. Cross pieces — more saplings 2" to 3" in diameter some 5½ feet long are then laid on the two-bed timbers after being notched to prevent movement.

A sled made by hand of Billian (also called Borneo Ironwood) about 10 feet long is then placed on the ways with the front toward the river. The log is rolled up onto the sled by 14 to 20 men using sapling prys. This operation is an unforgettable experience since the rolling is accomplished by jerks timed to the mandor's (foreman's) chant in Malay. Once secured in the cradle on the sled and a generous application of tallow has been placed on the forward end of the runners, harness-

es, hand woven from local grown hemp are fastened to the sled and placed over the shoulders of the same 14 to 20 men. Accompanied by a similar chant they then drag the log-laden sled over the ways to the river. Steering the sled is accomplished by the men pulling or pushing on their axes which have been driven into the log beside them. It is magnificent display of absolute teamwork, to witness a few men, seldom weighing over 120 pounds, pull and guide a load occasionally exceeding 3 tons for distances up to three-fourths of a mile from stump to river.

The known record in the east coast area for this type of logging is: 11 logs weighing a total of 55,000 pounds were dragged an average of 5/8 mile in one 9-hour day by 18 men. Figuring 50¢ Malayan (.16-2/3¢ US) per cubic foot, this return is not too bad considering each man's investment is only one axe head.

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# The Influence of Forests on Pasture Lands<sup>1</sup>

By ROSALES A. JUNI

Senior Research Forester, Bureau of Forestry

## INTRODUCTION

The influence of forests on pasture lands, farmlands, industrial and urban centers are too often taken as a matter of course in regions of gentle topography. But in areas where the topography is rough, the influence of the forest is conspicuously pronounced. The forest provides timber, firewood, and other products, aside from tempering the climate; it affords ample natural protection from excessive soil erosion and the mitigation of floods; and furnishes recreational and aesthetic values and other amenities of life.

This paper deals with the second influence—natural protection of forests from excessive soil erosion and the mitigation of floods specifically on pasture lands. Forests do not entirely prevent soil erosion and floods, but it is an accepted fact that forests greatly minimize or mitigate the occurrence of floods and soil erosion.

## FEATURES OF TROPICAL SOILS

Generally, tropical soils are usually either sandy or fine sandy loams or clay loams or clays. True loams are uncommon.

Owing to heavy precipitation and high temperature, deep weathering of rocks occur in the humid tropics. This highly weathered condition of the underlying rocks makes it very susceptible to erosion, once the surface protection is removed or disturbed.

<sup>1</sup> Presented at the 1st Southeast Asia Soil Science Conference at the 10th Anniversary of the Soil Science Society of the Philippines, Manila, December 9-22, 1957.

## SOILS OF THE PHILIPPINES

Philippine soils are mostly fertile, especially those of volcanic origin. Many areas in the country are of rough topography which promotes continuous normal erosion in the upper slopes. This erosion is aggravated by the fact that the Philippines is geologically young and tectonically unstable.

## FOREST SOILS

The aggregate of leaf, decaying wood materials and other plant residues in Philippine forests is considerably large. But the decay of this huge reservoir of organic material is usurped by the action of micro-organisms, fungi and termites, resulting in small amounts of forest litter and the formation of organic matter is rather small. Long years of accumulation of this niggardly formation of organic matter produces, however, fair amounts of fertile top soil on the forest floor. Once the forest cover is removed this comparatively thin top soil mantle is easily eroded by torrential tropical rains. The weathered underlying rocks below this forest top soil are also susceptible to be dismantled when heavy rains occur. Severe landslides are not unusual in areas after heavy logging; in slopes where the shifting method of farming known as "kaingin" is done; in over-grazed pastures; and along mountain roads and highways.

## PHILIPPINE PASTURE LANDS

*Extent and Location* — In round figures, there are about one million hectares of lands available for pasture. This area does not in-

clude portions of those areas which are proposed for afforestation and reforestation and those lands which have to be withdrawn from agriculture — having been badly and improperly farmed. To these will be added lands which are abandoned by hill farmers and illegal occupants who practised the kaingin system of farming. Actual and potential pasture lands may be placed to about 4 million hectares.

The location of these pasture lands, therefore, is such that excessive soil erosion of forestlands due to bad forestry practices will adversely affect the pasture areas directly. Bad pasture management will have similar adverse effects on the farmlands, industrial and urban centers below.

### PASTURE SOILS

Except in gentle slopes, flat ridges and stream banks, soils in pasture lands and generally poor and organic matter is scanty. The common practice of ranchers of burning the pasture areas to induce new and succulent forage growth, is but of little and temporary advantage when the deteriorating effect of repeated burnings on the soil is taken into account.

While it is true that livestock return in some measure some of the fertility which they get from the soil, in the form of dung, urine and animal residues, yet this return deposit is small compared to what had been withdrawn from the soil's fertility.

Improper range management further complicates the soil fertility problem. Over-grazing is very common in Philippine pasture lands, that return of organic matter from vegetative materials to the soil is very nil. Closely cropped forage exposes the soil to the forces of deterioration and erosion. Added to this deplorable situation, these over-grazed lands have compact surface soils due to livestock trampling, thereby reducing water percolation or infiltration, resulting in increased surface runoff and accelerated soil erosion.

The tendency of livestock to follow pathways up and down slopes, induces the gouging of the soil which results in gully scars and deeply incised gullies.

That soil deterioration is obtaining in most of the pasture lands in varying degrees, can be easily seen in the muddy streams immediately below the pasture areas after even a light rain. While it often occurs that after a light precipitation the streams below forest areas are still clear, the water immediately below the pasture lands are usually muddy.

The foregoing example is given to pinpoint the disconcerting fact that the soils in many pasture lands are in pretty bad condition. There are also many places in the country where both the pasture and forest soils are seriously eroding as evidenced by the easily muddied streams immediately below the forests and pasture areas.

### OTHER INFLUENCES OF FORESTS

*Windbreak* — While some pasture areas are not close enough to forested sites to shelter the former from prevailing winds, yet in most cases, forests exert varying degrees in mitigating the adverse effects of winds on pasture lands.

During the rainy season, strong winds often occur and the sheltering of livestock in pastures becomes a problem. If such bad weather coincides with heavy calving, some losses are to be expected. In many pastures where barns or cattle houses are not provided, the animals take to the nearby forests or groves of trees for shelter. Livestock mortalities have been averted by the presence of forests or groves of trees.

Some winds do blow during the dry season. In exposed pastures, the winds during this period inflict havoc on the soil, forage and water of the pasture lands. Pastures near forested areas usually fare better.

It is not uncommon that during the dry season, the grass in exposed pasture wilt due to excessive evaporation enhanced by passing warm winds. Waterholes and mudholes and shallow creeks dry up during this period.

The exposed soil after the wilting of the grasses, dries into dust and erodes very easily with the rains that follow the dry season.

**Moisture and Water Conservation** — This particular influence of the forest on pasture lands is not readily seen as this is exerted in a more indirect manner. First of all, forests generally receive rain more often than non-forested regions. Pastures therefore close to forested areas receive rain more often than those which are farther from forests.

That owing to the lower temperature in the forest, pasture located near forested areas directly benefit from this proximity, especially during the dry season. While grasses and waterholes are drying up in pastures far away from forests, those nearby have still green grasses and well-filled waterholes.

Most forests, being good and efficient water reservoirs afford ample supplies of water in the form of stream and seepage to the pasture lands in the immediate vicinities as well as the surrounding regions.

The efficacy or adequacy of the forest to provide and conserve water for lands in the downstream regions, depends greatly on how the forest is treated. Any malpractice on the forest not only adversely affect soil and water resource in the forest itself, but also the lands below. Any disturbance in the forest will be reflected in the downstream regions.

**Conservation of Soil** — Soil deterioration in pastures of gentle slopes by over-grazing, and poor range management, is not as seriously felt as those located in rough topography. This fact should concern us seriously when we take into account that a greater portion of our pasture areas are of fairly rough topography.

Pastures situated immediately below undisturbed forest areas or forests that are managed properly are directly benefited in not being subjected to aggradation from said forests. But when these forests are heavily logged or pockmarked with kaiñgin, the soil erosion obtaining in these pastures is aggravated considerably by the aggradation from the despoiled forests.

No figures could be cited as to the acreage of such mismanaged forests causing aggradation on pasture lands, but this condition is obtaining which should be of serious concern to soil conservationists.

**Browse Materials** — Forests provide browse materials to livestock in nearby pasture areas. While no figures could be given as to how much browse are consumed by livestock from forests, yet it can be considered great especially when the adjoining pastures are over-grazed.

Openings in the forests also provide various species of forage grasses which are relished by livestock.

### **PRESENT SOIL MANAGEMENT PRACTICES FOREST SOILS**

**Selective Logging** — Alarmed by the destructive logging methods previously practised, the Bureau of Forestry started implementing in 1954 the selection system of timber harvesting popularly known as "selective logging". This system is believed to be adaptable to Philippine forests and is expected to leave more wood capital after logging, shorten the period of the next cut, and cause less damage on forest soil and its watershed values.

**Kaiñgins** — The employment of more forest guards in 1954 was very effective in decreasing the area of kaiñgins. The present force of forest guards should be increased in order to adequately cope with the ever-increasing and widespread rate of kaiñgin-making due to population pressure.

**Reforestation and Afforestation** — Open and denuded lands, especially in areas which are considered critical water sheds are being reforested and afforested by the Bureau of Forestry. This work is quite slow and expensive, but established plantations in various regions in the Philippines, show that reforestation is indeed supremely urgent and should be accelerated as evidenced by the amenities of life afforded to wood-hungry communities by the artificial forests existing today.

The effects of those man-made forests on soil and water conservation have not been evaluated, but there is no room for doubt that the beneficial effects are considerably large.

*Three Farm Leases* — Abandoned kairangins and open areas which are inside forestry lands are allowed to be applied for tree farm leases for the planting of permanent crops as coffee, cacao, citrus, etc. The purpose is to have permanent vegetative cover on these open and cleared lands to prevent excessive soil erosion. Started in 1954, the tree farm lease idea is gaining popular acceptance and is accruing benefits to both the lessee and the government.

#### *Pasture Soils*

Owing perhaps to the fact that there are still extensive pasture lands for grazing livestock in the country, no systematic pasture management is being practised by pasture lessees except those in modern dairy farms, where good pasture management is done.

As a result of unregulated grazing, overgrazing is very common and soil deterioration is fairly advanced in many pasture lands.

In forestry pasture lands, one head per hectare for first class pasture is tentatively believed as the carrying capacity. For second class it is two hectares per head and three hectares per head for third class pasture lands.

Based on the present carrying capacity now enforced by the Bureau of Forestry for its pasture lands, second and third class pastures will necessitate wide expanses of lands to graze a sizeable number of livestock. Owing to lack of good pasture management, the first class pastures are deteriorating fast to lower grades of pastures which will need more acreage as the animals increase in number.

Some over-grazed pasture sites have deteriorated so much that the restoration to standard pasture conditions would need tremendous amounts of money and labor and time.

Very few pasture permittees exert efforts in the improvement of forage production in

their ranches by cultural practices as planting good forage species, brush removal, fertilization and controlled or rotation grazing.

The rerouting or control of animal pathways not to run up and down hills and slopes; strategic placing of salting points; seeding of desirable forage grasses; growing of different grasses in the different sites in the pasture and how to efficiently manage seeded areas, are some of the needed pasture management to be practised by majority of the pasture users.

Grassfire burning as extensively practised by Philippine ranchers should be discouraged as this obviously easy system of grass production does more harm than good to range conditions. The new grass growth which obtains after the fire looks deep green and is palatable to the animals, but the nutritive content of these grasses which grow on sites which have been repeatedly burned is fairly low due to the impoverished condition of the soil. Impoverished soils are deficient in energy-giving or health-giving contents.

*Carrying Capacity* — Philippine range lands being unmanaged, has a very low carrying capacity. The one head per hectare load allowed at present in first class pastures is still too low considering the potential grazing capacity of these ranges when properly managed. Owing to the absence of good pasture management, first class ranges deteriorate and their corresponding carrying capacity decreases. Low carrying capacity would mean that something is wrong with the soil which is the basic resource of pastures. Good forage can only grow on good soil.

The results of pasture malpractice is not only on soil impoverishment and decrease of carrying capacity, but it also fosters soil erosion and excessive runoff. With the decrease in carrying capacity, the need for more acreage to support existing livestock would be urgent. While this need for more area apparently seems justified, yet, because this re-

sulted from improper range management, such could have been averted if good management was exercised.

Increase in population would demand more land for food production. Some of the range lands may have to be farmed for food crops other than livestock when the national economic needs so demand. Where one hectare could support only one head, our pastures should be so managed that they could carry five or more animals per hectare.

*Soil Deterioration*—In most pasture lands in the Philippines, sheet erosion is obtaining, even on level and gently sloping ranges. This is the insidious kind of erosion which is slowly and steadily lowering the fertility of range soils. This unspectacular loss of soil—ordinarily unnoticeable—is almost as disastrous as the more spectacular soil erosion occurring on slopes and hillsides.

Pasture soil deterioration in the country today is far advanced than many people think. A cursory look at the livestock in many pastures shows that the animals are not fat, sleek and contented as those grazing in good pastures. The meat of cattle produced in most of the pastures in the country is said to be hard, less juicy and tasty than those of cattle pastured in other countries far advanced in pasture management. If this is true that we are producing poor quality meat, then it is time to recognize and accept the bitter fact that our pasture soils are not in good condition. Ailing pasture soils can only mean one thing—ailing livestock and poor quality meat.

*Forage Improvement*—Except in very few pastures is forage improvement being done in the country today. The animals are just allowed to roam where they please, without any restriction at all in the range. This is the common picture in most Philippine range lands at present. No wonder therefore that over-grazing is so widespread.

The only forage improvement which is being done is grass burning during the dry season. Most ranchers believe this is a for-

age improvement. Actually it is not. As mentioned previously, the deep green new grass growth is not nutritious as it is believed. It does provide succulent forage, but this becomes insignificant when the deleterious effects of burning on the soil is considered.

Rotation grazing and seeding of desirable forage grasses are being started by a few ranchers, but these practices need to be done in most range lands throughout the country.

The conversion of brush sites and weed areas are not being started yet. Many pasture lands throughout the country contain unproductive sections which are occupied by brush and weeds and planting them to good forage grasses would increase the carrying capacity of many pastures.

Bare and exposed areas need to be planted or seeded with desirable forage grasses to save the soil from further deterioration and make it productive. Small bare and exposed areas when left unseeded or unplanted to grass widen to larger areas to worsen range conditions.

Livestock pathways running up and down slopes and hills, and tiny gully scars if not checked will deepen and widen to aggravate soil erosion when debris-laden runoff runs headlong to downstream regions, bringing down soil which is very costly to replace.

### SUMMARY

Forests exert a profound influence on forest ranges. Aside from providing wood materials and water supplies, forests are good sources of browse and forage grasses to adjoining forest pastures. But the protective and healing influence of forests on pasture lands are of more vital importance. Any disturbance in the forest which results in soil and water deterioration has a severe impact on the forest rangers.

Owing to the lack of good range management practices, serious soil erosion and deterioration is obtaining in many Philippine forest pastures. Over-grazing is widely ram-

pant, and grass-burning is commonly practiced. Range carrying capacity is low and forage improvement is barely started yet.

It is therefore supremely urgent that ways and means be devised to correct present forest range malpractices to prevent further deterioration of soil, water and forage in the pasture lands.

It is equally of vital importance to keep in mind that the Philippines being geologically young and tectonically unstable, is prone to heavy natural soil erosion. It would be the height of unwisdom for us to disregard this somber fact.

Intelligent soil husbandry is sorely needed in the management of our forest ranges, especially that these are located in fairly rough topography. Quantity and quality of our meat products are far below the domestic demands of the increasing population. To meet this demand, it is imperative that the com-

plex problems involved in good forest range management, be solved so that rational pasture practices could be implemented.

1. DAYTON, W. A. 1931. Important Western Browse Plants. Bulletin 101, V. S. Department of Agriculture.
2. GAST, P. R. 1937. Contrasts Between the Soil Profiles Developed Under Pine and Hardwoods. American Journal of Forestry 35 (1): 11-15.
3. HURSH, C. R. and CONNAUGHTON, C. A. 1938. Effects of Forests upon Local Climate. American Journal of Forestry Vol. 36, No. 9, pp. 864-866.
4. LOWDERMILK, W. C. 1937. Forests and Soil Conservation. American Journal of Forestry 35 (2): 198-204.
5. PENDLETON, R. L. 1940. Soil Erosion in the Tropics. American Journal of Forestry 38 (9): 753-762.
6. PRESTON, J. F. 1937. Forestry in Soil Conservation; the Forester's New Opportunity. American Journal of Forestry 35 (2): 205-209
7. SAJOR, V. 1956. The Administration of Government-Owned Grazed Forest Areas. The Filipino Forester 8: 85-90.
8. WAHLENBERG, W. G. 1937. Pasturing Woodland in Relation to Southern Forestry. American Journal of Forestry 35 (6): 550-556.
9. ZAHNER, R. 1957. Mapping Soils for Pine Site Quality in South Arkansas and North Louisiana. American Journal of Forestry 55 (6): 430-433.

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# Partial Report of the Tenth Session of the "FAO" Conference \*

## I. FORESTRY AND FOREST PRODUCTS

The Conference reviewed FAO's work in the field of forestry and forest products since its last session, and considered the Director-General's proposed program of work for 1960-61.

The Conference commended the Director-General on the scope and intrinsic value of the program fulfilled through 1958 and 1959 and of the projects he proposed to undertake during the ensuing biennium, which were generally approved. The hope was expressed that the Director-General would ensure that future allocations are commensurate with FAO's increasing responsibilities in these fields, taking into account the over-all needs of the Organization.

In regard to 1958 and 1959, the Conference singled out for special mention the completion of the study on wood resources and requirements for the Asia and Pacific region and of the third World Forest Inventory (1958); progress in the compilation of a multilingual forest terminology; the co-operation of the International Labour Organization in the work of the Joint FAO/ECE Committee on Forest Working Techniques and Training of Forest Workers; the joint meetings on forestry/agriculture relationships held in Turkey in 1959 by subsidiary bodies of the European Forestry Commission and of the European Commission on Agriculture; and the Technical aid rendered under ETAP to many developing countries.

Appreciation was expressed to the Government of the United Arab Republic for

the buildings and facilities provided for the Near East Forest Rangers' School. Governments of the Latin-American Region were again urged to give support to the Latin-American Forest Research and Training Institute at Merida, Venezuela in the field of Forestry and Forest Products.

### *Program of Work 1960-61*

Inevitably, with the limited resources available the Director-General had to be selective in the projects to be undertaken under the Regular Program in the ensuing biennium. The selection had to be made against the background that forests everywhere have a vital protective function to fulfill, and that furthermore the world was likely to require an increase in output in the order of 500 million cubic meters of industrial wood over the next 15 to 20 years. Both these points presented marked difficulties in the less developed regions of the world which justified the importance attached by the Director-General to extending and improving forest and watershed management and to encouraging forest industry development in these regions.

The Conference agreed with the policy of giving increasing emphasis to the servicing of ETAP activities in forestry and forest products.

The Conference was in agreement with the sectors selected by the Director-General for special emphasis in 1960-61, which included:

- land-use problems, including forestry problems connected with land settlement and colonization;
- evaluation of the indirect benefits of forests (forest influences);

\*Held in Rome, Italy in October 31 — November 20, 1959.

- forest operations and working techniques, with the valued cooperation of the International Labour Organization on forest workers' training and accident prevention, and extension of activities to other regions;
- research, with the International Union of Forest Research Organizations acting as scientific adviser to FAO;
- forestry education, in its widest sense, including promoting fellowships, foreign travel of technicians and organizing demonstration projects;
- surveys of timber resources and requirements;
- investigations on the yields from investments in forestry and on other key economic problems.

The emphasis given to the regional coordination of plans for forest and forest industries development received favorable comment. The Conference drew the attention of the Director-General to a recommendation made by some delegates that a working party be formed to study the economic and technical aspects of production and trade of railway sleepers (cross-ties) in the southern zone of Latin America.

The Conference noted especially the many ways in which forestry could contribute necessary elements in the Director-General's Freedom-from-Hunger Campaign. The improvement of forest range management, improved rural and urban housing, packaging for the mass distribution of foodstuffs, provision of fuelwood, and the contribution of farm woodlands to farm incomes, were cases in point. Water is a key element in food production and the sound management of forests or watersheds (catchment areas) is needed to ensure the sustained availability of water.

Many delegates stressed the value of organizing more study tours as a means of forestry training. Such tours should normally form an integral part of technical meetings

but on occasion it might be more appropriate to organize them separately.

The Conference took note of the offer of Argentina to make available to interested Member Countries the facilities of the new national forestry school. It was hoped that these facilities could be expanded so as to provide specialized training in torrent control and soil conservation, as recommended by a recent ETAP mission, and that international aid would be forthcoming for this purpose. The Conference also noted with appreciation the offer of Austria to place the resources of its new high-altitude acclimatization research institute at Patscherkofel, Tyrol at the disposal of interested countries, as a gesture of bilateral technical assistance.

The proposals of the Director-General to organize a Second World Eucalyptus Conference and a worldwide consultation on problems of the production, use and trade of plywood, were endorsed. The Conference also supported a suggestion that FAO should issue a study on the silvicultural systems followed in the management of tropical forests.

The Conference heard with great appreciation a report by the delegate of the United States of America on the progress being made in preparing for the Fifth World Forestry Congress. It also welcomed the arrangements being made in Canada for study tours and other activities, as reported by the delegate of that country. Member Countries were urged, in the spirit of Resolution No. 21/57 of the Conference's Ninth Session, to give every support to this important forestry event, especially by facilitating broad participation by national and non-governmental services, institutes and agencies, by representatives of industry, and by individuals.

The Conference urged Member Governments to concentrate increasingly on improving national statistical services concerned with forestry and forest products, and on securing accurate national forest inventories, aided by FAO to the extent necessary, and possible with the funds available. It was em-

phasized that every problem related to the development of forestry and forest industries has an economic aspect, and the Conference commended the way in which the economic and social approach was closely interwoven into all FAO's work in forestry and forest products. It stressed further that accurate statistics are fundamental to activities in all fields of forestry and to the formulation of forest policies. The Director-General was commended for the quality and usefulness of the statistical and economic information on forestry and forest products assembled and issued by the Organizations. Foresters attending the Conference, after being advised of the conclusions of the Program Committee about future arrangements for statistical work within the Organization, wished to place on record their considered opinion that, except for tabulation and mechanical calculation for routine publications, such as the "Yearbook of Forest Products Statistics", any separation of the planning, compilation and analysis of statistics from the other activities of the Forestry and Forest Products Division would result in a loss of quality and efficiency.

#### *Regional Forestry Commission*

The Conference took note of the reports of the Tenth Session of the European Forestry Commission, the Second Session of the Near East Forestry Commission, the Sixth Session of the Joint Subcommittee on Mediterranean Forestry Problems (Silva Mediterranea), and of the Sixth Session of the Latin-American Forestry Commission. It commended the proposals and recommendations expressed in these reports to the close attention of the Director-General and of the Member Governments.

Support was re-affirmed for the Director-General's policy of strengthening further FAO's regional activities in forestry and forest products. The Regional Forestry Commissions and their subsidiary bodies should play an increasingly important role in providing Member Countries with opportunities to

discuss together, at a regional level, problems of mutual concern, as, for instance, the matter of the impact on forest policies of current trends towards economic integration among regional groups. The Commissions could also serve to ensure that due weight is given by governments to forestry in land-use planning and that the role of forestry is kept in proper perspective in relation to all other forms of land-use.

The Conference was apprised of the completion with FAO's help of an economic study for forest development in Argentina, and took note of a proposal that such studies might be initiated by national agencies with the help of outside experts in other interested countries of Latin American or even of other regions, taking advantage of the experience gained in compiling the reports made in connection with FAO's Mediterranean Development Project.

The Conference particularly appreciated that Member Governments were now agreed to complete the pattern of regional forestry commissions so as to cover all the regions served by Organization.

The Conference, in this regard, adopted the following resolution:

#### *Resolution No. 26/59*

### AFRICAN FORESTRY COMMISSION

#### THE CONFERENCE

*Noting* the importance accorded by Member Countries of the Africa Region at the Preliminary Regional Consultation at Accra in 1958, to the organizing by FAO of regional activities in all its major fields, with due regard to similarities and differences existing in large natural zones; *Recognizes* the interest of Member Countries of the African Region in exchanging information on their forest policies and on methods adopted to implement them, and that the coordination of national forest policies on a regional level would serve the general, economic and social development of the region;

*Decides* therefore to establish under Article VI of the Constitution an African Forestry Commission, whose statutes shall be as follows:

1. The function of the Commission shall be to advise on the formulation of forest policy and to review and coordinate its implementation on the regional plane, to exchange information and, generally through special subsidiary bodies, advise on suitable practices and action in regard to technical problems, and make appropriate recommendations in relation to the foregoing.

2. Membership in the Commission is open to all Member Nations and Associate Members of the Food and Agriculture Organization whose territories are situated wholly or partly in the region concerned as defined by the Organization or who are responsible for the international relations of any non-self governing territories in that region. Membership shall comprise such eligible Nations as have notified the Director-General of the Organization of their desire to be considered as members.

3. Any Member Nation of the Organization and any Associate Member that is not a member of the Commission considered but has a special interest in the work of the Commission may, upon request communicate to the Director-General of the Organization, attend as observer, sessions of the Commission, and of its subsidiary bodies and *ad hoc* meetings.

4. Nations who, while not Member Nations or Associate Members of the Organization, are Members of the United Nations may be invited on their request to attend in an observer capacity meetings of the Commission in accordance with the provisions relating to the granting of observer status to nations adopted by the Conference of the Organization.

5. The Commission shall report and make recommendations to the Confer-

ence through the Director-General of the Organization, it being understood that copies of its reports, including any conclusions and recommendations will be circulated to interested Member Governments and international organizations for their information as soon as they become available.

6. The Commission may establish such subsidiary bodies as it deems necessary for the accomplishment of its task, subject to the availability of the necessary funds in the relevant chapter of the approved budget of the Organization.

7. The Commission may adopt and amend its own rules of procedure which shall come into force upon approval by the Director-General, subject to confirmation by the Conference.

*Requests* the Director-General to proceed with arrangements to convene a first session of this African Forestry Commission, if possible before the Eleventh Session of the FAO Conference, in consultation with the Member Governments concerned and also with the Commission for Technical Cooperation in Africa South of the Sahara (CCTA).

*Resolution No. 27/59*

## NORTH-AMERICAN FORESTRY COMMISSION

### THE CONFERENCE

*Having noted* the desire of the Governments of Canada, Mexico and the United States of America to establish a North-American Forestry Commission wherein forestry matters of general interest to the three countries could be discussed in a more carefully considered, systematic and coordinated manner than can be achieved under existing informal arrangements, *Understanding* that the servicing of the proposed Commission's activities would be undertaken largely by the Member Governments of the Commission, and

consequently that its establishment should not result in substantial claims against the regular budget of the Organization or the time of its staff members. *Decides* therefore to establish under Article VI of the Constitution a North-American Forestry Commission whose statutes shall be as follows:

1. The function of the Commission shall be to advise on the formulation of forest policy and to review and coordinate its implementation on the regional plane, to facilitate such bilateral activities as the Member Nations of the Commission might agree shall be carried out within its framework, to exchange information and, generally through special subsidiary bodies, advise on suitable practices and action in regard to technical problems, and make appropriate recommendations in relation to the foregoing.

2. Membership in the Commission is open to all Member Nations and Associate Members of the Food and Agriculture Organization whose territories are situated wholly or partly in the region concerned as defined by the Organization or who are responsible for the international relations of any non-self-governing territories in that region. Membership shall comprise such eligible Nations as have notified the Director-General of the Organization of their desire to be considered as members.

3. Any Member Nation of the Organization and any Associate Member that is not a member of the Commission considered but has a special interest in the work of the Commission may, upon request communicate to the Director-General of the Organization, attend as observer, sessions of the Commission, and of its subsidiary bodies and *ad hoc* meetings.

4. Nations who, while not Member Nations or Associate Members of the Organization, are Members of the United Nations may be invited on their request

to attend in an observer capacity meetings of the Commission in accordance with the provisions relating to the granting of observer status to nations adopted by the Conference of the Organization.

5. The Commission shall report and make recommendations to the Conference through the Director-General of the Organization, it being understood that copies of its reports, including any conclusions and recommendations will be circulated to interested Member Governments and international organizations for their information as soon as they become available.

6. The Commission may establish such subsidiary bodies as it deems necessary for the accomplishment of its task, subject to the availability of the necessary funds in the relevant chapter of the approved budget of the Organization.

7. The Commission may adopt and amend its own rules of procedures which shall come into force upon approval by the Director-General, subject to confirmation by the Conference.

*Decides* further that a first session of the Commission shall be held at a time and place to be determined by the Governments of Canada, Mexico and the United States of America in consultation with the Director-General.

#### *Program Trends*

The Conference decided to expand FAO's responsibilities by including wildlife management amongst its regular activities, as proposed initially by the European Forestry Commission. It recommended that the Organization should develop a practical program of work in this field, and asked the Director-General to consult with Member Governments, with the International Union for the Conservation of Nature and Natural Resources and with the International Hunting Council, with a view to presenting specific proposals to its Eleventh Session.

The Conference endorsed the Director-General's intention of seeking to considerably expand FAO's work aimed at strengthening in member countries the organizational and administrative structure for planning and servicing forest development and for conducting research, extension and education. It particularly agreed that increased attention should be given to research and training, including that at the post graduate level. The view was expressed that regional coordination of research and training was essential for the achievement of FAO's objectives and that regional advisory groups for this purpose should be maintained or established by the Organization for all the less developed regions to the extent that funds permit.

Work on logging and extraction, forest resource surveys, and on the economic aspects of forest policies, should also be considered for expansion, taking into account the overall needs of the Organization. The phased cycle of studies on regional wood resources and requirements should be brought to completion as planned.

The Conference further invited the Director-General to strengthen the collaboration between the Forestry and Forest Products Division and the Land and Water Development Division on studies (containing physical, economic and institutional aspects) related to the sound management and conservation of natural resources (water, forests and soils). Such sound management and conservation should constitute an integral part of country planning, land-use policies, and economic and social development programs. It adopted the following resolution:

*Resolution No. 28/59*

**MANAGEMENT AND CONSERVATION  
OF NATURAL RESOURCES**

**THE CONFERENCE**

*Recognizing* the importance of the part to be played by the forest in economic

and social development plans, not only by reason of its general influence on the water regime, soil conservation and on amenities, but also as a source of raw material and employment;

*Conscious* of the difficulties with which foresters are faced in matters of the conservation and management of natural resources on areas not suitable for cultivation, owing to the lack of statistical and technical data regarding problems for which foresters have special responsibility;

*Recommends* that the Forest Services and other appropriate agencies in Member Countries intensify applied research in this field;

*Concurs* with the high priority accorded by the Director-General to the formulation of policies for sound land-use and development of natural resources, within the framework of the program of work of the Forestry and Forest Products Division;

*Invites* Member Governments to give full support to all such activities.

The Conference also requested the Director-General to give consideration to expanding the activities of the Organization in the field of forest tree improvement, with special emphasis on the extension of quick-growing species of economic value in temperate, arid and tropical countries, and take into account the overall requirements of the Organization. It adopted the following resolution:

*Resolution No. 29/59*

**QUICK-GROWING SPECIES AND TREE  
IMPROVEMENT PROGRAMS**

**THE CONFERENCE**

*Recognizing* the importance to forest owners and forest industries of quick-growing forest tree species of economic

value and of trees superior in growth rate and yield, in technical qualities for specific products, in resistance to pests and diseases, in adaptability to soil and climatic conditions, and for increasing the productivity of forest land,

*Appreciating* the progress achieved in this field by the International Poplar Commission and by FAO working parties in regard to eucalypts, and

*Recognizing* that the study tour on Mexican pines which it is proposed to hold in 1960 will also make a valuable contribution in this connection;

*Recommends* that the Director-General give consideration to expanding the activities of the Organization related to quick-growing species and to forest tree improvement in all its phases: genetics, tree breeding, propagation of elite strains and varieties, use of radioisotopes and other atomic energy tools and techniques in research, use of improved seed, nursery and planting techniques,

*Recommends* further that a worldwide meeting or a series of regional meetings on quick-growing species and forest tree improvement be planned, if possible, for the next program biennium (1962/63), and

*Requests* all interested Member Governments to give full support to such undertakings.

Unanimous appreciation was expressed of the attention being given by the Director-General to pulp and paper matters, as evidenced by the activities of the Latin-American Advisory Group, direct assistance to Member Governments, and the Conference on Pulp and Paper Development in Asia and the Far East which, in collaboration with the UN Economic Commission for Asia and the Far East, is to be held in Tokyo in 1960. In the light of the report of the World Consultation on Pulp and Paper Demand, Supply and Trade, held in Rome in September

1959, the Conference considered that greater attention to pulp and paper problems should be given at the international level than they had hitherto received.

The Conference accordingly adopted the following resolution:

#### *Resolution No. 30/59*

### **PULP AND PAPER DEVELOPMENT**

#### **THE CONFERENCE**

*Recognizing* the importance of the findings of the recent World Consultation on Pulp and Paper Demand, Supply and Trade held in Rome in September 1959, which drew attention to the growing importance of the pulp and paper industry its potential contribution to human welfare, and the important implications for foresters of its rising raw material requirements,

*Endorses* the recommendations of that Consultation,

*Expresses* the hope that the Director-General, in developing his future programs, may be able to make provision for expanding FAO activities in pulp and paper sufficiently to enable the Organization to give effect to these recommendations, and

*Recommends* that the Director-General, subject to the availability of funds, establish a group of experts to advise him on FAO's work in this field and that in order to ensure effective guidance, the group should be of balanced composition, reflecting broadly the interests of producer and consumer countries and being representative of the several Regions.

### **II. AGRICULTURAL AND FORESTRY ACTIVITIES IN THE FIELD OF LAND USE POLICIES**

The Conference fully recognized the importance as well as the complexity of the problems involved in seeking to achieve bet-

ter coordination between forestry and agricultural activities as regards land use policies.

Unquestionably, many land use problems cannot be adequately solved unless there is a common approach to them by agriculturists and foresters. Examples of such problems are those arising out of land use planning, soil conservation practices, watershed management, land settlement, landscape planning, and the readjustment in the way of life of farmers in regions where afforestation or soil conservation measures have to be carried out in the overriding interests of society as a whole; special mention was made of the importance of the problem of shifting cultivation in the tropical regions. It was noted that the need for cooperation between foresters and agriculturists was being still more keenly felt since new forms of land use, involving simultaneous tree planting and agricultural cropping on the same land were assuming increasing importance.

The Conference felt that the progress made in promoting such cooperation had been somewhat slow throughout the world, with the exception of a very few countries. It was recognized that one of the main reasons for this had been the lack of adequate liaison in the training of foresters and agriculturists and that another contributing factor in many cases had been the lack of suitable arrangements in the national administration.

The Conference considered, however, that cooperation between foresters and agriculturists involved not merely a problem of administration or education but also a problem of team work on specific technical questions. In this respect, there were cases where more technical knowledge would be required to facilitate such cooperation, e.g. the determination of the rate of afforestation in the light of local circumstances of particular watersheds or of the problems peculiar to each watershed.

With these considerations in mind, the Conference approved of the initiative taken by the Director-General to promote closer coordination of agricultural and forestry activities in the field of land use, of which the Mediterranean Development Project was a good example. This Project constituted a coordinated approach to land use problems with a view to concrete achievements.

The Conference felt that the initiative taken at the international level would be of great help to the Member Countries in achieving such coordination at the national level. Of special importance in this respect was the joint study tour organized by FAO in Turkey for members of the committees and working parties of the European Forestry Commission (EFC) and the European Commission on Agriculture (ECA) interested in land and water use problems. The discussions between foresters and agriculturists on that occasion had paved the way for the agreement reached between EFC and ECA, whereby the Officers of the EFC and the Executive Committee of the ECA would constitute a standing committee to follow land use policies relating to joint agricultural and forestry activities and to make sure that from an economic and social point of view such policies were consistent with the achievement of the objectives of a general development policy.

The Conference realized the importance of extending this sort of procedure to or of devising a new one for other regions where problems common to forestry and agriculture are no less important than they are in Europe. The Conference emphasized, however, that the possibility of establishing such cooperation in other regions required further study and that the results of such studies should be submitted for the consideration of the governments concerned at the earliest opportunity.

The Conference adopted the following resolution:



## COORDINATION OF AGRICULTURAL AND FORESTRY ACTIVITIES IN THE FIELD OF LAND USE POLICIES

### THE CONFERENCE

*Realizing* that there are many problems of common interest to agriculturists and foresters,

*Recognizing* that inadequate liaison between agricultural and forestry activities can lead to unbalanced patterns of land use,

*Taking note* with satisfaction of the efforts made by the Director-General to ensure better coordination at the national and international levels of agricultural and forestry activities, especially as regards land use policies, and

*Approving* the procedure adopted for ensuring such cooperation in Europe, as decided upon at the joint meeting of the Officers of the European Forestry Commission and the Executive Committee of the European Commission on Agriculture held on 16 October 1959 in Rome, and also the selection of the first two problems to be studied jointly by the two Commissions: the problems of land planning and small-holdings,

*Requests* the Director-General to promote this kind of cooperation on a permanent basis and by methods appropriate to the other regions, and to continue to give full attention to such problems.

### III. AGRICULTURAL AND FORESTRY ACTIVITIES IN WATERSHED MANAGEMENT

The Conference reviewed the work of FAO in the field of watershed management and paid special attention to the analysis of

the conclusions drawn from the FAO Seminar and Study Tour on Watershed Management held in the United States from 10 August to 5 October 1959. The Conference underlined the following points:

- (i) The growing awareness of the feasibility of managing watersheds. The technical possibilities for improving the quantity and quality of water and for controlling floods through combined programs of land treatment and engineering structures were now widely appreciated.
- (ii) The growing awareness of the physical unity of a watershed and of the area served by its waters. Water development should no longer be considered as an isolated technical operation; on the contrary, erosion control, reforestation, channel improvement, reservoir construction, and even groundwater development ought to be regarded as parts of an overall water and watershed management activity.
- (iii) The relative lack of technical knowledge relating to watershed management. Clear and precise conclusions on certain issues were still lacking and there seemed to be a need for further technical research on watershed management.
- (iv) The unsatisfactory status of economic evaluations in respect of watershed development. There was still no well-defined methodology that could be used in guiding decisions as to the expenditure to be incurred in watershed development. It was agreed that any attempt to determine the cost-benefit relationship should take account of the social and economic conditions in each country.
- (v) The need for enlisting the support and active participation of land

users in the implementation of watershed management programs.

Finally, the Conference took up the suggestions of the participants in the above-mentioned Seminar and Study Tour and approved the following resolution, for implementation to the extent that the budgetary resources available for the 1960/61 Program of Work permitted:

*Resolution No. 33/59*

**AGRICULTURAL AND FORESTRY  
ACTIVITIES IN WATERSHED  
MANAGEMENT**

**THE CONFERENCE**

*Considering* that watershed management is a relatively new method of planning and effecting rational development of a country's national resources,

*Requests* the Director-General

- (i) pending the development of an  
FAO publication of international

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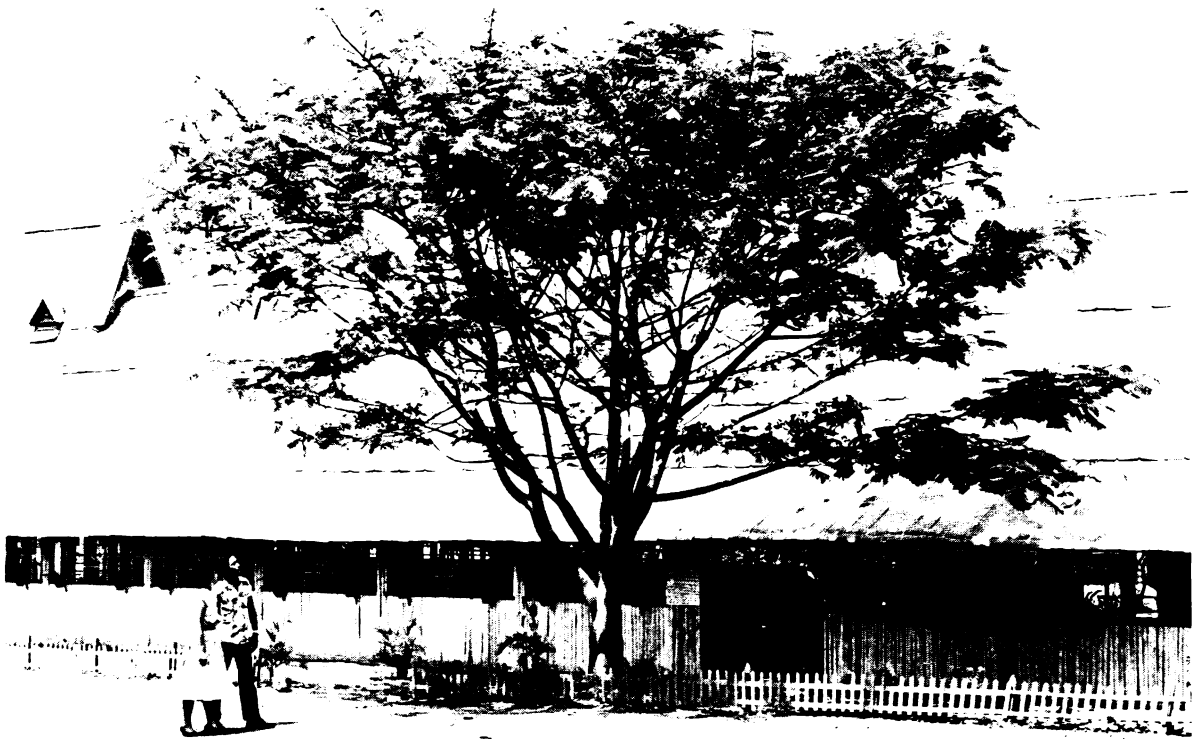
scope and specializing in the various aspects of watershed management, to devote one issue a year of *Unasyiva* to this question, such issues to include articles and bibliographies of the most important books, articles and reports relating to the subject published during the preceding months,

- (ii) to follow the development of research and of particular projects in Member Countries and, if it appears that results obtained can be useful on a regional or world basis, to arrange for them to be made known to other countries by such means as:
  - (a) dissemination in the official  
FAO languages of the national reports published on these results,
  - (b) facilitating the travel to other interested countries of technicians who have successfully conducted such research or project in their own country,
- (iii) in order to study the problems of watershed management under economic and social conditions different from those of the USA, to organize similar seminars and study tours in other regions, and particularly in Europe, where various countries have also acquired valuable experience in this or closely related fields,

*Suggests* that the Director-General take all appropriate steps for drawing the attention of Member Governments to the concept of watershed management, and for stimulating the research still needed on this problem.

Submitted by:

**DOMINADOR G. FAUSTINO**  
*Member, Philippine Delegation*



## Planting A Tree

*“What does he plant who plants a tree?  
A scion full of potency;  
He plants his faith, a prophecy  
Of bloom, and fruitfulness to be;  
He plants a shade where robins sing,  
Where orioles their nestling swing;  
A Burning Bush, — a miracle!  
Who plants a tree, — he doeth well!*

*What does he plant who plants a tree?  
He makes a strong mast for the Sea;  
He makes the earth productive, fair;  
He helps the vines climb high in air;  
And from their censers shed perfume  
To sweeten Night, and bless high Noon,  
Against the vandals who despoil  
He sets his protest in the soil.*

*What does he plant who plants a tree?  
An emblem of the Men to be;  
Who lightly touch terrestrial clay,  
But far above the earth, away  
From sordid things and base,  
Incarnate ideals for their race,—  
Who plants a tree, he doeth well,—  
Performs with GOD, a miracle!*



1. The management of our forests for continuous production



2. The supervision of harvest



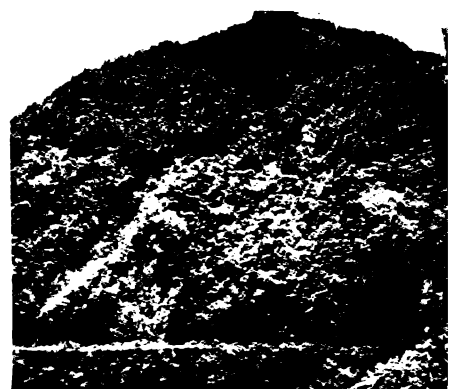
3. Research on wood use



4. Wood using industries



5. Public land classification and protection



6. Reforestation of damaged watersheds

# Problem of a Consulting Forester in the Philippines \*

By *AGAPITO L. CENABRE*

*Consulting Forester*

and

*Member, Association of Consulting Foresters*

*(ACF)*

## INTRODUCTION

The profession of forestry in this country is relatively unknown. It is not like the professions of law, medicine, engineering and others. A graduate of a forestry college is expected to practice his profession only by entering the service of the Bureau of Forestry and, very lately, to a limited extent, in logging and lumbering industries. In other countries, however, especially in the United States of America and Europe, forestry is a well-known profession and practitioners are found not only in the government service but also in logging, lumbering and other forest industries; in forestry schools, and other allied fields. Many are consulting foresters or managers of privately-owned woodlands.

Recent forestry developments in the Philippines indicate that the profession is steadily gaining recognition and importance through the success of a few enterprising foresters who acquired forestry education here and abroad and have attained prominence in the service of the government. These foresters are now actively engaged in logging, lumbering, manufacture of plywood, wallboard, paper pulp, and other products, or in professional consultation work — where no Filipino forester had ventured before. This paper treats of the latter undertaking, now being privately prac-

ticed for the first time in this country, in the same manner as the practice of the professions of law, medicine and dentistry are conducted. I have endeavored here to present this paper because the practice of private forestry consultation is new in this country and is paradoxically unattractive despite increasing demands for the services of a consulting forester brought about by the highly technical requirements of sustained yield management through selective logging, not to mention other forestry technical know-how.

Soon after retiring from the government having served 40 years in the Bureau of Forestry, I established my office on July 1, 1954, at R-205 Capitol Theatre Building, 239 Escolta, Manila, and began private professional work as "Consulting Forester" after paying my occupation tax.

My purposes in opening my forestry consultant office are fivefold, namely:

1. To foster and encourage the practice of Forestry as a profession in the Philippines;
2. To assist and collaborate with the Bureau of Forestry in its mission to conserve our forests by wise use;
3. To bring the forest users closer to the government;
4. To help solve the problems of the public forest users; and,
5. To foster forest consciousness among leasees or permittees, and similar holders and help them solve their problems.

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\* Fifth World Forestry Congress — Seattle, Washington — August 29-September 10, 1960

In running my office I have to be tactful, diplomatic and courteous to win the confidence and patronage of forest users in particular and to give efficient service to the public in general. For instance, September 21, 1957 was an Arboy Day, and because it was a Saturday, the public was aware that the Bureau of Forestry office was closed. A person who needed seedling phoned me. I advised him that he could get planting materials right at the Quezon City Forest Nursery at Diliman. He was very glad to obtain the seedlings from a nearby place, and promptly at that.

On another instance I had a phone call from a person who inquired what species are used for wood carvings by Igorots in the Mt. Province. I informed him that wood artifacts in the Mt. Province are generally made from the woods of Sañgilo, Molave or Akleng-parang, and that the natural color of these woods is not black, rather, they are painted black and later polished.

#### ORGANIZATION AND AUTHORITY

The confidence and goodwill of clients are valuable to a consulting forester, so he must maintain a decently-equipped and presentable office and capable assistance. His staff must not only be conversant with forestry but also with the allied fields and the humanities.

The general misconception in the Philippines is that a consulting forester is either a member of the Bureau of Forestry or an employee of a private lumber company. I am, however, confident that in the near future the practice of a consulting forester will become like the well-established professions. Soon after I opened my office, I advertised in local magazines. It cost me a considerable sum of money. I am very cautious in advertising the kind of work that I can perform.

I wrote a letter to the Collector of Internal Revenue before opening my office, requesting information as to whether or not I was subject to the payment of occupation tax

as provided for by law. In reply to my letter, the collector advised me to pay occupation tax. A portion of the reply, dated July 2, 1954, of the Collector of Internal Revenue, Manila, reads as follows:

"In the exercise of said profession you become in fact a Professional Appraiser or Connoisseur of Forest Products, and, as such, you are comprised within the classification, 'professional appraisers or connoisseurs of tobacco and other domestic or foreign products.' You are therefore, subject to the corresponding occupation tax."

#### THE PROFESSION OF FORESTRY AND THE PRIVATE CONSULTING FORESTER

In my opinion, a person who shall carry the title of "Consulting Forester" must have sufficient academic background, practical training experience, and the necessary traits to become one. He must be well-versed or conversant with forest conservation, management, protection, utilization, silvics and silviculture, lumbering, logging, forest laws and regulations, forest policy, forest lands uses forest conditions and the solution of problems involved for the benefit of both the government and the forest users and he must have acquired mastery of specialized skills in handling his subject or subjects. These can be acquired only through long years of actual study, practice, observation, research and experimentation. Likewise, he must keep himself abreast of new knowledge and techniques of his profession and of the progress and development of forestry practices of his country and abroad. His conduct and behavior should be in accordance with the ethics of his profession. He should join the Society of Foresters of his country in order to become part of that organization devoted to the conservation of the forest resources of the country and the promotion of the forestry profession. He should possess a business sense. Also, he must be of good moral character.

I do not claim that I satisfy all the requirements in the above qualifications al-

though I have adopted the title of "Consulting Forester." However, I do believe that a substantial compliance with them is sufficient, provided, it is supplemented by study and hard work.

Recently I was asked by a certain lumber company to timber cruise by helicopter an area in the eastern coast of Luzon. The company wanted to know very soon if the area contained commercial timber. I accepted the work. During the flight I took notes and made rough calculations. After three or four hours flight, I verified my findings by ground work which I conducted on the second day. I found out that my identification of the species of trees from the helicopter was correct and my calculation of the stand per hectare was fairly accurate.

The confidence of clients is indispensable to a consulting forester. In dealing with two clients whose interests are conflicting, the consulting forester should observe judiciously the ethics of his profession. For instance "A" and "B" were both applicants for the same timber area. Their interests in this instant case collided as both were striving to acquire the same area. I had to work on the application of only one and politely declined the other as it would be highly unethical for me to work for both.

#### FORMATION OF ASSOCIATION OF CONSULTING FORESTERS

If the number of private consulting forester increases, one of the logical things to be done is to form an association with a view to working together for the betterment of the profession.

#### PROFESSIONAL FEE OF A CONSULTING FORESTER

The difficulty in collecting professional fees is common to all professions and should not discourage the new consulting forester. Although a substantial fee is necessary, it should not be the measure of his service but rather the good reputation of his

office, the quality of his work and the confidence and goodwill of his clients. His income may not be big but it must be steady to enable him to maintain his office. This explains the desirability of having regular and up-to-date paying retainers.

My charges of my professional services depend upon the kind and nature of work, whether it requires mental or physical exertion, or both, and the time needed to perform the work. Generally, for work which I consider routine and of short duration, say, a day or a fraction thereof, the client is charged a minimum of ₱30.00. For similar work in the United States, the charge is \$30.00. If the client cannot pay this amount, I render the service just the same *gratis et amore*, in order to maintain goodwill. If the client cannot pay right away, I propose to him the method of payment, usually on installment basis. And if the work requires expert opinion or taxing mental exertion, I charge a minimum fee of ₱75.00 per day plus expenses. For similar work in the United States the charge is \$75.00.

On work requiring longer periods, extensive efforts, and concentrated mental exertion like the preparation of management plans and timber cruising, my fee depends upon an agreement which I enter into with my client. In calculating the fee under this contract, the basis of calculation is my minimum daily rate of ₱30.00, the time required to finish the work, plus all expenses incurred in accomplishing the job. This job estimate requires utmost care because there is a natural tendency to believe that the work could be done faster than it would actually require.

It must be remembered that some work involve danger to human life and in such cases I have to incorporate in the agreement with my client that in the event of injury or sickness, which is compensable under the Workmen's Compensation Law and other laws giving compensation for injury or sickness, the client shall shoulder the expenses.

In order that a standard scale could be set up, I arrange the amount of retainer fee I charge each of my clients.

### **FIELDS OF SPECIALIZATION**

A consulting forester may specialize in any of the following fields of specialization:

1. Forest inventory or timber cruising
2. Logs and lumber (grading and scaling)
3. Lumbering (logging and sawmilling)
4. Forest policies, laws and regulations
5. Forest surveying and mapping
6. Forest management and protection
7. Forest pest and diseases
8. Land classification
9. Silvics and silviculture
10. Tree planting and reforestation

Specialization such as enumerated above may enhance opportunities not only in the volume of work or financial rewards but also in prestige and social contact.

In order to succeed in forestry-consulting work, the practitioner should specialize in one or two of the branches enumerated above as it is almost impossible to become proficient in all of them. In this age of stiff competition, there is always room for the specialist.

On account of my 46 years of training and experience in the Bureau of Forestry and my familiarity with forest conditions in the Philippines, I decided to specialize in forest policies, laws and regulations. I assist forest users to adhere to established forest policies and to follow the laws and regulations to the letter. I also help them protect their rights under these laws, policies and regulations. I devote a greater part of my time in guiding timber concessionaires in the proper application of the principles of sustained yield management through selective logging, and in preparing the Forest Policy Statement for their respective concessions.

### **NEW OPPORTUNITIES FOR THE CONSULTING FORESTER**

A private consulting forester is always beset with a new set of conditions or poli-

cies in every assignment. He takes first the interest of his clients. If the interest of his client is contrary to or is in conflict with forestry practices or policies, he must persuade his client that a sound forestry program is to his advantage and benefit. However, certain client are not amenable to sound advice; hence, the talk of the consultant is not so clear-cut as that of a public forester working or less established organizational policies and aims which are maintained over long periods of time.

In the Philippines, with the recent introduction by the Bureau of Forestry of requiring holders of concessions of about 10,000 hectares and above to place their respective areas under management plans and to submit policy statements, an opportunity is opened for the private consulting forester to handle good paying jobs.

### **CONCLUSION**

In conclusion, I wish to reiterate the fact that the success of forestry as a profession in this country depends to a great extent on the combined efforts of, and cooperation among, foresters, be they public foresters, industrial foresters, or private consulting foresters. As brothers in the professions, they should help one another because the success of one redounds to the benefits of all.

Public foresters should not assume an attitude of aloofness towards the industrial foresters or private consulting foresters because to be able "to secure for the foresters decent and honorable professional and human relationship; to maintain a solid foundation of respect, confidence and mutual understanding with society, their profession and themselves; and to enable the forestry profession to render the best, most efficient and most satisfactory service to the public," mutual professional help and cooperation is essential.

And in order to set up standards of the practice of the profession in this country, the Society of Filipino Foresters should spare no efforts for the passage of the proposed bill regulating the practice of forestry profession in the Philippines.



# *Natural Pasture in Relation to Soil Conservation*

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*Bureau of Forestry*

## **INTRODUCTION**

Definitions.—“Natural pasture”, as herein used, is any large tract of land which ordinarily produces native, wild or naturalized forage useful for grazing domestic livestock or wildlife. It is generally characterized by markedly heterogeneous plant population. It is sometimes called native pasture, the equivalent of “range” or “rangeland” in the United States and Canada or “pasture” in Australia. In some cases the soil and climatic conditions permit no alternate profitable use other than grazing, and in others the determination of the most recommendatory land-use is limited to grazing and/or forestry.

“Pasture management” means the regulation of the grazing of the pasture with the object of using the grazing resources to the fullest extent possible consistent with the protection, development, and use of other resources, without injury to its grazing capacity. As used in this article, it is synonymous to “range management.”

“Pasture”, as used in this article, means natural or native pasture.

*Statistics.*—The Philippines has a total land area of 29,740,972 hectares 3,403,322 hectares (11.45%) of which are grasslands. Of these grasslands 615,571 hectares are inside permanent timberlands, 1,673,142 hectares in unclassified public forests and 1,114,609 hectares in alienable and disposable lands. (Please see Appendix “A”).

The Bureau of Forestry has earmarked

1,390,600 hectares of grassland watersheds for reforestation. These are located in permanent timberlands and in unclassified public forests. Thus, there are 898,113 hectares of grassland available for natural pastures under the administrative jurisdiction of the Bureau of Forestry, not to mention, 1,114,609 hectares of grassland in alienable and disposable (agricultural) lands under the administrative jurisdiction of the Bureau of Lands. Under proper husbandry, these natural pastures can play a great role in soil conservation work especially in important watersheds, let alone the development of the young and necessary livestock industry.

As of June 30, 1957, there were 2,242 pasture permits and pasture lease agreements in force covering a total area of 400,681 hectares, and 8,465 pending pasture permit applications for 2,444,556 hectares.

*Pertinent laws and regulations.*—Section 2, Article XIII of the Constitution provides, among other things, that lands adapted to grazing may be leased to an individual, private corporation or association in an area not exceeding two thousand hectares. Section 1838 of the Revised Administrative Code of the Philippines as amended by Republic Act No. 121, *inter alia*, provides:

“The Director of Forestry with the approval of the Secretary of Agriculture and Natural Resources, may, upon such terms as he may deem reasonable, lease or grant to any Filipino citizen or association of persons duly incorporated and authorized by the Constitution to acquire

lands of the public domain, permits for the use of forest lands or vacant public lands not declared agricultural, for a period not exceeding twenty-five years, for the establishment of . . . pastures for large or small cattle . . . not exceeding two thousand hectares . . . . .”

The foregoing provisions of law and those of Commonwealth Act No. 452, otherwise known as the Pasture Land Act, as amended by Republic Act No. 1252, are the basic laws governing pasture in the Philippines. Pursuant to the provisions of the Pasture Land Act, pasture or grazing in the public domain is regulated by Forestry Administrative Order No. 8-3, as amended, and Forestry Administrative Order No. 4-7, dated January 5, 1955.

**CLASSIFICATION OF PASTURE LAND**

Under the provision of Forestry Administrative Order No. 4-7 mentioned above, the following categories and/or factors with their relative point-weights are considered in the classification of pasture lands:

Climate . . . . .	10	points
Relief . . . . .	10	"
Soil . . . . .	15	"
Carrying capacity . .	45	"
Accessibility . . . . .	10	"
Water supply . . . . .	10	"
	<hr/>	
	100	points

First class pasture must have 80-100 points; second class pasture, 55-79 points; and third class pasture, below 55 points. Rentals per hectare or a fraction thereof for the first three years from the issuance of the pasture permit or lease are ₱0.60, ₱0.30, and ₱0.25 for 1st, 2nd & 3rd class pasture, respectively; thereafter, ₱1.00, ₱0.50, and ₱0.30, respectively.

**IMPORTANCE OF PASTURE MANAGEMENT IN SOIL CONSERVATION**

*Object of Pasture Management.*— Pasture management aims at using the grazing resources to the fullest extent consistent with the protection, development and use of other

resources, without injury to the grazing capacity of the pasture. This goal can be achieved through measures aimed at the conquest of factors inimical to soil conservation and sustained soil productivity. To this end, a program that epitomizes this conquest includes the following:

1. Renovating pastures with high quality forage in preference to wild, native forage with low eating and nutritive qualities.
2. Reseeding pastures with legumes and grasses in suitable mixtures.
3. Adopting improved rotation, inclusive of desirable legume and grass species.
4. Introducing improved practices whereby the soil may, at the same time, produce in proportion to its full potential.
5. Continuing research on problems entailed in all their varied aspects, on the relationship of soil and vegetative cover and on costs, necessary investments, and type of required credit.

History reckons that neglected or misused pastures have bred consequences tragically adverse to the productivity of the soil affected thereby. Consequently, the welfare of the people dependent upon that soil is proportionately adversely affected.

*Natural Pastures Occupy Key Position in Soil Conservation.*— There is as yet no accurate inventory of our native pasture areas. In fact they belong to a land-use category which is statistically least defined. They are treated as a residual category into which lands between forest lands (timberlands) and agricultural (alienable and disposable) lands are thrown. In the Philippines today we have land classification teams segregating agricultural lands of the public domain and timber inventory teams determining what we have in our timberlands. We have yet to form a team to determine and delimit our native pasture lands. Yet these pastures, covered as they are with heterogeneous plant population mostly of the grass family, occupy a key position in soil conservation, maintenance and increase of soil fertility. Grasses, it has been rightly averred,

are second only to good forest cover in efficiency for soil and water conservation. Appropos, proper management of our natural pastures is a potent factor in soil conservation; on the other hand, misuse or abuse offers a most powerful agent of soil destruction. And being state-owned they are vulnerable to misuse.

Because of this state ownership of natural pasture lands their use should be a matter of public concern. Their vulnerability to misuse calls for a proper classification of their soil and water resources and for extensive and intensive surveys of their economic land-use capabilities. In this regard, the Bureau of Forestry is hamstrung by limited, much too limited, funds. It has barely started. The use of these state-owned pasture lands is subject to some sort of management control, its temper finding reflection in the aforementioned Forestry Administrative Order No. 4-7 otherwise known as Pasture Regulations. This Pasture Regulations provides, among other regulatory measures, for the minimum and maximum number of animals a permittee or lessee is allowed to graze in the range; for the protection of streams or river banks and watering supply; for the prevention and suppression of fires in the range or areas adjacent thereto; and for the planting of the area with good forage species by the permittee or lessee. But whatever there is by way of regulating the use of our natural pastures is the result of exploratory grazing studies and/or the product of empirical observations.

There are 898,113 hectares of available natural pastures under the jurisdiction of the Bureau of lands which offer great possibilities for proper management with a view not only to increasing production of meat, hides, milk and other dairy products but also to developing and perpetuating well-maintained awards which are the "best insurance against soil erosion and depletion of soil fertility, and a guaranty for a well-balanced water regime".

A good grass cover—one of the objects of improving our native pastures—is one

of the most indispensable tools of soil conservation. Grass, too, is of basic importance in the conservation-land-use movement, and has been found as an ideal medium for wind and water erosion control and for soil improvement. Its protective value against the forces of wind erosion lies in the fact that it reduces the velocity of the wind that the wind no longer possesses sufficient energy to initiate soil movement. Grass protects the soil from the forces of water erosion—both raindrop impact and surface flow—in that the kinetic energy of the falling raindrops is dissipated and the velocity of flowing surface water is considerably reduced. It serves as a spring cushion that intercepts and breaks up the falling raindrops on their way down, conducts them down the blades and stone of the plants, and finally allows them to reach the ground as fine sprays without disturbing the soil at the surface. Grass reduces the flow velocity of flowing surface water and thereby prevents it from gaining sufficient velocity to initiate scouring process. Aside from the foregoing, grass plays a major role in the production and maintenance of good soil structures; furnishes a continuous supply for biologically active organic matter essential to the formation and maintenance of soil aggregates; and contributes to the stability to the said soil aggregates. *A fortiori*, the role of grass in our soil and water conservation work cannot be over-emphasized.

The foregoing recital of some of the functions of grass in soil conservation brings us to the problem of economical improvement, production and profitable utilization of grass and grass-like plants in our natural pasture areas. The solution of the problem calls for the development of a system of pasture or range management that will permit the maximum production of meat, hides, dairy and other livestock products, not to mention most from wildlife, and at the same time maintain or improve the soil and forage resources upon which the production depends.

Such a system of pasture management presupposes a working knowledge of the following:

1. Physiological requirements of the more important forage grasses, browses and herbage.
2. Processes of plant succession on different soils.
3. The amount of grass cover necessary to protect the soil from erosion.
4. The amount of usable forage that may be expected from different kinds of pastures, and the safe rates of stocking them.
5. Facts about grasslands and their relationship to soil and climate.

The apparently poor nutritive value of grasses in our natural pastures, the lack of research on grass and legume combination applicable to them under varying conditions, and the growing realization of the opportunities that lie in these natural pastures must have impeded the powers-that-be to include a Forest Grazing Section in the Forest Research Division of the Bureau of Forestry in the recent reorganization of the bureaus and offices under the Department of Agriculture and Natural Resources. This Forest Grazing Section in accordance with Forestry Administrative Order No. 1-6, dated March 29, 1957, has the following functions:

1. To conduct studies and researches on the effect of grazing on timber growing, reproduction, fire, soil erosion, floods and stream flow, ecology of grazing and proper management of range, forage plant introduction, improvement of grazing lands, capacity of range, forage requirement of stocks, poisonous and objectionable plants to grazing animals, and revegetation of over-grazed areas; and
2. To evaluate results of researches for immediate implementation and application upon approval.

In virtue of the foregoing, "Instructions for Researches and Studies on Forest Grazing" was issued and it enjoins that the following grazing research and studies, at least for the present, shall be conducted in the Forest Experiment Stations:

- a. *Grazing and Soil Conservation.*—Determination of the effect of grazing on timber growing, reproduction, fire, soil

erosion, floods and stream flow; and study on ecology of grazing and proper range management.

b. *Improvement of Grazing Lands.*—

Study on forage plant introduction for the purpose of improving the grazing lands; determination of capacity of range, grazing period, forage requirements of livestock, poisonous and objectionable plants to grazing animals; and revegetation of over-grazed areas.

Furthermore, it sets the more desirable objectives of range management to be pursued, to wit:

1. To produce the maximum forage possible from rangelands on a continuing basis;
2. To increase forage production of rangelands that are producing less than their optimum productivity;
3. To make the most efficient use of the forage for the production of livestock and livestock products, or wildlife, or both; and
4. To safeguard or improve the watershed value of rangelands for the mitigation of destructive or wasteful flood runoff and erosion and for production of maximum yields of usable water. In many areas watershed considerations may be the most important of all.

## PRESSURES OF GRAZING ON NATURAL PASTURES

The natural pastures in the Philippines, like most of their counterparts the world over, are not uniformly covered with grasses, let alone good grasses. And because of this, they can always respond to better management; but our graziers have not realized, or refuse to realize, the close relationship that exists between good management and productive capacity of the ranges and in turn their relation to livestock production. Thus, our native pastures are burdened from year by overstocking and misuse or mismanagement. It appears that our graziers are in this young industry only for immediate gain, unmindful of the fact that overstocking can lead to the ruination of our native pastures and their ultimate abandonment.

The comparatively extensive pasture lands in General Santos, Cotabato, stand good example of these pressures. There, the predominant species of grasses are kogon (*Imparata exaltata*) and sum-sumon or selibon (*Themeda triandra*). The latter which is more palatable is grazed without interruption years on end. And because of this, the former with other less desirable grass species is crowding the latter out of the ranges. Coupled with the foregoing are the long droughts of unpredictable duration and occasional unregulated grass fires. These factors, aggravated by bad management, cause changes not only in the amount and botanical composition of vegetation but also in the interaction of soil and vegetation—resulting in a vegetation not in equilibrium with soil, not to mention accelerated soil erosion and conversely soil stabilization.

By and large, our natural pastures are covered with grass vegetation of mixed composition, predominantly kogon (*Imperata exaltata* and *I. cylindrica*), sam-samon or selibon (*Themeda triandra*), bagok-bok (*Andropogon nitidus*), talahib (*Saccharum spontaneum*), pagapagay (*Digitaria sanguinalis*), malatanglad (*Andropogon* sp.), carabao grass (*Paspalum conjugatum*), and a host of grass-like plants, browses and weeds. Sam-samon or selibon (*Themeda triandra*), bagok-bok (*Ondropogon nitidus*), and pag-pagay (*Digitaria sanguinalis*) are overgrazed. The overgrazing increases and these species lose vigor and produce lose organic matter to be returned to the soil. Fertility of the soil declines. It becomes less porous because of reduced organic matter returned to it and constant trampling by animals. Reduced porosity is conducive to the creation of channels which concentrates runoff. The changes in the soil take place slowly but surely, scarcely perceptible at first but becomes strikingly evident as the years go by in the form of accelerated soil erosion and destructive runoff.

A great bulk of our natural pastures have rough topography with slopes hardly accessi-

ble even by our hardly native cattle, let alone the imported breeds. A permittee for 2,000 hectares of pasture land may have the number of animals not beyond the maximum allowed by our pasture regulations but his area may be subject to the pressure of overgrazing on portions easily accessible to his herd. The carrying capacity of the accessible portions may be such below the number of animals in his range, unless remedial measures and proper range management are effected. Proper utilization of forage in steep slopes as closely as in level or in moderately rolling country is the key to a reasonably uniform grazing of the range. The marriage of grass husbandry and range management must be effected to a successful fruition in order to solve and remedy the pressure.

The primary causes of pressures in our natural pastures which, if left unchecked, will lead to range deterioration and consequent accelerated soil erosion and destructive runoff, can be summarized as follows:

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1. Over-stocking or grazing in excess of the carrying capacity of the area.
2. Unregulated or incorrectly regulated growing.
3. Uneven distribution of palatable and/or available forage species.

### **OBSERVATIONS AND CONCLUSIONS**

Our natural pastures are in level, rolling, moderately rough and rough areas. Generally, those located in agricultural lands have level to moderately rolling reliefs and these in permanent pasture lands (in law designated as timberlands), rolling to rough. It is in the latter where uniform grazing of the ranges poses a big problem if we have to maintain and develop their grass cover for a multiple purpose—maximum livestock production, soil and water conservation. Reasonably uniform growing or adequate distribution of grazing can be effected by (1) proper salting, (2) development of additional watering places, (3) proper location and construction of rotation or drift fences, (4) construction of trails to permit the animals to pass over rough areas, and (3) proper attention by cowboys.

Water development, especially if correlated with salting and fencing, offers great possibilities for bringing about improvement in utilization of our natural pastures. Salting is not as expensive as water development and fencing so that salt placed at various distances from the water will attract the animals and will thus forestall concentration around watering places. Reasonable utilization of forage away from the water can thus be obtained. Overgrazing and soil deterioration with consequent accelerated soil erosion are thus obviated.

On steep slopes the soil is held in delicate balance by the plant cover and conditions for water absorption are not so favorable. Extra water-retardation measures or

devices such as small retention dams in head-water drainage ways and gullies, water spreading of runoff, and intensive vegetative treatment, either grass or trees, should be introduced. Trees may be planted where grass is not paying out or is failing to hold the soil and the gullied areas may be turned into grass-covered waterways. Introduction of these improvements not only improve the carrying capacity of our ranges but also holds and improves the soil, retards runoff and reduces the effects of silting.

Our rangelands or natural pastures must be reckoned with in the economic development of our country. A landbased natural resource comprising 11.45% of the total land area of the Philippines should attract the attention of the proper authorities. The following should be given early consideration:

1. Survey and classification of natural pastures and determination of their carrying capacities.
2. Survey of areas subjected to excessive pressures, determining the causes of pressures and devising means to reduce them.
3. Providing watering places to make greater use of areas not utilized at present in the same way as irrigation projects are constructed in areas devoted to agricultural crops.
4. Soil conservation work and remedial measures in aid to soil conservation should be extended to the upper reaches of the watershed—at least to the steep slopes of our natural pastures in areas denominated in law as timberlands.

Proper management of our natural pasture lands generally will bring out an abundant and continuous production of good forage and good watershed condition. Grass, especially the vigorous, close-growing and sod-forming kind, is a powerful weapon for soil conservation. Conservation by wise use is the key to a successful pasture management.

**TABLE SHOWING GRASSLANDS IN THE PHILIPPINES  
AS OF JUNE 30, 1957**

Province and City	KIND OF LAND			TOTAL
	Timberland	Public Forest Unclassified	Alienable and Disposable	
Abra	402	171,686	10,089	182,197
Agusan and Butuan City	38	—	1,075	1,113
Aklan	—	40,987	1,038	42,025
Albay	4,031	—	—	4,031
Antique	5,781	55,437	22,576	83,792
Basilan City	—	—	1,522	1,522
Bataan	—	4,402	1,136	5,538
Batanes	3,556	—	756	4,312
Batangas & Lipa City	—	1,694	—	1,694
Bohol	25,690	2,465	31,385	59,540
Bukidnon	35,043	56,177	103,627	194,847
Bulacan	—	—	17,688	17,688
Cagayan	14,934	62,675	49,233	126,842
Camarines Norte	68	339	137	544
Camarines Sur & Naga City	4,775	—	27,590	32,365
Capiz & Roxas City	1,003	352	4,012	5,367
Catanduanes	453	—	1,248	1,701
Cavite & Cavite City	—	169	—	169
Cebu & Cebu City	9,153	11,893	27,239	48,185
Cotabato	120,430	368,390	63,459	552,279
Davao & Davao City	11,173	24,010	105,182	140,365
Ilocos Norte	43,815	—	6,123	49,938
Ilocos Sur	12,383	56,174	9,478	78,035
Iloilo & Iloilo City	50,190	53,980	40,820	144,990
Isabela	28,469	38,010	38,323	104,802
La Union	4,512	17,715	14,325	36,552
Laguna & San Pablo City	21	—	1,120	1,141
Lanao	—	23,487	7,915	31,403
Leyte	1,032	7,634	9,762	18,428
Marinduque	3,569	—	4,583	8,152
Masbate	42,307	—	48,750	91,057
Mindoro Occidental	31,902	30,650	33,843	96,395
Mindoro Oriental	4,984	5,857	14,640	25,481
Misamis Oriental & Ozamis City	374	3,574	196	4,144
Misamis Occ. & Cagayan de Oro City	2,964	18,856	17,613	39,433
Mt. Province & Baguio City	9,013	124,640	23,431	157,084
Negros Occ. & Bacolod City	5,126	4,500	60,721	70,347
Negros Or. & Dumaguete City	9,562	48,551	29,117	87,230
Nva. Ecija & Cabanatuan City	5,126	79,539	20,026	110,691
Nueva Vizcaya	48,443	33,984	7,659	90,086
Palawan	4,898	11,406	10,482	26,786
Pampanga	7,840	13,749	—	21 589
Pangasinan & Dagupan City	11,490	21,552	9,128	42,170
Quezon	2,602	10,735	—	13,337
Rizal & Cities	628	7,605	5,561	13,794
Romblon	—	687	43,239	43,926
Samar & Calbayog City	7,499	77,473	15,647	100,619
Sorsogon	1,951	3,697	12,325	17,973
Sulu	2,534	24,751	15,933	43,218
Surigao	446	30,313	494	31,253
Tarlac	2,130	61,395	7,584	71,109
Zambales	9,135	44,351	1,923	55,409
Zamboanga del Norte	17,498	5,503	86,352	109,353
Zamboanga del Sur & Zamboanga City	6,598	12,188	42,505	61,301
<b>Total</b>	<b>615,571</b>	<b>1,673,142</b>	<b>1,115,609</b>	<b>3,403,322</b>

## BIBLIOGRAPHY

1. THORP, J. — How Soils Develop Under Grass — U.S.D.A. (1948) — GRASS
2. CONNAUGHTON, C. A. — Grass and Water and Trees — Ibid.
3. WHITE, W.T., FRANOSEN, W. R. & JENSEN, C.V. — Planning Range Conservation — Ibid.
4. CHAPLINE, W. R. — Grasing on Range Lands — Ibid.
5. BENNETT, H. H. — The Tools of Flood Control — Ibid.
6. KELLOG, C. H. — Grass and the Soil — Ibid.
7. PRICE, R. — Conservation Problems and Practices — Ibid.
8. CARDON, P. V. — Our Concept of Grassland Agriculture — Proceedings, Sixth International Grassland Congress (1952) Vol. I.
9. WARLEN, F. T. — Grassland Resources and Potentials of the World — Ibid.
10. KUMAR, L. S. S. — The Problem of Pressure of Grasing on Native Pastures — Ibid.
11. SALTER, R. M. — Conservation and Improvement of Soil and Water — Ibid.
12. DYKSTERRUIS, E. J. — Determining the Condition and Trend of Ranges (Natural Pastures) — Ibid. Vol. II.
13. WATTS, L. N. — A Program for Range Lands — UNASYLVA (1951) — Vol. V, No. 2.
14. ASIDDAO, F. & SABADO, R. A. — Grassland in the Philippines in Relation to Watershed Management. — FORESTRY LEAVES, Vol. X, No. 1.

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# Forestry In Agusan

The present natural wealth of Agusan lies in the vast expanse of forest which is considered one of the best in the country today in terms of composition, stand, quality of timber products and, generally, the fabulous fortune derived therefrom. It has made many millionaires in a short span of time and will continue to give the maximum benefits to our people in terms of financial, aesthetic, recreational and protective values if managed carefully and intelligently to attain its perpetuity.

The increasing demands of forest product especially timber or logs, lumber, veneer, plywood, wallboard and minor forest products for export have made lumbering and other allied forest industries the principal and leading industries in Agusan which provide direct and indirect livelihood to thousands of people. It will remain and determine the future economy of the province as long as the forest is conserved by wise use. The economic progress of Agusan will rise or fall depending on how the people of this province will take care and protect this God-given heritage.

In order that the forest of Agusan could be perpetuated for the generations yet to come, it is imperative that proper management and effective protection be implemented and should not only be the main concern of the Bureau of Forestry, in particular, but also the forest users and the people in general. Without the active cooperation of licensees in protecting their concessions against irresponsible kaingineros and squatters, the implementation of selective system of logging and forest protection and management will become a miserable failure.

The present set-up of the Bureau of Forestry in this district is very inadequate

and weak to control the tide of the surging mass of people coming to Agusan to acquire lands as encouraged by facilities of newly opened roads and increasing business opportunities in all lines of endeavor and the policy of "Lands for the Landless" to produce more in order to attain self-sufficiency in food.

While it is true that there are 64 men in this district, yet it is wanting for more additional personnel and adequate funds and equipments to cope with the increasing activities and more complicated problems that are confronting the bureau day by day. Most of the men assigned in this district have been concentrating on assessment and income producing activities of the bureau.

The perpetuation of the lumber industry in Agusan is the most important objective of the bureau. This is so because lumbering has a great bearing to the progress of Butuan City and Agusan Province. The maintenance of a forest balance is necessary in order that agriculture and other allied industries will be possible of existence because the forest is a necessity and the key to support all other industries.

The total forest area of Agusan is about 73% of the total land area of the province or 778,984 hectares which are covered with forest of which 79% or 616,398 hectares are accessible wherein the 72 licensees in the district have been operating. The estimated volume of timber is 105,373,167 cubic meters. This could give an annual production of 4,828,101 cubic meters. However, during the last fiscal year, out of a total allowable cut of 1,930,885 cubic meters of timber, only 1,336,203.79 cubic meters were manifested. From timber, the government derived ₱1,258,521.27 as forest charges and ₱555,-

201.31 as reforestation fund. In the aggregate, however, the income from forest charges, reforestation fund, inspection fees, license fees, and other charges amounted to ₱3,056,806.82 for the fiscal year 1959-60. Hereunder is a tabulated statement showing the five-year timber production, exports and charges derived therefrom:

Besides timber, the forest in Agusan is rich in minor forest products, such as, rattan, bamboos, bohos, almaciga (copal), dipterocarp resins, diliman, firewood, tanbarks and nipa which are collected in commercial quantities for local use and export. There were 47 minor forest products licensees during the last fiscal year.

There were 36 exporters of logs in the district during the last fiscal year. Only the Nasipit Lumber Co., Inc. was a regular exporter of lumber to the United States. On logs, 10,241,907 board feet were exported to the United States; 382,229,494 board feet to Japan; 3,284,501 board feet to Korea; 20,065 board feet to Africa; and 129,948 board feet to Australia or a total log exportation of 395,905,915 board feet valued at ₱43,063,992.72. On lumber, 6,810,249 board feet valued at ₱1,658,802.00 were exported to the United States.

A total of ₱1,174,489.00 was derived as inspection fees on logs and lumber.

Aside from logs and lumber, there were exported to the United States 9,137,120 square feet of plywood valued at ₱1,241,029.23; 25,884,330 square feet of veneer

sheets valued at ₱889,374.56; and 15,847,393 square feet of veneer corestock valued at ₱763,527.06.

There are 18 sawmills in operation with a total annual production of 52,768,010 board feet of lumber, most of which were shipped to other provinces and used locally. Investment in sawmill operations is estimated to about ₱9,127,233.11 while in the logging business about ₱20,000,000.00 has been invested. It is estimated that the total capital invested in the lumber industry, including wood-using plants in the district, is about 50 million pesos. About 10,000 people are directly employed in the lumber industry and approximately 40,000 persons are dependent upon them for support.

Of Agusan's land area of 1,067,102 hectares, an estimated area of about 618,920 hectares need to be released for agricultural purposes without jeopardizing our balance of soil cover. So far, about 227,840 hectares have been released as alienable and disposable land, of which only about 40,000 hectares are actually cultivated.

The administration of the forest resources of Agusan lies greatly on the shoulders and guidance of its able District Forester, Teodorico B. Cepeda and assisted by Forester B. Balanon as Asst. District Forester, and other keymen as listed hereunder. There are five forest stations and five timber management stations. Due to lack of personnel, the officers in charge of stations are concurrently timber management officers.

### 1. Forest Station, Butuan City

#### a. Headquarters:

- |                                 |   |
|---------------------------------|---|
| 1. Teodorico B. Cepeda .....    | District Forester   |
| 2. Evangelista B. Balanon ..... | Asst. Dist. Forester                                      |
| 3. Marcelino E. Macabeo .....   | Forester III  |
| 4. Felipe B. Abraham .....      | Senior Forester, Timber<br>Management Assistant           |
| 5. Porferio O. Quintana .....   | Forester I, Forester in<br>Charge, Tungao Management Unit |
| 6. Pedro B. Salvador .....      | Forester & Lumber Grader                                  |
| 7. Moises R. Dabalos .....      | Forester I & Lumber Grader                                |
| 8. Juliano Urquiola .....       | Forester & Lumber Grader                                  |

- 9. Fortunato L. Reyes ..... Lumber Grader
- 10. Diego Lim ..... Lumber Grader
- 11. Eusebio Anulao ..... Lumber Grader
- 12. Pedro M. Lagat ..... Forest Station Warden
- 13. Vicente A. Trillo ..... Sp. Disb. Officer
- 14. Francisco D. Cabasagan ..... Clerk II
- 15. Eusebio Torreja ..... Clerk II

b. *Timber Management Unit, Tungao, Butuan City* (Under supervision of Forester Porfirio O. Quintana)

2. *Forest Station, Esperanza, Agusan:*

- 1. Ce'so N. Verzosa ..... Forester I (Officer in Charge)

3. *Forest Management Station, Cabadbaran, Agusan:*

- 1. Juan C. Valdez ..... Forester I (Officer in Charge)

4. *Forest Station, Loreto, Agusan:*

- 1. Victorio C. Antonio ..... Forester I (Officer in Charge)

5. *Forest Station, San Francisco, Agusan:*

- 1. Aquiles Udarbe ..... Forester I (Officer in Charge)

By:

**TEODORICO B. CEPEDA**  
*District Forester*

Year	Volume in Cu. Meters	F. Charges & R. Fund	Shipments in Logs	Board Feet Lumber	Inspection Fees	Value
1955-1956	851,032	₱1,164,037	268,945,220	2,362,749	₱ 274,774	₱ 20,758,799
1956-1957	1,102,886	1,568,682	303,629,630	2,086,975	788,026	30,413,468
1957-1958	849,172	1,083,418	292,030,799	5,794,693	903,924	28,180,587
1958-1959	1,057,448	1,470,845	327,274,422	8,781,981	981,981	33,561,020
1959-1960	1,336,204	1,813,723	295,905,915	6,810,249	1,174,489	44,722,795
<b>TOTAL</b>	<b>5,196,732</b>	<b>7,100,705</b>	<b>1,587,775,986</b>	<b>25,636,647</b>	<b>4,123,194</b>	<b>157,736,669</b>

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"Butlumber" Butuan  
City

# Problems of Shifting Agriculture in the Asian Area \*

By FLORENCIO TAMESIS  
*Director, PLPA*

## INTRODUCTION

The subject of shifting agriculture covers a very broad field. Much has been written about it and there is a wealth of literature and information available on the subject. Even with the field narrowed down to the Asian Area and the scope confined only to the problems created by this type of agriculture, the subject still leaves much territory to cover. Limitation of space, however, confines the observations presented in this paper to the principal countries of the Area where the effect of shifting agriculture disturbs most the complex equilibrium of climate, soil, vegetation and fauna.

The practice of shifting cultivation in the Asian Area is deep-rooted and has existed for centuries. It is a socio-economic problem affecting primarily the low-income population. The practice, in general, is the same in all countries in the Area with but slight variations in treatment. It is known by different names, takes different aspects in different countries, but the net results are the same: the decrease of virgin forest, the creation of second growth and grassland, and the expansion of permanent highland agriculture. In some undeveloped regions, it is a tolerated primitive practice; in some, it is an approved approach for the development of upland agriculture for permanent tree crops; in others, it is condemned as inimical to the general economy.

It is the type of land utilization common where low-level land is scarce. Generally, it consists of clearing the underbrush of

the primary or secondary forest, cutting the big trees, piling the brush then burning it toward the end of the dry season, clearing and burning again the debris at the approach of the rainy season, and then planting the crop; after a crop or series of crops for as long as the soil yields something, the clearing is abandoned, to be taken up with miscellaneous growth and, in majority of cases, by grasses of very little value.

The term "shifting agriculture" seems to denote mainly temporary occupancy yet when translated into local dialects, connotes different meanings to different people because of the ultimate purpose for which the land clearing is made. As an example, in the Philippines, the word "kaingin", which is generally synonymous to shifting agriculture, connotes destruction of forest by cutting the trees and burning them, whether it is for temporary use or for permanent agricultural development. This does not convey the same meaning that "shifting agriculture" has meant in other countries where it primarily refers to temporary or semi-permanent agricultural development.

In many Asian countries, shifting cultivation is the term used for temporary purpose, the practice of which is mostly by the aborigines and the semi-permanent low-income settlers primarily for land rotation rather than for crop rotation purposes. Pelzer (1957), among others, feels that although such practices of clearing encroach into the virgin forest, they are considered not so objectionable as the approach pursued by the permanent field-cultivators introduced by the

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\* Fifth World Forestry Congress — Seattle, Washington — August 29-September 10, 1960

European and Western planters who entered the tropics in search of crops of natural tropical monopoly.

If the objection to shifting cultivation is that it causes the destruction of the primary forest, we agree with Pelzer that the permanent field-cultivator is more responsible for this situation than the shifting cultivator. The former belongs to the group who has developed land under extensive irrigation for the cultivation of wet rice and other permanent upland agriculture.

Pelzer reports that "Western planters had cut down the tropical forest on staggering scale, particularly in the middle of the 19th century, only to discover that the peasant cultivator of the tropics has known for uncounted generations that the soils of the humid tropics, more often than not, are disappointingly poor, except in those areas which have young alluvial soils derived from volcanic parent material, or young, basic volcanic soils developed *in situ*."

#### **BENIGN AND MALIGNANT ASPECT**

To appreciate objectively the benign and malignant aspects of shifting agriculture, it is well to examine briefly the underlying reasons for its practice and the contributory factors that greatly influence its existence. Investigators in various parts of the world who have delved into this process of agricultural economy, approach the problem from their own individual interest, thus emphasizing what to them are more important in relation to their particular line or pursuit at the time the investigations are made. Some investigators look at this practice with abhorrence but the great majority of them do not consider it so objectionable considering the circumstances that attend to this type of agricultural economy in a given locality.

Marshall (1957), in his appreciation of shifting agriculture in Asian areas, distinguished the three principal types of people who practise this system, thus:

The first type consists of the aborigines or nomadic people who go out in the wild-

erness and cut a little opening here and there for the purpose of growing their crops for sustenance, to augment their principal means of existence through hunting expeditions. This group is diminishing, and luckily enough, they only clear small patches and they do not destroy much timber as they do not use heavy tools. Generally, after the crops are harvested, the land eventually reverts to second growth, thus soil erosion is not much of a problem and the damage on the forest is on the minimum.

The second type consists of tribal people. Having varied customs and because of their desire to settle semi-permanently, they clear a bigger area, generally about a hectare or so of primary forest, than do the aborigines. After a year or two they abandon the area and move to another spot where they want to live. While they break primary forest, which thus develops into secondary forest, they are not as bad as the third type of shifting cultivators.

The third type consists of people who cause the most destruction to the forest. They are the civilized people who are "educated enough to know the advantages of permanent farming, but who realize that quick profits can be realized from farming virgin forest land, if such land can be obtained free". This group of shifting cultivators is the most dangerous and the most difficult to control because they use the cry of "freedom". Marshall further states that an American president was elected by promising to "open the hills of Dakota to the people", but today, the American people are too well educated to be deluded by such a cry. Parenthetically, the Philippines today is suffering from the impact of the shibboleth of "land for the landless" which is being given a convenient political interpretation to mean open season to any public land.

Population pressure as well as the awakening of the people to reality of preservation and self-protection create the demands for permanent homes as permanent security when land can still be taken free. In the Philippines, for instance, this third type of

shifting cultivator is the most condemned, as actually for the last 25 years, at least half a million hectares of virgin forests have been denuded and have become the main problem of forest conservation.

In addition to Marshall's three types of shifting cultivators, Tom Gill (1959) in his observations in the Philippines described another group of shifting cultivators which he termed as "professional squatters". They are the people who occupy illegally government forest land, make a show of possession and ownership, then dispose of their "rights" at a price to a later immigrant to the locality.

Each country realizes the tremendous effect of shifting agriculture in reducing its virgin timberlands, loss of soil fertility by erosion and depletion, the drought and flood that it generates, as well as decrease in crop yield of secondary agricultural land, and each country is anxiously looking forward for remedial measures.

Thus, various approaches to minimize or control such practice had been adopted such as the enactment of preventive and punitive laws, promulgation of rigid regulations as to the area and sizes of trees that could be cut for practising shifting agriculture and establishing forest reserves and the resettlement of the people to agricultural area. Other countries have resorted to very stiff penalties, yet there seems to be no appreciable results and the objectionable aspect of the practice remains far from being solved. As it is, in some countries, the situation seems to require more adequate means of control and, in others, perhaps, almost a dictatorial mandate. In general, what is required are specific laws and regulations practical enough to meet the different socio-economic problems of the locality.

## CASE HISTORIES

### BURMA

In the Asian Area, Burma is one country where typical shifting agriculture has been practised for many centuries. In the remote areas on the hills and foothills where flat

land for permanent cultivation is scarce, this method of cultivation is extensively practised.

To the hill tribes, whose hereditary chiefs exercise jurisdiction over certain area of hill tracts, and whose traditional customs are religiously followed and accepted as customary laws in administration, shifting agriculture is their only method of cultivation to get their staple food, such as rice, maize, millet and other vegetables. Rough topography precludes the tending of permanent rice fields, thus the cutting and burning of existing forest growth, to permit the planting of food crops for one or two years, becomes the natural alternative that is followed.

It has been reported that out of its public forests of 106,954 square miles of (27,698,937 hectares) 21,139 square miles (5,474,578 hectares) is subject to heavy incidence of shifting agriculture. This represents 19.8% of the total area of the public forests or 11.4% of the total area under forest administration. In addition, there are 76,453 square miles (19,799,897 hectares) of frontier areas barely subject to this shifting cultivation. These are in the frontier states of Kayah, Putao and the Triangle areas of Kachin, where the population is scarce.

One of the approaches adopted for the control of shifting agriculture was the establishment of forest reserves. This checked the spread to some extent, but complete stoppage was not feasible as it would cause severe hardship to move out the villages. In such case, restrictions were imposed on the number of households and area within which cultivation could be allowed. Rights and privileges were granted during the time of settlement on the reserves, and by strict control imposed by the government, the damage done by this type of cultivation seems to be kept in check.

Unlike the reserved forest which are under complete control of the Forest Department, legal restrictions in the public forest outside the reserves are few and flexible—large tracts of frontier areas do not come large under the jurisdiction of the Burma Forest Act, and as such, there is no con-

trol whatsoever on clearing and cutting of forests. In areas under the Forest Act, there is only one law which prohibits, except under written permits, cutting or injuring trees for purposes of shifting agriculture in specifically defined tracts to be declared by the Deputy Commissioner of the districts. Teak and certain other specified trees are declared as "reserved trees" but persons lawfully clearing forest growth for permanent or shifting cultivation may, for that purpose, fell and burn any such trees which are not teak trees and do not exceed three feet in girth at eighteen inches from the ground and the timber so felled may be used for agricultural, domestic and piscatorial purposes; and in certain areas specified by the government, even teak not exceeding two feet in girth measured at eighteen inches from the ground can be felled for the same purpose. As regards other "unreserved trees" persons lawfully clearing forest growth for cultivation may, for that purpose, fell any tree. There are, of course, certain rules under which all trees or certain specified trees can be protected in defined areas. A villager, therefore, has a great latitude in clearing forest growth for shifting agriculture in the public forests.

### **BORNEO**

*North Borneo*—The Conservator of Forests reported that the problem of shifting agriculture is in equilibrium with its surrounding and is not expanding, but due to the lack of efficient control of land alienation in the field, there is no doubt that a certain amount of land settlement on permanent title amounts to little more than shifting cultivation is almost entirely located on the lands draining to the West Coast, and though erosion does take place on the lowland, satisfactory cultivation of wet padi takes place on the lowland at the foot of the hills.

Shifting cultivation covers, together with its associated regrowth, about 3,321 square miles or 11% of the land area of the Colony. The areas are often steep and have been cultivated for hill rice and maize on rotations

varying from 5 to 25 years for very many decades. The spread of shifting cultivation has been checked, first, by the fact that, in most areas, the system is in equilibrium and the cultivators are accustomed to fell secondary growth of a certain size (instead of primary forest) and, second, under the forest laws, it is forbidden to cut trees over 18" diameter. Patrols by Forest Department Staff are largely effective in enforcing this law, and because of this, the expansion of shifting cultivation in primary forest is now rare. The people who are engaged in shifting cultivation are the Dusuns and Muruts, and there is reason to believe that their people have, to some extent, been forced to live in the hills due to piracy and successive wave of settlement by war-like Muslims along the coast. The hill people are becoming increasingly aware of the desirability of shifting agriculture, but most of them do not like to live in the hot lowland and, in addition, they find padi grown in irrigated fields somewhat unpalatable. Small irrigation schemes mostly designed and built by the people themselves, are developing at an increasing rate in the flatter parts of the high valleys, and several missionaries are doing much to bring shifting cultivators to settled agriculture. The Forest Department policy at present is to reserve as much as possible the primary forest which remains on the West Coast hills and to enforce the law forbidding the felling of trees over 18" diameter for shifting cultivation.

The obvious solution to the problem is a series of carefully planned resettlement schemes but at the present state of the Colony's development, it is doubtful if funds or staff could be provided for.

*Brunei*.—A Forest Officer reported in 1949 the novel way of controlling shifting agriculture by listing all male adults together with their families along the forest reserve. A limit is set for each clearing every year and is properly checked. Immigrant Dyaks from Sarawak is the worst menace in the control of shifting cultivation. It is reported



that Brunei has 923 square miles of Forest reserves representing 41% of the total area.

*Sarawak.* — Beccari (1904) reported that as early as 1865, when he first visited Sarawak, he observed the promotion of shifting agriculture. He reported that hill rice was successfully grown "but the present system used in its cultivation keeps large areas of ground in a fallow condition for years, for rice cannot be sown again in the same field under an interval of six or seven years. All over Borneo, agriculture is in a very primitive stage. In Sarawak, the plough is unknown, although it is used in North Borneo. With the system of rice-cultivation now practised in Borneo, any extension would lead to a corresponding destruction of forests and thus lessen those forest products which, at present, certainly form one of the main resources of the country."

### **TROPICAL CHINA**

Buck (1937) reported that in the tropical portion of China, in the provinces of Kwangsi and Kwangtung were formerly forested but due to shifting cultivations, there are now 47% of the area with wild grasses and trees.

Cressey (1934) reported that in those tropics, very little remains of the "ancient practise of shifting agriculture except its end product, the relative useless grasslands, annually burned over."

Girard (1903) reported that in North Vietnam, and partly in Tropical China, in Yunnan and Kwangsi, the men are ardent hunters but wretched cultivators, referring to the practice of shifting agriculture.

### **FORMOSA**

There were about 17 Tayal tribes of the northernmost group of aborigines, reported by Guerin & Bernard (1868) as having occupied steep slopes. They made the observations that when the aborigines reached Formosa, the country was completely forested. The mountain country having reached to the sea on the east and north, the ancestors of some

of the present tribes gradually moved from the coast to the interior along the valleys, while the others had settled on the western plain but were eventually driven to the mountains by Chinese colonists.

Hoffman (1912) stated that the low coastal plain, which originally had been covered by forest, had been denuded through shifting agriculture.

Ishii (1917) reported that the Tayal of Northern Formosa are shifting cultivators among them are the social group which he termed: (1) ceremonial group who performed ceremonies in common; (2) hunting group; and (3) purification group who shared the fines of those who violate the customary law.

### **NEW GUINEA**

Barrau (1955) did considerable studies in New Guinea, including New Caledonia, New Hebrides, the Solomon Islands and the Fiji Islands. He observed that, generally, burning seldom serves to clear the land in the rain forest, the humidity is such that the felled wood would not burn, so that in clearing the land the brush and weeds are piled up on the foot of the trees, then set fire on it and letting die slowly.

### **CEYLON**

A typical type of shifting agriculture (chena) is practised in Ceylon and it consists in cutting and burning of virgin or secondary jungles, the cultivation of mixture of crops, cereals, vegetable and tubers from one to at most three years successive seasons, and the abandonment of the land thereafter for a period varying from eight to twenty years, during which time the vegetation regenerates itself. The effect of shifting agriculture on the soil recovery was reported by Joachin and Kandiah (1948) after several years of experimentation, thus:

The factors limiting the continuance of cultivation of chena areas are weeds growth, insufficiently burned stumps which begin to sprout up in a year or

so, the lack of impracticability of tillage, and in some areas, soil erosion. In regard to the minimum interval between successive chenaings, it has to be pointed out that chena crops depend for their successful growth on the increased available nitrogen and ash resulting from the burn (the soil reserves largely untapped) and the elimination of woods growth by the canopy of woody vegetation, this interval would thus be governed by the rate of growth of the latter — and would therefore vary in different districts.

The authors concluded that chena agriculture had no adverse effects on soil structure, as a result of the usual methods of soil preparation of rational agriculture, further stating that “generally speaking, from eight to ten years should be an adequate rest interval in most districts in Ceylon, both from the stand-point of weeds control and the supply of a sufficient mineral nutrients of the vegetation.”

#### **INDONESIA**

Like many Asian countries, Indonesia has recognized the disastrous effect of uncontrolled shifting agriculture and has advocated various laws and regulations as early as 1860 to reforest those areas devastated by the shifting cultivators. Different approaches to regulate this system were promulgated. (Herwerden, 1916)

In Westcoast Sumatra, the effect of continuous deforestation on the mountains was the subject of an intensive investigation on the effect on lowland agriculture. As a result, forest wardens were appointed. One of the problems confronting Indonesia is the determination of land ownership. It promulgated a general rule that land capable of being cropped wet should go into permanent agricultural production, through irrigation, fertilization, crop rotation, etc. and that, agriculturally, submarginal land should either remain in forest or if it had become waste

grassland, should be reforested. (huberman, 1949)

Herwerden (1916) reported that primitive shifting agriculture is practised in Java and Madura on lands that cannot be irrigated — known in Java as “tipar” cultivation, and “ladang” in many islands.

Due to pressure of population and the Western quest for tropical products, Indonesia probably is one of the countries in the Asian Area that suffer the early loss of its forests. As early as 1860, Bruijn advocated for reforestation when he defended the correction method by forbidding the clearing of new government forests, but the protection demanded was not effected until 1894 when ordinances were promulgated prohibiting clearing of government land — until waste unclaimed land are first utilized.

As example of diversified land utilization is much in evidence in Indonesia, where the European system of agriculture was somewhat modified by the “ladang” cultivation the practice is to allow sustenance crops as rice, maize and tubers to grow before the land rested for certain commercial crops, like tobacco, then left fallow until the soil has properly recuperated for other clean cultivation. Lands not profitable for tobacco are diverted to other industrial and permanent crops such as rubber, tea, coffee, etc.

#### **MALAYA**

Malaya is fortunate; she has still 73% of its land surface under forest (Forest Administration Report 1956), and the problem is to stimulate action to prevent this country from following in the foot-steps of some countries in the region (Wyatt-Smith) where shifting cultivation (Ladang) has been practised for years.

Shifting cultivation in Malaya falls under three broad types: that by the aborigines growing hill rice and tapioca; that by the Malaya growing hill rice and bananas on undulating and hilly lands in remote areas along the banks of the rivers; and that by the Chi-

nese occupying undulating or hilly land on foothills — on temporary occupation license or illegally growing tapioca, bananas, tobacco and pineapples. Today the aborigines are calculated to be around 50,000, and due to improved medical attention and welfare their increase is in evidence.

The principal aborigines practising this system of cultivation are the Senoi (Semai and Temiar), a nomadic race whose sphere of influence is the foothills and valleys of the central range of mountains of Malaya in the States of Kelantan, Pehang and Perak — Chiefly centered around Cameron Highlands — and the Aboriginal Malays known as Jakun who live in the southern half of Malaya, mainly in the forest of Jelebu (Williams-Hunt, 1952). Other aborigines are the Negritos living in the north and in the area of the King George V National Park of Central Malaya. These Negritos do little damage to the forest as, in most cases, they only dig for roots and tubers.

Malays also practice shifting agriculture in areas where the government has no effective control, such as in the interior of Pahang, Negri Sembilan, Kelenta Trengganu and Kedah (Arnott and Smith, 1937). This system of issuing temporary occupation license as a government policy reduced the extent of shifting cultivation, and the development of lowland rice for better land tenure and permanent settlement had encouraged the development of permanent agricultural community. However, due to population pressure this trend of permanency is being reversed, and still valuable high forest is being lost in the upper catchment of Muda.

During the World War II, particularly in 1944-1945, rice was scarce, and the government took emergency action in resettling the Chinese and Malay population. This forced the settlers to grow temporary crops, and thus induced shifting cultivation. These people have since returned to their occupation, and shifting cultivation has greatly diminished.

There are no data available on the rate of forest destruction, except that during the Japanese Occupation, a large increase was noted (Arnott and Smith, 1937). However, it was estimated that in Trengganu, at least one-twentieth of the area had been affected by shifting agriculture, and there were over 16 acres of secondary growth for each household practicing shifting agriculture.

It was reported that the effect of shifting agriculture in the interior of Malaya was disastrous to vegetation, and the catastrophic damage by the Pahang floods in 1926 was largely attributed to the destruction of the virgin forest — some forty miles from the mouth of the Tembling River. Lands on both sides of the river are occupied by semi-permanent cultivation, but the upper reaches of the Rompin and the valleys of Jerum, Keratong and Bebar and their tributaries are occupied by the aboriginal Jakun, and the vegetation has changed to almost pure bamboo. This is true also in the high forest away from the control of the Forest Department and Land Office.

The development of secondary forest varies depending on the degree of cultivation and burning of the area. Lalan (*Imperata cylindrica*) is said to take over only after continuous cultivation and clean weeding for at least two years, otherwise woody plants will colonize immediately.

In Temiar clearing in the high altitudes, woody secondary vegetation, legumes and nitrogen fixing plants become the predominant species, and these give no way for lalang to take over. This is so because the aborigines do not weed this clearing after planting, thus reducing the invasion of lalang and of soil erosion and deterioration.

During the last war, efforts were made in various Malay sections, particularly where the aborigines were encouraged to settle in groups because of terrorists in the forest. This, however, had a bad repercussion when they had planted semi-permanent and permanent crops, like rubber on land under Temporary Occupation permit. Now that

the crops are permanent the next move is to try to own the property. In some instances, the concentration of *taungya* was made in forests reserves. This complicates matter in so far as property owners are concerned.

A system of cooperative planting with hill people was started with small families where they were able to plant cassava or tapioca, and at the same time pine trees are introduced to reforest gradually the hills, keeping the planted trees weeded on payment.

The idea of selecting suitable crops for certain type of land was emphasized, and the aborigines were allowed to rotate their crops suitable for the type of forest. They, however, prefer virgin forest or old secondary forest for the growing of rice, maize, bananas and tapioca.

The Chinese practice shifting cultivation, but they generally plant for industrial purposes, such agricultural crops as tapioca, pineapples, tobacco and bananas. In good soil, sweet potatoes are generally planted first, then mixed with other vegetables. Upland pineapple cultivation was practiced, but now is illegal. The prohibition on intensive cropping is apparently aimed at preventing *Imperata* to take over the land, as evidenced by the upper hill north of Kulai.

Although there exist laws prohibiting clearing of virgin timber, the government is confronted with the possibility that if the aborigines were pressed to carry on the policy of concentration, they may flee back to the hinterlands and be exposed to communist influence. Thus, they had to practice shifting cultivation. Abandoned ladangs often become the feeding ground of wild animals, such as wild bison, elephant, pig, deer and tiger, and the recultivation of these areas are not salutary.

The question of control of shifting agriculture among the aborigines involves various factors that the Maiayan government has not yet perfected. Each region, each group has its own peculiar situation so that

the method of control calls for the individual approach.

There is no real legislation preventing the practice of shifting cultivation, although the Forest Service has certain regulations on government land, but the penalty for violation is inadequate to act as serious deterrent. Various ordinances affecting aborigines have been promulgated but that put into effect in 1954 seems to have some complementary effect upon the powers of the Forest Service.

The danger of erosion from the aborigines' method of agriculture is not serious, but the destruction of valuable forest and loss of revenue is considerable. Malay and Chinese semi-permanent cultivation, however, presents serious soil deterioration and erosion as they keep their lands clear of weeds.

Fortunately, shifting cultivation has not been such a serious problem in Malay as in other Far Eastern countries, though destruction of economic forest has been considerable." This is due to the fact that the development of tin and rubber industry makes money available to procure rice, and it was only during an emergency, as was the case during the Japanese occupation, that serious threat occurred with the rapid spread of shifting cultivation.

## PHILIPPINES

Among the laws in effect in this country when the American Government took over the administration of the Philippines in 1899 was the Spanish Forest Laws promulgated in 1856. Shifting cultivation (*kaiñgin*) and its destructive effects must have been one of the major problems then, judging from the provision of the law providing stiff penalties for its violation. While the salient provisions of that law were embodied in the first Philippine Forest Law promulgated in 1960, under the U.S. Military Government, the provisions calling for heavy penalty on illegal *kaiñgin* were not embodied. This was understandable. The leniency provided in the reconstituted law was in line with the mili-

tary policy of attraction, as well as the idea of rapid agricultural development which was the first concept of the attraction policy. Public laws were enacted allowing disposition of public land through homesteads, purchases, leases, and grants of free patents, on public lands which had been occupied and cultivated after a certain time. This leniency in public land disposition, although the land was not supposed to be alienated until the Bureau of Forestry had certified that it was more valuable for agriculture than for forestry, gave the impression that public land could be obtained free in most cases. This situation was aggravated further by the fact that the appreciation of what was more valuable for forestry rather than for agriculture, was mainly based on the existence of commercial valuable timber, and the nature of topography was barely reckoned with. As early as 1907, when the author joined the Bureau of Forestry as ranger, we were under instruction that when the forest contained no first and second groups timber in abundance to make it communal forest, such land could be certified as agricultural.

At that time, hardly any dipterocarp species, now better known as Philippine Mahogany, were utilized for commercial or local consumption and yet 90% by volume of the Philippine forest consists of dipterocarp species. This procedure of releasing forest land for agricultural purposes allowed extensive areas of timberland to pass to private ownership. Many such areas were cleared and converted into permanent upland agriculture, for the planting of such crops as coconuts, sugar, coffee, cacao, rubber, and other tree crops. The procedure used in the development is through *kaiñgin* which is referred to as "shifting agriculture" in many Asian countries.

Realizing the destructive effects of unregulated clearing and the weakness of the law, the Bureau of Forestry was able to put back in statute the old Spanish Kaiñgin Law, but just as the public was being educated to the value of the forest and of the severity of penalty for the violation of this law,

World War II came and disrupted its application. Much of the present problems that cause rapid destruction of the forest is attributed to inadequate implementation of existing laws. Moreover, the policy of leniency was again the order of the day after the liberation of the country in 1945. The people passed a critical period of hardship and the Government had to relax many of the rules. Afterwards, lack of personnel and means of control, together with public apathy to forest destruction by *kaiñgin* method made control difficult.

In his study of the forest conditions of the Philippines, Gill (1959) attributed the widespread and rapid destruction of the Philippine forests, which he considers one of the finest in the world, to a great extent to the system of shifting agriculture known as *kaiñgin*.

In general, the *kaiñgin* system in the Philippines is much the same as those practiced in other Asian countries, except possibly the introduction of a fourth element which is more destructive than the third group described by Marshall (1957) and referred to by Pelzer (1957) as the activity of the "professional squatters" on public as well as on private properties.

No statistics are available as to the extent of the area now occupied by the recent shifting cultivators, but it has been officially estimated that at least 50% of the cultivated land or over 5,000,000 hectares came about through the *kaiñgin* system, some by the aborigines or tribal hill people but the greater portion by the civilized groups who appreciate the value of the land and what they can get out of it as regular croplands. Some 2,000,000 hectares of the land area of the Philippines are reported to be brushland which is the direct result of shifting cultivation.

It will be safe to say that there is no area in the Philippines where indigenous non-irrigated agricultural land, such as plantations of coconut, rubber, and other crops had not originated from the shifting type of cultivation. This form of agriculture was

responsible for dry-farming and the establishment of permanent tree croplands, as well as for the creation of grassland or cogonales on hilly lands in the case of areas abandoned after soil fertility gives out. The latter, because of population pressure, are recultivated and frequently burnt, thus the soil becomes depleted and the herbarium plants fail to get hold, resulting into cogonales (*Imperata*). Many of these areas now constitute the grazing lands of the country, except those on rough topography. Cogon, humble and much condemned as it is, however, is considered a blessing to our open land. For lack of better soil cover, it serves as deterrent to rapid soil erosion because its thick mat of roots firmly hold the soil which otherwise will be washed out.

#### THAILAND

In Thailand, the practice of shifting agriculture is attributed to two types of people: namely, the natives who live in or near the forest and the hill tribes who are either indigenous or immigrant from China or Burma.

The first type are those who live near the forest and who have no cultivated land of their own, and owing to their poverty, have to depend on their clearings which are normally located within a walking distance from their dwellings. Their main crop is rice. Ordinarily, they make temporary shelters within their clearings.

The second type are the nomads who generally live in mountain ranges, more particularly in the catchment of the four main rivers north of Thailand, such as Me Ping, Me Yom and Me Narn rivers which flow to the Chao Phya river. These catchment areas are covered with luxuriant hill evergreen forests. In the 1957 census of the Ministry of Interior, there were recorded eight different hill tribes living in nineteen provinces, namely, Meo, Yao, Karens, Lawa, Khe meo, Musso, Lisaw, Kaw, with a total population of 96,000. Due to migration and infiltration from neighboring countries, it is estimated that the hill tribe population may have increased to 400,000. The main occu-

pation of these hill tribes is shifting cultivation, planting rice, cotton, chillis and other food crops to satisfy their domestic needs and for bartering with the local people for other necessities such as salt, clothings, etc.

The total figures on the area of forest land destroyed by shifting agriculture is not available at present. However, from the forest inventory conducted in 1956 in the five provinces in North Thailand, that is Lampung, Lamphoon, Chiangmai and Chiangrai, it was found that out of the total area of 6,101,000 hectares of the five provinces, about 2,260,300 hectares of forest, or approximately 37%, are depleted by shifting cultivators.

#### VIETNAM

Cupet (1900), in his various travels in Indo-China, made mention of agricultural development. His travels brought him to the border lines of the different countries in Vietnam and Cambodia. His observation recorded that the region must have been from the most primitive agriculture to the present more or less permanent system. The reported that "all of the shifting agriculturists of the region planted rice in the primitive way by making holes with a pointed stick and dropping a few grains into them, not bothering to cover the seed." These agriculturists seem to be permanent farmers as, beside upland rice, they cultivate maize, cotton, ramie, tobacco, pepper, sugar cane, millet, sesame, red pepper, eggplant, pineapple, cucurbits, etc. They also had dye plants, indigo, arnoto, and many other varieties of wild plant products. In permanent agriculture, buffalos were used in their wet rice cultivation, but the forest dwellers raised this animal chiefly for sacrifices and great feasts.

Girard (1903), in his anthropological expedition in Northern Vietnam, reported on the mountain dwellers in rough wild country as practicing in contrast with the interim wet cultivation in the lowlands. He referred to men as ardent hunters but wretched cultivators. The procedure followed was identical to a good many Asian shifting cultivations: clearing the land, planting temporary

crops until it becomes unproductive, cropping without fertilization or working of the soil, and then abandoning it.

Hoffet (1933) reported that some nine different tribes practise shifting agriculture (rai). The way of life of these tribes is practically the same everywhere. The rai is completely barricaded and provided with traps as safeguards against predatory animals.

Gourou (1940) mentioned of ray agriculture as practised by the Annamites on basaltic soil only and they keep dry-land crops for their ray, leaving non-basaltic soils uncultivated. Gourou recognized the danger of shifting agriculture but he does not condemn it utterly when he says:

The ray system does not permit a density of population, but it conserves soil since erosion attacks only slightly land that is not cultivated, and on which, after the second year, trees grow again, and since the reconstitution of the forest hinders laterizations. The ray system menaces the future of a region if, on account of the increase of population and the demand for food products, the rays succeed each other too closely; the soils, under such conditions, are exhausted and eroded at the same time. An unfortunate development of this kind is noted in certain too heavily populated parts of the Netherlands Indies (Celebes). But, practiced with the unconscious wisdom of the Indochinese mountain people, the ray-cultivation is a sufficiently prudent techniques of soil utilization in broken country.

#### **CAMBODIA**

Allouard (1951) reported an interesting study on some 1,500 persons at various stages of cultural development toward a modern way of life. These persons are practising shifting cultivation on apparently very poor land unfit for any cultivation. He advocated a system of establishing pilot plantation for proper agriculture and the use of the psychological approach in curtailing

wastage of natural resources occasioned by shifting cultivation.

Huard and Maurice (1939), in their studies in the ethnographic sections of now Cambodia and Vietnam, reported on a group of people known as the Minong and classified them as natural-born despoilers in agricultural clearing called "mir", a word equivalent to ray. The richness of the soil determines the years the "mir" is occupied. The period on cultivation of the clearing and fertilization depend on the amount of wood-ash after burning. The location of the clearing changes so are the villages.

#### **LAOS**

Describing his trip in Laos, Bock (1884) noted great destruction of the forest and its transformation or degradation from forest to grassland due to ancient cutting and exploiting of teaks and valuable timber, in what is now known as the "slash and burn" agriculture.

Credner (1935) described the various types of agriculture followed by various groups of people. Slight modifications were noted as to type of implements used in cultivation as well as the crops used. In general, the study refers to shifting agriculture.

#### **CONCLUSION AND RECOMMENDATIONS**

A general prescription to cure the socio-economic problems brought about by shifting agriculture is not possible even for a limited region such as the Asian Area. Situations vary from country to country; in fact, it has been shown that even in a single country, circumstances are such as to indicate the need for various remedial approaches. Too, in some countries, this type of agriculture seems a "must" to some groups of people who have not entirely abandoned their nomadic habits, or who because of tribal wars and terrorism must have to move from place to place.

Among the suggestions offered by various investigators are the following.

1. Concentration of the nomadic groups into permanent settlements;
2. Demonstration through pilot projects of the effects of improved techniques in up-land cultivation to improve living conditions;
3. Establishing reservations for the particular system of cultivation suited to the area and improving the crops by introduction of suitable implements;
4. More rigid control in the cutting of trees and allocation of lands that could be cultivated under the swidden system;
5. Promote farm education, including health and sanitation;
6. Selection of forest or grazing lands that could be allowed under this system of cultivation;
7. Undertake more studies on the effect of the destruction of forest on the areas far away from the origin of destruction and give the results wide dissemination;
8. Establishing permanent timberland for reservation and utilization purposes where shifting cultivation must be rigidly kept out;
9. Release for agriculture land not needed for forest purposes;
10. Limitation of the clearings only within non-absolute forest land.

#### REFERENCES

Bartlett, Harley H., 1957. *Fire in Relation to Primitive Agriculture and Grazing in the Tropics*. Ann Arbor: Department of Botany, University of Michigan, U.S.A., Vol. II. (Citing: Allouard, P., 1951, pp. 27-28; Barrau, J., pp. 78-81; Bock, C., 1884, pp. 163-165; Credner, W., 1935 pp. 335-336; Cressy, G. B., 1934, pp. 337-338; Cupet, P.P., 1900, pp. 351-356; Girard, H., 1903, pp. 527-528; Gourou, P., 1940, pp. 563-566; Herwerden, G. A.M. Hondius van, 1916, pp. 650-653; Hoffet, J. H., 1933, pp. 662-665; Hoffmann, A., 1912, pp. 665-666; Huard, P. & Maurice, A., 1939, pp. 739-740; Huberman, N. A. et al, 1949, pp. 741-742; Ishii, S., 1917, pp. 770-771; Joachim, A.W.R. & Kandiah, S., 1948, pp. 813-814.)

Gill, Tcm, 1959. *Forestry Proposals for the Philippines*. (Report to the International Cooperation Administration (U.S.A.) and the National Economic Council (Philippines)).

Marshall, Colin, 1957. *Land Utilization in the Humid Tropics: Forestry*. Proceedings of the Ninth Pacific Science Congress of the Pacific Science Association, Vol. 20, pp. 148-156.

Pelzer, Karl J., 1957. *Land Utilization in the Humid Tropics: Agriculture*. Proceedings of the Ninth Pacific Science Congress of the Pacific Science Association, Vol. 20, pp. 124-140.

Royal Forest Department, 1960. *Brief Information on Shifting Cultivation in Thailand*. Bangkok, Thailand.

Thein, U., 1959. *Problems of Shifting Agriculture—Burma*. Office of the Chief Conservator of Forests, Burma.

Wyatt-Smith, J., 1958. *Shifting Cultivation in Malaya*. MALAYAN FORESTER, Vol. XXI, pp. 139-152. (Citing: Williams-Hunt, P.D.R., 1952, p. 140; Arnott, D.B. & Smith, J.S., 1937, p. 148).

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#### ORGANIZING FOR FOREST . . .

(Continued from page 16)

and highly specialized knowledge. Another could concentrate on entomology, pathology and wood preservation and another on seasoning or some other important field. Thus each laboratory could retain complete freedom of action and go as far as desired in covering other fields. But, by constant exchange of information and joint consideration of programs, they could greatly supplement each other's work and together make greater progress, serve their respective countries and cover the entire field alone.

In short, forest products research can be exceedingly beneficial and profitable to any country that needs it if the research institution and program are of a size and character to meet the needs of the country and organized, supported, and administered wisely. Otherwise it can be a great disappointment.



# Silviculture of Tropical Rainforest with Special Reference to the Philippine Dipterocarp Forest<sup>1</sup>

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## TROPICAL FOREST AND THEIR SILVICULTURE

As a background to the development of silviculture of the Philippine dipterocarp forest and its present management, it would be well to briefly review forest formations of some countries in the tropics and the silvicultural systems being practised therein.

The three main tropical forest formations are: American, African and the Indo-Malayan.

**Tropical American.**—The original forests of Trinidad and Tobago consist of evergreen seasonal forest of the Crappo-Guatecare Associations (5, 8, 12, 31). They had been subjected to exploitation, burning and shifting cultivation during the later part of the nineteenth century. These forests consists of several tiers of vegetation interlaced with woody vines and numerous understory with only a few species of commercial value. The forests of British Guinea (17) are composed mostly of greenhard (*Demara greenhart*). The greenhart forest has an evergreen canopy (attaining heights up to 130 feet and diameters of 40 inches). It occurs as a dominant and moderately gregarious species over small forests of rain and evergreen seasonal forests on light sandy loam soils, being oc-

casional to locally frequent in other types of forest on any kind of soil.

**African.**—For tropical Africa, Nigeria and Guinea-Congo (comprising Ivory Coast, the Camerons, Gabon and the middle Congo) forests are taken as examples. The forest of Nigeria (7, 23) consists of patches of closed high forests, rarely more than a few acres in extent. They are characterized by the abundance of large upper story trees and dense middle and lower stories. The forest would give a general impression of a collection of large trees growing in a tangle of vines, rather than a dense wood or thicket of trees in which large vines occur sporadically. The cause of the deterioration of the forest must have been due to widespread shifting cultivation sometime in the past 100 to 400 years, and the heavy exploitation during the later part of the 19th century.

The forests of Guinea-Congo (4) contain hundreds of species of which very few are used. They also contain valuable timber for veneer (*Okoume*, *Aucoumea klaineana*), cabinet making (*Khaya* and *Eutandrophragnea* species) and excellent lumber (*Iroko*, *Cholophora excelsa*). These are the species presently exploited and exported from these territories. The valuable species are unfortunately located in extremely localized geographic areas where they usually grow in scattered groups. Taking all the commercial species together, only an average of about two trees per hectare are cut for export.

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<sup>2</sup> The author was elected Chairman of the Committee on Tropical Silviculture.

Indo-Malayan (14).—Generally, the Dipterocarp forest is a tall, tropical lowland forest characteristic of this region. It receives its name from the species of the family *Dipterocarpaceae*, which are the dominant trees occupying the stand. The Dipterocarp forests extend from northern India through Ceylon, Burma, Indo-China, Malay Peninsula to Java, Borneo and the Philippines. They occur usually below elevations of 1,000 meters and show the greatest development at low elevations. Large vines are a characteristic feature of dipterocarp forests and in poorer-developed types of forest they become prominent (14, 28, 46).

The Philippine Dipterocarp forests, from which come the internationally-known "Philippine Mahogany" in the world market, belong to this forest formation.

*General characteristics of tropical rainforest.*—The tropical rainforests in these countries are generally characterized by several layers of vegetation and an astonishing multiplicity of species, many of which are of no commercial value (46). The top layer usually consists of the useful and principal-emergent species, and the lower layers are usually composed of trees which have little or no commercial value. Other characteristic features of this forest are the emergent species which are intolerant and if given sufficient sunlight, grow rapidly in height. If wide openings are made, several fast-growing woody miscellaneous species, weeds and vines rapidly take over the exposed area (5, 7, 35, 39, 40, 50).

*Object of Silviculture in the tropics.*—The primary silvicultural objective is to ensure that every crop of timber removed from the virgin forest shall be succeeded by another crop of the same or similar kind of timber. After the initial harvest the next job is to grow, build up and produce trees that will yield high quality and quantity sawtimber and veneer logs. (21). The secondary objective is conversion of mixed forest composed of many species to better and lesser number of species but of greater com-

mercial value through elimination of the unwanted species or inter-planting of the favored species, while at the same time promoting natural regeneration at the smallest cost and to produce other economic potentialities of the timber stand best suited for pulpwood, matchwood and other secondary uses (21, 18, 11).

*Silvicultural Practices in Tropical Rainforest*

The difficulty in the practice of tropical silviculture is the great diversity of species and growth forms, presence or even dominance of large number of economically defective individuals having no productive value on the site and only taking up the space for desirable species (18), the rapid growth of vines, weeds and other species after a heavy opening of the forest canopy and the practice of shifting cultivation (kaingin). Many attempts were made to develop some silvicultural practices for these evergreen hardwood forests through natural and artificial methods.

*Tropical Shelterwood System* (5, 7, 12, 23, 25, 30, 37, 38, 39, 40, 50, 51).—Natural regeneration is induced under partial shade or shelter of clean-boled dominant trees by careful and gradual opening of the stand. The purpose of the gradual opening of the stand is to introduce light gradually so as not to shock the advance reproduction of still tolerant species and also to induce more and better reproduction.

This silvicultural system is practised in Trinidad and Tobago, Puerto Rico, Gold Coast, Malaya, India and Ceylon. In general the forest crop produced under this system is composed of fast-growing, light-demanding species and valuable forest crop. Foresters in tropical countries have used this system in achieving the objectives of refining heterogeneous forest by natural means, often without recourse to planting.

This system is successful in these countries and there appears to be bright prospect of applying it to poorly stock secondary forest in the Philippines.

*Clear felling over natural seedling regeneration* (2, 21, 26, 27, 28, 29, 43, 44, 51).

—This method involves the complete removal of the original stand except the immature and advance growth of timber species which are of good form, undamaged and considered valuable to be returned. This is followed by poisoning, (either progressively as felling is completed, or over the whole compartment immediately afterwards and before the extraction tracks becomes overgrown), the standing trees and poles down to two inches diameter. The Malayan clear-felling is a mixture of felling and poisoning and the ground is by no means clear at any-time during the operation, except in the immediate vicinity of felled stems and along the extraction tracks.

This system is presently practiced in Malaya and North Borneo. It has produced valuable forest composed of economic species. Experimental plots show that most of the meranti (soft-wooded *Shorea* spp.) responds and develops most vigorously when exposed to full overhead light. Other economic species respond similarly. Its application in the Philippines seems unlikely because the composition of her virgin forests is generally much better than those of the aforementioned countries.

*Selection system* (39, 40).—A part of the growing stock volume is removed by periodic cuts. This system is practiced in Ceylon tropical forest composed by *Mesua-Doona-Shorea* Associations. It has effected the improvement of the stand by increasing the proportion of the economically valuable species by providing conditions of increased growth and increment and it causes no degradation of the forest.

A modified selective system is now generally practiced in the Philippine dipterocarp forest.

*Conversion of degraded forest to productive forest* (3, 4, 7, 8, 10, 11, 15, 16, 18, 20, 22, 26, 27, 32, 33, 34, 49).—*Conversion refining*, or *enriching* degraded forest is conducted by opening at random or otherwise. The desirable species are either sown, under or inter-planted into these openings in regular or irregular spacings.

Another system of refining degraded forest is the *Taungya* system of establishing forest plantations. A designated or assigned part of the government land is divided into small blocks which are leased to local farmers or peasant contractors for temporary agricultural production. In lieu of land rent the farmer progressively replants the area to forest trees. The forest seedlings furnished by the government are taken cared of by the farmers until well established, after which the reforested land is returned to the Government.

This system is now practiced in Burma, India, Thailand, Indonesia, Trinidad and Tobago, West Indies, Belgian Congo, Nigeria, Puerto Rico, Mexico, Honduras and Guatemala.

Remarkably fine forest plantations in these countries have been successfully established by using the following tree species *Tectona grandis*, *Acacia* spp., *Terminalia tomentosa*, *Dalbergia sisoo*, *Terminalia superba*, *Aucoumea klaineana*, *Swietenia macrophylla* and *Eucalyptus deglupta*).

It is hard to predict at this time how this system could be successfully applied in the Philippines. A form of this system—special reforestation permits—was tried before but it was a failure.

The tree farm lease system—a misnomer—to encourage private initiative in reforestation of bare and denuded areas in public forest lands with agricultural trees has been encouraged but has been suspended due to encroachments into forested areas.

## THE PHILIPPINE DIPTEROCARP FOREST

### *Relevant physical conditions of the Philippines*

*Location* (35).—The archipelago, one of the group of the Southeast Asia islands, lies between 4° 40' N and 21° N latitude and 116° 40' E and 126° 30' E longitude.

*Geological formation* (28).—Most of the islands of the Philippine Archipelago

contain a core of metamorphic and plutonic rocks. These are overlain unconformably by rocks of Tertiary age and possibly by rocks of late Mesozoic age. The older rocks have been grouped together as a basement complex that is believed to be largely pre-tertiary in age. Numerous geologists have described the tertiary rocks and rocks of the basement complex from various parts of the Philippines.

*Climate* (14).—The climate of the Philippines may be classified as a monsoon climate, that is, rain depends upon rain-bearing winds which shift their directions twice a year. It is divided into two classes and further into four climatic types. The first class, marked by very distinct wet and dry seasons, is found generally in the western part of the country. The second class, marked by no pronounced wet and dry seasons, is found in the eastern part.

The four climatic types are:

- a. 1st type.—Two pronounced seasons, dry from November to April, wet during the rest of the year.
- b. 2nd type.—No dry season with a very pronounced maximum rainfall from November to January.
- c. 3rd type.—Seasons not very pronounced; relatively dry from November to April and wet during the rest of the year.
- d. 4th type.—Rainfall more or less evenly distributed throughout the year.

Luzon, having more pronounced rainfall than Mindoro, has two classes of climate. Mindanao has the second class only or the second, third and fourth climatic type types of rainfall.

The average rainfall (14) for the western part of the Philippines, with seasonal climate, is 2,327 millimeters, and the eastern part, with non-seasonal climate, is 2,273 millimeters. Rainfall of the seasonal climate

varies from 1,888 millimeters to 3,954 millimeters and the non-seasonal climate from 905 millimeters to 3,859 millimeters.

### *Forest Description*

*Classification, distribution and altitudinal range* (38).—The dipterocarp forests of the Philippines occur throughout the archipelago, except in high elevations of Mt. Province in Northern Luzon, Mindanao and some parts of Mindoro. It is a tropical rain forest. Its composition, distribution, growth and development are influenced by the distribution of rainfall brought by the monsoons. This forest thrives well on well-watered plains, gentle or rough slopes of mountain masses and low plateaus with deep loamy clay soil of volcanic origin. It does not grow well at elevations 800 to 1,000 meters and seldom found in sandy beaches and muddy flats. The different sub-types of the dipterocarp forest are: the Coastal Type or the Yakal-Lauan (Hopea-Philippine Mahogany) Association; Main Forest Type (all Lauans-Philippine Mahogany) on the plains and base of mountains; the Moist Soil Type with Lauan-Hagachac (Philippine Mahogany — *Dipterocarpus warburgii*) Associations; the Dry Climatic Type with Lauan-Apitong (Philippine Mahogany — *Dipterocarpus grandiflorus* Blco.) Association and the Mountain Type, the Tangile-Oak (*Shorea polysperma* (Blanco) Merr. — *Quercus spp.*) Association (1, 35).

The Dipterocarp Forest Type in the Philippines is considered the most highly developed of the country's wet evergreen associations and also economically the most valuable high forest type because it contains the highest proportion of light hardwoods and heavy hardwoods.

*Composition*.—The dipterocarp forest, as viewed, is mainly a dipterocarp type because almost all of the upper canopy is composed of *Dipterocarpaceae* species which surpass most of other species in size, number, volume and value in the stand. Underneath the upper story are the middle story tree species of other families which are

composed of fair-sized trees with leaves under the branches of those of the top story. The third layer is composed of small trees, about 10 to 12 meters high, having a relatively small amount of foliage. The ground cover varies at different elevations and is composed of numerous ferns, herbaceous species and small woody shrubs (plate 1-A & B). Usually, large vines are a distinct characteristic of this forest and in poorly stocked stands, vines become prominent (14).

Out of the 51 species belonging to 8 genera credited by Foxworthy to the Philippine *Dipterocarpaceae* family (35, 47), only about 10 are considered valuable from the stand point of commercial volume removed, utilized and exported. These are: red lauan (*Shorea negrosensis* Foxw.), tangle (*Shorea, polysperma*, (Blco) Merr.), mayapis (*Shorea squamata*, Dyer), Almon (*Shorea almon*), bagtikan (*Parashorea plicata*, Brandis and *P. warburgii*, Brandis), white lauan (*Pentacme contorta* (Vid.) Merr. & Rolfe and *P. mindanensis*, Foxw.) mangasinoro (*Shorea philippinensis*, Fox), kalunti (*Shorea kalunti*, Foxw.), and apitong (*Dipterocarpus grandiflorus*, Blanco), and *D. warburgii*, Brandis) and other species of the apitong group and *Anisoptera*.

*Stocking and stand structure.*—The number and volume of trees per hectare of virgin dipterocarp forest vary in different regions. (Stocking and stand structure of virgin dipterocarp forest is shown in Table 1 and Plate 1-A).

### Secondary Forest<sup>1</sup>

Secondary forest in the Philippines varies in composition within itself, in accordance with the degree or extent of logging operations and destruction caused by kaingineros. In logged-over areas where partial cutting or openings were made as in most selectively

<sup>1</sup> Forest that develops after the virgin dipterocarp forests has been cut-over by logging or kaingin or altered by fire, but still dipterocarp in character or shows tendency to return to the dipterocarp type.

logged areas, many seedlings, saplings and other young forest growths are present (Plate 2-A & B). They are responding vigorously to the increased light and successfully competing with fast-growing miscellaneous species. In some such areas 5 to 10 years after logging, a dense thicket of woody growth, composed of young dipterocarps and other useful and miscellaneous species, have generally freed themselves of vines and other herbaceous species and have thinned out sufficiently to permit movement below the canopy (45, 51). This new stand is already well established (Plate 3-A).

In cut-over areas where destructive logging had taken place, numerous wild bananas, vines, herbs, as well as overmature and defective trees of the original crop and useless trees of other species occupy the area (14, 46, Plate 4-A & B). Some limited patches of reproduction of the favored species may be present.

The areas which were cleared, burned, farmed for a number of years and later abandoned, are invaded by short jungle species such as *Trema*, *Mallotus*, *Ficus*, *Homolanthus* and *Macaranga* species and cogon (*Imperata cylindrica* and *I. Exalta*). Due to past large scale shifting cultivation, such secondary forests and cogon areas occupy large portions of the country (Plate 5-A).

### Silviculture

*Nature and Objective of Silviculture and Management.*—Silviculture of Philippine dipterocarp forest at this stage consists simply of: 1) saving as many young trees of the present commercial species for sawtimber (sawlogs and veneer logs) from damage and destruction during the process of removal of mature and overmature timber in the virgin forest and 2) improvement through prescribed silvicultural treatments of the residual growing stock in quality and quantity. We have to convert such overmature timber to usable commodity and wealth as soon as possible but within continuity of operation from virgin forest cutting to resi-

dual stand cutting and retain an adequate residual growing stock for future cutting.

The present silvicultural system aimed at is the eventual conversion of the virgin forest containing mature, overmature and defective trees into a stand of lesser number of species but of greater commercial value and consisting mainly of higher proportion of the best quality Philippine Mahogany species through natural methods (46, 51). The residual growing stock after logging the virgin forest is roughly estimated to yield sizes and volume profitable to cut 30 to 50 years hence, depending on the climatic region and site. The sustained yield capacity, cutting cycles and allowable annual cuts of virgin forest leading towards sustained yield management are calculated based upon this growing stock and available growth data. The primary and immediate objective is to harvest the mature and over-mature timber of the virgin forest leaving an adequate residual growing stock, and thereafter to improve, grow, build up and produce successive growing stock of trees that will yield high-quality sawtimber and veneer logs by unevenaged silviculture.

Incidentally, in leaving standards, many seedlings, saplings and poles of the dipterocarp trees and other useful species are saved from destruction during logging operations, which may later be developed for other objectives of forest management, such as, pulpwood, matchwood, polewood (pilings and electric and communication poles) and other uses.

Along with this, the demarcation of forest areas primarily for sawtimber production and secondarily for pulpwood, matchwood, polewood production and other wood material products for other uses is being undertaken. As diversified wood utilization develops and results of silvicultural studies become available, either of the objectives other than sawtimber may be primary and sawtimber secondary in one area. A multiple use management may eventually be adopted in same areas each of which may be further

zonified into blocks, each block treated either for two or more objects or purely for one object. Silvicultural treatments and management shall be harmonized with integrated utilization that will develop.

*The diameter limit system or the pre-1953 selective logging system.*—The diameter limit system is still commonly practiced in small timber license areas where timber management officers are not yet assigned to mark the trees to be cut or to be left. The diameter limit is 60 centimeters for the first group; 40 centimeters for the second group, Apitong (*Dipterocarpus grandiflorus*), Palosapis (*Anisoptera thurifera* (Blanco) Blume), and other dipterocarp species belonging to the second or lower groups less than 50 centimeters in diameter, breast-high, shall be cut except in rights-of-way and agricultural lands (41, 46). The cutting rules also provide for the protection of the residual stand from destruction and for the maintenance of good silvicultural conditions of the forest after logging. These rules were only good on paper. The lack of funds and technical men to check and supervise the logging operations on the proper observance of the cutting rules resulted in cutting the forest in the manner the operator wished. Studies on the effect of diameter limit without supervision and penalties on the dipterocarp forest revealed that an attempt to limit the cutting in a virgin stand of dipterocarps by means of a diameter limit of any reasonable size usually did not limit the cutting at all, but results in a clear cutting operation (14) and its replacement by another of entirely different type (41, 46). It was also found out that it will take many years, if ever, for the dipterocarps to dominate again the site. However, much of the cut-over areas were later on released for agriculture.

*Selection system with variations or the post-1953 selective logging.*—The cutting practice in the Philippines was gradually changed, starting with limited trials from the diameter limit system without supervision in

1953 to the present modified selection system, popularly known now as "selective logging"<sup>2</sup> for convenience and simplicity of, or for clearer understanding by Filipino loggers. This is a modified selection system called locally as "selective logging". Some foresters, especially those who had been accustomed to, or had their experiences mostly in temperate forests, may have the impression that this system is synonymous to "high grading" or selecting only the best trees that are absorbed by the market and leaving behind a forest containing a high proportion of useless, defective and weed trees, but it is not so. It does not follow strictly the selection system as practiced in Europe and the United States because the composition and structure of the dipterocarp forest and present system of harvesting the virgin forest, mostly situated in rough areas, do not warrant the strict application of pure selection system.

The system practiced in the Philippines is not highly developed because it was just intensively begun in 1957 and logging is presently conducted in virgin forests, containing a high proportion of mature and over-mature trees, which should be removed as early as possible, and many other species having no commercial value today. Duschek (19) states: "Attention must be called to the noteworthy fact that forestry frequently begins with primitive selective cutting and ends with the highly-developed selection forest". The present method practiced provides for sustained yield by carrying out marking techniques to ensure the maintenance of reasonably attainable size classes and leaving adequate number and volume of healthy residual trees and other useful species necessary to assure future timber crop (42) and to free desirable seedlings, saplings and poles from suppression by girdling or poisoning defective trees that are

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<sup>2</sup> Selective logging was first implemented in the Basilan Forest Reserve, Basilan City, Philippines on a trial basis and later on applied throughout the Philippines.

hampering the growth and development of more valuable tree species (46,51).

The system adopted so far in this country is, by observation, in harmony with the silvicultural needs of the species, the method of harvesting the mature stand as required by topography and timber stand structure and the economic needs of the country (35). The techniques of this system are described in detail in the following pages.

The Bureau of Forestry, alarmed by the general practice of timber licensees of leaving understocked or bare logged-over areas in the process of logging and the prospect of timber shortage after the virgin timber will have been exhausted, launched the practice of selective logging in all timber license areas operating in the public forest (35, 46). The justifications behind the adoption of selective logging are (35):

1. It had been observed that the dipterocarp forest due to stand structure, reproduction and growing habits and responses to increased light after logging lends itself better to a selection system with variations.

2. Sufficient number of young trees of many size classes can be saved under careful logging and can survive and grow vigorously many years after logging. It would be a waste of wood material to destroy such valuable and highly potential sawtimber trees.

3. A residual growing stock to mature in a shorter period than seedlings is needed for continuity of operation after primary logging. A gap logging operation is feared to occur in many regions in the country if the seedlings now found or to be established are depended upon for the next cut, because there are not enough virgin forested areas to tide over the operations of timber operators until such time the regenerated crop from seedlings shall be ready for the next harvest (46).

Besides, in the process of conversion by the uniform or clear-cutting system, the forest is locked up and idle for about half a rotation. Through the selection system, conversion may be completed within half of the

rotation and perhaps even shorter and the whole forest can be made to approach its potential sustained yield capacity much more quickly (13).

### *Tree marking and Residual Inventory Procedures*

*Tree marking.*— The minimum objective for a residual stand after logging is to leave approximately 60 per cent of the number of trees in the 20-to 70-centimeter diameter class groups of Philippine Mahogany species<sup>3</sup>, including softer dipterocarps, *Dipterocarpus* and *Anisoptera* species and other trees commonly cut for lumber and veneer for plywood.

Before tree marking is conducted, a 5 per cent sampling by circular plots of the virgin forest for each logging set-up<sup>4</sup> is done to determine the minimum requirement of 60 per cent of the number of trees in the 20-to 70-centimeter diameter class group as the goal for the future residual growing stock which should be well distributed in the diameter classes to be left uninjured (35, 45, 46, Table 2).

Tree marking prior to logging operation is the method of controlling cutting in timber license areas. Trees to be left and to be cut are marked in many logging operators' areas but in all license areas placed under closer supervision, trees to be left are always marked. The tree's number, species, diameter and log lengths are filled in the tally sheets. The purpose of marking trees to be left instead of marking trees to be cut at the beginning or early stage of implementation of selective logging is to orient the loggers on the trees the Government wants to leave as future growing stock and for discipline (35, 45). (However, as soon as the licensees and their loggers will have become used to carefulness in felling and skidding, only marking trees to be cut (the usual method

of tree marking may be required.) Trees to be left in some timber license areas are numbered by red or yellow paint with a horizontal band on both sides of the numbers. In other license areas, trees to be left are spot-marked horizontally by marking guns; trees to be cut are spot-marked by three vertical dots. More trees are marked to be left in the lower diameter classes and less in the upper diameter classes. At times all the 70- and some or all of the 60-centimeter diameter classes are allowed to be cut where a preponderance of the lower diameter class trees occurs, provided that such number of trees of smaller diameters will make up for the exploitable volume at the end of logging the virgin forest. This minimum percentage is what could be practically saved from injury or damage in mechanized logging where-in care is exercised to the limit of economic operation, as found in several logging studies. By more improved techniques in tree marking and logging, an increase in the number of healthy residuals is possible. In some license areas, more than 60 per cent of the original number of Philippine Mahogany trees in the 20- to 70-centimeter diameter classes were saved.

In particular stands that are overstocked with mature and over-mature trees and understocked in the lower diameter class groups, the total number of trees marked to be left for the growing stock is 40 per cent of the entire stand. This is to prevent too severe reduction of stems and exposure of the soil (46).

For stands understocked or poorly stocked with Dipterocarp species and other useful trees where standards are wanting, a few seed trees are left to insure natural regeneration (46).

### *Felling and Yarding Techniques*

*Felling* (35, 42, 45, 46).— Felling is conducted in such manner so that trees marked to be left are not injured or damaged during logging operation. This calls for careful notching (undercutting) and sawing

<sup>3</sup> Refer to composition of *Dipterocarpaceae* Family, pages 76 and 77.

<sup>4</sup> A logging set-up is a yarding unit area of logging operation and the smallest unit of management in the Philippines, ranging from 8 acres to 60 acres in area.



such that the trees are directed to places where they may cause the least damage to the residual stand, which practice is co-incidentally, in many cases, favorable to yarding or skidding (Plate 6-A). Trees to be cut, having slight or heavy leans, or crowns branched or forked on one side have to be felled with the aid of felling wedges and leaving of uncut wood portion along the felling sawcut line, to throw them away from groups of young trees.

Unlike pine trees, the wide spreading crowns of dipterocarp trees cause a lot of destruction in felling. But, as long as dipterocarp trees to be cut do not directly hit smaller trees, that is, bole to bole hitting, injury to residual trees can be held at reasonable level. Hence, tree markers and fallers in the Philippines have to be proficient in estimating the heights, crown diameters and the best direction where the tree should fall in order to minimize destruction to the young crop trees.

*Yarding* (35, 42, 45, 46). — Present system of yarding in the Philippines is mostly mechanized using stationary yarders and mobile skidders. Because of the high power of these engines, many young trees are knocked down, broken or seriously damaged during logging operations. However, these damages could be kept to the minimum by the proper choice of the yarding equipment, good logging techniques and effective supervision of the work. Some of these techniques are:

1. In preventing destruction on ridges and slopes, sometimes a bullblock is placed at the middle of the half-moon yarding loop. This saves many young desirable trees on slopes which would have been destroyed by the downward sweeping force of the uncontrolled logs being yarded.

2. Extended chockers are used for reaching isolated logs felled between major cableways. This saves marked trees near cableways from being swept away during yarding.

3. Fender logs (log guides) are placed on the slope on the cableway site of marked trees to minimize the rolling of logs on hill sides and to shield marked trees along the cableways.

4. In areas where tractor logging is conducted, roads and backtrip trails are laid before yarding operation starts. This guides tractor operators when skidding logs from the cutting area to the landing instead of penetrating any place of the cutting area to cause greater damage to young trees. With winch and wire-rope, the tractor on the road pulls the logs out of the cutting area.

*Residual Inventory.*— After a set-up is logged, an enumeration, termed locally as “residual inventory”<sup>5</sup> is conducted to determine whether the goal of tree marking is attained and to have a record of future crop trees for management purposes. Presently, the method of inventory (enumeration) is checking in the tree marking tally all the healthy residual trees<sup>6</sup> in each set-up which of the marked trees remained undamaged and which were injured. The criteria (35, 45) being followed in this inventory are: A tree is considered healthy if it has no injury or damage at all or provided such injury does not exceed the following: 1/6 of the crown severed or badly damaged; 5-centimeter wide and 50-centimeter long abrasion on the trunk, reaching the wood more or less along a straight line parallel to the trunk; 1/2 of the circumference at any place on the trunk girdled or deeply indented by wire rope reaching the wood; 1/3 of the number of buttresses badly battered; and 1/6 of the root system removed or disturbed. A tree with injuries exceeding the above, is considered doubtful or substandard, that is, it may not survive or may become very defective eventually; this tree is not counted. When the results

<sup>5</sup> Residual Inventory, synonymous to assessment or enumeration, is conducted after logging any set-up.

<sup>6</sup> Healthy residual tree — a thrifty, sound and well-formed tree of the desired species without or with slight injury.

from adequate studies will have been available, these criteria will be revised accordingly. Each log of the tree from but to top is roughly graded for financial appraisal in the next logging operation.

The year the areas were logged-off are indicated in progress maps for use in management planning, particularly for scheduling the cutting of the residual stands in the next cutting cycle.

A timber licensee or operator is fined four times the regular rate of forest charges on trees marked to be left that are cut, carelessly destroyed or injured plus the reforestation fund charges, the object being to minimize logging damages and attain the goal of an adequate, undamaged residual growing stock in a particular set-up.

#### *Some Accomplishments*

The implementation of the selective logging program, started intensively over 5 years ago, is showing encouraging results. We have increased the number of healthy residual trees from about 5 trees per hectare to 20 to 38 trees per hectare. We have already implemented this program in 131 timber licenses covering about 1,870,650 hectares of public forest lands (as of June 30, 1960) by instituting tree marking, logging techniques and supervision. Logged-over areas with more residual growing stock is already about 50,700 hectares.

#### *Timber Stand Improvement*

The primary silvicultural operation to improve growth, quality and quantity of the residual growing stock, consists of felling or girdling of wolf-trees and other trees of low quality which are directly interfering or competing with the development of the crop trees. Lack of inexpensive and tested silvicides for the killing of useless trees led the Bureau of Forestry to girdle such trees by the use of axes and machetes (large knives and bolos). Girdling of unwanted trees is usually done in dense stands of saplings and poles growing directly under the high-crowned layer of useless trees (4) and are

oftentimes conducted farther away from the vicinities of spartree landings. This is to prevent too wide openings around heavily opened-up spar-tree areas. In general, cultural treatment will be limited to the release of potential crop trees in groups of young dipterocarps overtopped by defective and de-form trees.

In openings around spar trees, landings and concentrations of felled-tree tops in which natural regeneration of the desirable species are lacking, planting of dipterocarp wilding, mahogany (*Swietenia macrophylla*), teak and other seedlings of commercial species, endemic or exotic suited to the site and object material of management, are being conducted to supplement the natural regeneration processes. Trial planting, conducted in logged-over areas at Basilan Island, Philippines showed a survival of 70 per cent for transplanted partially-balled dipterocarp seedlings (46).

With the increasing interest shown on other less desirable species for sawtimber but found good for pulp, wallboard, and matchwood products, it is also essential that progressive silvicultural practices suited to these species will be applied.

#### *Forest Management Researches*

*Previous studies.*—Our research work was set back to its initial state because the records of researches conducted for years past were burned during the Japanese occupation and the experimental plots destroyed. It would take years before appreciable and reliable data could be available upon which to base our forestry practices.

*Present researches.*—The present forest management researches affecting directly the dipterocarp species are:

1. Growth plots for determining the growth and mortality rates of dipterocarp trees and other useful species in the second growth forest.

2. Timber stand improvement plots in logged over area for determining the growth of poles and standards when released by girdling wolf and defective trees. This will

determine the amount or degree of releases that shall be done to dense group of dipterocarps growing directly under high and wide-crowned overwood trees.

3. Timber stand improvement studies for determining the optimum growing stock level of second growth dipterocarp forest. This is merely converting degraded forest into productive forest by *purifying* or *enriching* the stand.

4. Study on cheapest but most effective silvicide for poison-girdling.

5. Study on effect of kind and size of injuries inflicted by logging on residual trees for the purpose of revising or improving criteria on healthy residual or crop trees.

#### *Future researches —*

1. Conversion of badly cut-over areas to pure stand of pulpwood trees.

2. Study on mixed stand of the native dipterocarps and the exotic large-leaf mahogany species to determine whether or not the latter species starting from seedling can overtake the dipterocarp poles at the end of the cutting cycle. The possibility of logging at one time during the second cutting cycle of both the Philippine Mahogany residual stand in the uncleared area and large-leaf Mahogany species in the cleared portions of a high-lead area will be determined.

#### *Program of Silviculture and Forest Management Work*

a. *Establishment of ground continuous inventory plots.* — Continuous forest inventory plots are already established in the Lianga Bay Logging Company, (Surigao, Mindanao, Philippines) and similar work of this nature will be conducted in working circles in each climatic region in the Philippines. The main purpose of these plots is to guide the management of forest working circles through periodic information on the growth and extent of decay and mortality of dipterocarps following logging injury and thus be able to determine the allowable cuts and prescribe the cutting budgets. These continuous inventory plots serve as the "meters" of the working circle

to guide the forest manager so that the working circle will produce efficiently and continuously the wood materials needed by wood industries.

b. *Application of aerial photogrammetry.* — Aerial photogrammetry in virgin forests will soon be applied in the Philippines. Through the help of the National Economic Council of the Philippines and International Cooperation Administration of the United States Government Filipino foresters are being trained abroad for this purpose and American technicians will be sent to the Philippines to assist in the speedy prosecution of this very important program. Mapping of the various forest types will be conducted. The present growing stock of the forest will be determined and an overall long range management plan will be prepared. The virgin forest will be then managed more efficiently and scientifically because we may be able to know the extent and volume of our remaining forest, thereby adjusting its management to conform with the sustained yield program of the Government.

c. *Cultural treatments of logged-over areas.* — With the rate of cutting the virgin forest in the Philippines, very soon there will be vast areas of second growth forest that need to be treated to promote growth of preferred species from competing vegetation and to attain maximum use of every hectare of the permanent forest lands. The program being undertaken and to be undertaken are:

1. Release of poles, saplings and seedlings of dipterocarps and other useful species in dense stand overtopped by defective and useless trees by girdling, felling or poisoning. This is now conducted in timber management projects.

2. Cutting vines, palm species and miscellaneous species interfering with growth of desirable species. This is also conducted during the marking and residual inventory work in all timber management projects and also a study (with a working plan) on this nature was conducted in the Aras-asan Timber Company at Surigao, Philippines. This

silvicultural work will be conducted in second growth forest more than 5 years old.

3. Planting of areas on which natural regeneration of the desirable species is lacking or nill and also on those areas which had been badly cut-over on which planting is necessary to supplement natural regeneration processes to attain full stocking. This is now being done in timber management projects.

4. Designation and delimitation of areas which will be managed primarily for saw-timber production and secondarily for pulpwood, matchwood and polewood (posts and pilings) and vice-versa.

### *Problems of Philippine Tropical Rain Forest Silviculture*

*Establishment of permanent forest boundaries.*—Delimitation of areas needed for forestry purposes is still going on in the country but during this process the boundaries of permanent forest are not actually established. The lack of clear boundaries laid on the ground of the permanent forest coupled by lack of adequate forest protection has led to the increasing invasion of our forests by squatters. And when a forest is fully occupied and cultivated, in some cases, the Bureau of Forestry finds it difficult to hold this land further. The instability of the boundaries of our permanent forest lands and such boundaries not laid and made distinctly visible by cutlines and paint-marks on the trees along the boundaries and on the ground has made the practice of sound forest management in the Philippines difficult. Once the boundaries of the permanent forest are established we may be able to know the extent and place where sound forestry practices can be applied, formulate better and more effective forest polices and prepare an over-all long range management plan for the Philippine Dipterocarp forest.

*Kaingin-making (shifting cultivation).*—Kaingin-making, known in other countries as "shifting cultivation", or "hill farming" is the principal cause of the destruction of selec-

tively logged areas and the virgin forests. It is the biggest problem of forest conservation in the Philippines which the Bureau of Forestry has not yet solved. Its solution is still far in sight. If kaingin cannot be solved or stopped, the Bureau of Forestry's progress in silviculture and regulation of cut may be rendered futile.

*Log exportation.*—Exportation of logs to Japan, United States and other countries had been tremendous. It has encouraged many timber operators in the country, especially small timber licenses and those without processing or manufacturing plants, to produce and export as many logs as they could because it is much less expensive and commands fast and fat profits. This resulted in accelerated cutting of the virgin forest beyond the present capacity of the Bureau of Forestry to organize working circles and manage them under working plans.

### *Prospect*

The destructive floods in some parts of the country and the droughts causing interruption of hydro-electric facilities are believed by the people to be the result of kaingins and destructive logging. Such belief has stirred the leaders and changed the thinking of the great mass of people to the cause of forestry. Public opinion is now strong for better and sounder forestry practices.

Selective logging is now practised in many timber license areas in the Philippines. Big timber licensees realize that in order to stay in business they need to have an assured wood supply. These business necessity and realization that there are no more sizable virgin forest for expansion compel them to observe more care in their operations notwithstanding that the Bureau of Forestry requires them to do so. Good and tangible results achieved so far have convinced them and are encouraging other timber licensees to follow this practice in their operations. It is gratifying to note this great change and big gain in the timber licensees' attitude toward forestry in the Philippines. With protection of the logged-over areas adequately

stocked with thrifty trees, uninterrupted logging and wood-using industry operations are assured.

As logged-over areas increase, cultural operations to be guided by the results of silvicultural studies already started will be expanded and intensified. Tropical silviculture suited to the Philippines dipterocarp forest, guided by the experience of other countries but most important by the native experience, is being evolved to put forestry on a sounder footing in the Philippines.

### BIBLIOGRAPHY

- (1) Allied Geographical Section, S.W.P., 1944. Vegetation study of the Philippine Islands, (U.S. Army Publications, Library, Bureau of Forestry, Manila, Philippines).
- (2) Arnot, D. B., and F. H. Landon. 1937. The management of Malayan forest under the selection system. *Malayan Forester* 6: 62-66.
- (3) Aubreville, A. 1948. Les bois, richesse permanents de la cote d' Ivoire et du Cameron. (Wood, lasting wealth of Ivory Coast and the Camerons). *Agron. Trop.* 2(9-10), 1947 (463-489). (F). (original not seen, abstracted in *For. Abstr.* 9(2161): 489-440. Imperial Forestry Bureau).
- (4) ————— 1949. Silviculture of mixed tropical rain forest. Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources 5: 114-115.
- (5) Ayliff, R.S. 1952. The natural regeneration of Trinidad forests. Sixty Brit. Com. Conf., Canada 1952. Government Printing Office, Trinidad, B.W.I. 19 pp.
- (6) Barnard, R.C. 1950. The elements of Malayan Forester 13: 122-129.
- (7) ————— 1955. Silviculture in the tropical rain forests of Western Nigeria compared with Malayan methods. *Malayan Forester* 34: 355-366.
- (8) Beard, J.S. 1944. A silvicultural technique in Trinidad for the rehabilitation of degraded forest. *Caribbean Forester* 6: 1-18.
- (9) Becking, J. H. 1949. Forestry technique in the teak forests in Java. Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources. 5: 106-111.
- (10) Blandford, H. R. 1956. Highlights of one hundred years of forestry in Burma. *Burmese Forester* 6: 12-22.
- (11) Brasnett, N.V. 1949. Enrichment of tropical mixed deciduous forest by planting. *Forestry Abstracts*, Imperial Forestry Bureau, Oxford 10(4): 447-454.
- (12) Brooks, R.L. 1941. The regeneration of mixed rain forests in Trinidad. *Caribbean Forester* 2: 164-172.
- (13) Brown, G.S. 1957. Forestry at the Ninth Pacific Science Congress. Documents and Minutes of the Meetings of Forestry Division. Ninth Pacific Science Congress, Bangkok, Thailand. 15 pp.
- (14) Brown, W.H., and D.M. Mathews. 1914-A. Philippine dipterocarp forests. *Philippine Jour. Sci.* 9: 413 + 13 plates, 12 text figures and one map.
- (15) Budowski, G. 1956. Regeneration system in tropical American lowlands. *Caribbean Forester* 17: 76-91.
- (16) Cater, T.C. 1942. The formation of teak plantations in Trinidad with the assistance of peasant contractors. *Caribbean Forester* 2: 147-153.
- (17) Chalmers, W.S. 1958. Observations on some Caribbean forests. *Caribbean Forester* 19: 30-42.
- (18) Dawkins, H.C. 1955. INEAC in the "Forest Dense", impressions of some high-forest research in the Congo. *Emp. For. Rev.* 34: 55-64.
- (19) Duschek, S. 1949. Forest Management—working plans and their adaptation to changing conditions. Proceedings, United Nations Scientific Conference on the Conservation and Utilization of Resources. 5: 76-81.
- (20) Din, U. Aung. 1949. Selection of Silvicultural techniques. Proceedings of the United Nations Scientific Conference on Conservation and Utilization of Resources. 5: 177-120.
- (21) Hodgson, D.H. 1932. Elements of Malayan silviculture. *Malayan Forester* 1: 85-91.
- (22) Humblet, P. 1946. Amenagement des forets climatiques tropicales au Mayumbe. (Management of tropical forests in Mayumbe). *Bull. Agric. Congo Belg.* 37(1): 15-87. (Original not seen abstracted in *For. Abstr.* 8(169):366).
- (23) Jones, E.W. 1950. Some aspects of natural regeneration in Benin rain forest. *Emp. For. Rev.* 29: 108-124.
- (24) Kinkel, A.R. Jr., L.M. Santos-Yniego, S. Samaniego and O. Crispin. 1956. Cop-

per deposits of the Philippines. Library, Bureau of Mines, Manila, Philippines. (Part I, Text). X + 305 pp. (6-9).

- (25) Kennedy, J.D. 1935. The group method of Natural regeneration in the rain forest at Sapoba, Southern Nigeria. *Emp. For. Rev.* 14: 19-24.
- (26) Kermode, C.W.D. 1953. The use of "taungya" in natural regeneration operations. *Burmese Forester* 2: 65-70.
- (27) ————— 1955. Regeneration with the aid of taungya. *Burmese Forester* 5: 86-89.
- (28) Landon, F.H., and G.G.K. Setten, 1957. Forestry and forest research in the Federation of Malaya. *UNASYLVA* 11: 165-171.
- (29) Landon, F.H. 1955. Malayan tropical rain forest. *Malayan Forester* 18: 30-38.
- (30) Mallam, J. C. 1954. Annual report on the forest administration of Western Region of Nigeria for the year 1952-53. Government Printer, Western Region of Nigeria, 36 pp.
- (31) Marshall, R.C. 1939. Silviculture of the trees of Trinidad and Tobago. Oxford. xlviii + 247 pp.
- (32) Murthy, A.S.N. 1946. Taungya cultivation and its extension to plantation work. *Indian Forester* 72: 357-358.
- (33) Ranganathan, C.R. 1949. Selection of silvicultural techniques. Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources. 5: 95-100.
- (34) Ray, Le. 1948. Not sur la regeneration artificielle et les methodes d'enrichissement de la foret danse en Okoume. (Note on the artificial regeneration and methods of improvement of dense (*Avicoumea Klaineana*) forest. *Bois For Trop.* 4(4): 31-40. (original not seen abstracted in *For. Abstr.* 10(191):; 44).
- (35) Reyes, M.R. 1957. Natural regeneration of the Philippine Dipterocarp forest. Document and Minutes of the Meetings of the Forestry Division. Ninth Pacific Science Congress, Bangkok, Thailand. 2: 35-52.
- (36) Renolds, R.R. 1959. Eighteen years of selection timber management on the Cross-set experimental forest. Technical Bulletin No. 1206. U.S. Dept. of Agric. Washington, D.C.
- (37) Robson, M. 1956-A. Annual report on the forest administration of the Western Region of Nigeria for the year 1953-54. Government Printer, Western Region, Nigeria, 35 pp.
- (38) ————— 1956-b. Annual report on the forest administration of the Western Region of Nigeria for the year 1953-54. Government Printer, Western Region, Nigeria, 55 pp.
- (39) Rosayro, R.A. 1953. Ecological considerations in the management of wet overgreen forests in Ceylon. *Ceylon Forester* 1: 80-90.
- (40) ————— 1955. The silviculture and management of tropical rain forest with special reference to Ceylon. *Ceylon Forester* 2: 5-26.
- (41) Serevo, T.S. 1949. Some observations on the effect of different methods of logging on residual stand and on natural reproduction. *Philip. Jour. For.* 6: 363-381.
- (42) Serevo, T.S., and M.R. Reyes, 1957. The implementation of selective logging. *Forestry Leaves* 9 (3 & 4): 39-43, 82.
- (43) Strugnell, E.J. 1947. Developments in silvicultural practice in Malayan evergreen forest. *Malayan Forester* 11: 37-41.
- (44) ————— 1954. Malayan silviculture in practice. *Malayan Forester* 17: 129-131.
- (45) Tagudar, E.T., et al. 1957. Some selective logging techniques and guides practiced in the Nasipit Lumber Company. *Forestry Leaves* 10(2): 29-38 + 8 illustrations.

- (46) Tagudar, E.T., and M.R. Reyes. 1960. Silvicultural practices in some tropical countries and their possible applications in the Philippines. *Forestry Leaves* 12(1): 5-22, 42, 68.
- (47) Tamesis, F., and L. Aguilar, 1953. The "Philippine Mahogany" and other dipterocarp woods. Bureau of Printing, Manila.
- (48) Taylor, C.J. 1954. Research methods and records connected with the tropical shelterwood system in the Gold Coast. *Emp. For. Rev.*, 33: 150-157.
- (49) Troup, R.C. 1952. Silvicultural systems. 2nd ed. by E.W. Jones. Oxford University Press, London. xv + 216 pp.
- (50) Veer, E. J. van A. de 1954. Problems of tropical silviculture in rain forest areas in Indonesia. *Tectona* 43: 88-96.
- (51) Walton, A.B., R.C. Barnard, and J. Wyatt-Smith, 1952. The silviculture of lowland dipterocarp forest in Malaya. *Malayan Forester* 15: 181-194.

Table 1.—Showing the stocking and structure of virgin Dipterocarp forest.

Diameter Classes in cms.	Tree per Hectare	Volume per Hectare
20	4.50	0.55
30	6.94	2.40
40	8.99	6.93
50	9.46	15.67
60	8.21	21.51
70	6.45	24.00
80	3.83	22.35
90	2.39	19.05
100	2.32	16.38
110	0.12	1.82
120	0.80	1.60
130	0.55	1.27
140	0.05	1.29
Grand Total ..	54.51	134.82

Table 2.—Showing the number and volume of trees of logging set-ups before and after logging.

Class Dia.	Circular Sampling Check		Tree Marking		Residual Inventory <sup>1</sup>	
	Tree/Ha.	Vol./Ha.	Tree/Ha.	Vol./Ha.	Tree/Ha.	Vol./Ha.
20	13.87	2.88	15.17	2.89	14.72	2.77
30	12.09	7.18	8.95	5.25	8.99	5.12
40	9.34	11.50	6.43	8.74	6.31	8.10
50	7.80	16.08	4.37	10.64	4.38	10.93
60	4.39	14.63	2.13	9.54	1.96	9.98
70	3.94	20.46	1.19	7.78	1.23	8.42
Total	51.43	72.24	38.24	44.84	37.59	45.32

<sup>1</sup> Residual Inventory, synonymous to assessment or enumeration, is conducted after logging and set-up. These are the number and volume of thrifty trees that are left as growing stock for the future harvest (taken from 4 big concessionaires in the Philippines).

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Plate 1.— Stocking and structure of virgin Philippine Dipterocarp forest.

Plate 2.— In timber license areas where selective logging is implemented many seedlings, saplings, poles and standards are left. They are responding vigorously to increased light.

Plate 3.— In areas 5 to 10 years after logging, a young thicket of woody growth composed of dipterocarps have generally freed themselves of vines and is already well established and thinned out to allow free movement below the canopy.





Plate 4. — In badly cut-over areas, numerous vines, herbs, wild bananas, as well as overmature and defective trees canopy areas.

Plate 5. — In areas cleared, burned, farmed and abandoned, they are occupied by miscellaneous species such as *Trema*, *Macaranga* *Mallotus* and *cogon* (*Imperata cylindrica*). The latter (cogonales) occupy a very large portion of the country.

Plate 6. — Felling trees to be cut are done carefully such that they are directed to places where they cause the least damage to residual stand.

Plate 7. — Kaingin-making or shifting cultivation" is the principal cause of destruction of selectively logged residual and virgin forests in the Philippines.



# The U. P. College of Forestry Establishes Roots

By Dean GREGORIO ZAMUCO  
*College of Forestry, U.P.*

The official transfer of the administration of the Makiling National Park to the University of the Philippines College of Forestry is an historic event not only to this institution but also far more important, to the country's economic development. The turnover to the University of the Philippines of the responsibility of the management of the Makiling National Park, whose potential yield is a sizeable fortune, is a tangible gesture of trust by the people of the Philippines through their representatives in the person of government officials, in the merit of the program as well as in the integrity of the administrators of the University of the Philippines College of Forestry. It is a trust which we of the College of Forestry would like to further merit by increasing experiments in silviculture and by a more intensive training of foresters under the most effective conditions for practical work in the field. It cannot be sufficiently emphasized in the light of the economic needs of our country that there is an urgent need of providing the best training grounds for forest rangers. The absence of a land grant of this nature has inhibited the program of the College of Forestry. The College of Forestry has been rendered virtually ineffective. We were like a medical school without an hospital. In the same manner that future doctors must do actual hospital work, forest rangers, if they are to be of service to the country need a forest reserve as a laboratory. It is not enough that a forest ranger realizes that a forest is na-

ture's gift of wealth to man. He must realize by working and living in an actual forest (not a garden) that this gift of nature is for man to use not by simple consumption, which is barbaric, but by systematic replenishment and improvement of every crop of lumber, resins, fauna and flora which the forest yields in abundance. To the University of the Philippines College of Forestry, the Makiling National Park represents this kind of laboratory where our young people will learn and appreciate the scientific techniques of preserving, improving and the proper use of forest resources.

It has been taken for granted that the College of Forestry does not only control but also owns the Makiling forest. But the irony of it all is that the control and ownership of the Makiling Park has always posed the knotty problem to the College and it has become the ordeal of this institution to work for the transfer of the Makiling forest to the College of Forestry. This predicament was the result of a great many factors among them was the misconception of the relation between the University of the Philippines (which provides the training school) and the various government agencies which were authorized to administer national forest reserves.

In April, 1910, Act No. 1989 created the Forest School. It was then the time when government agencies were smaller and it was considered a natural thing to combine offices and functions together in one person. Hence,

the positions of Director of Forestry and head of the Forest School which was then a branch of the College of Agriculture, were combined in one person. The Director of Forestry in 1910 was also ex-officio head of the Forest School and was also authorized to grant pensions to 20 students recommended by the Director of Education to take the ranger course. While these various duties were assumed by the Director of Forestry, Proclamation No. 106 was passed by the Governor-General on November 21, 1910 which declared Mt. Makiling as a forest reserve with the "double purpose of making silviculture studies and experiments and for the establishment of the Forest School." This proclamation therefore gave the Forest School through the Director of the Bureau of Forestry, right of control over the Park, and up to November 30, 1920 when the Makiling Forest Reserve was abolished by Proclamation No. 60 and made "The Makiling National Botanical Garden", the Director of Forestry made it clear that "the abolition of the Forest Reserve does not in any way affect the purpose for which it was created, for the Bureau of Forestry has a joint control of the management and beautification of the garden." All along, during the first two decades of the century the Forest School enjoyed administrative and supervisory control over Mt. Makiling due to the presence of the joint personality of the Director of the Bureau of Forestry who was also ex-officio head of the Forest School.

But On February 1, 1933 Act No. 3915 was approved authorizing the establishment of National Parks and because of this law which also established national parks in different parts of the Philippines, the Makiling National Botanical Garden was made Makiling National Park by Proclamation No. 552 on February 23, 1933. These series of proclamations implied the removal the right of control over the Makiling Park from the Director of Forestry and also from the Forest School since it is through the person of the Director that the School enjoyed its right of control over the park.

Later on, Republic Act No. 826 which has approved on August 14, 1952, created the Commission on Parks and Wildlife and it was this act which definitely removed the control, supervision and administration of national parks from the Director of Forestry. However, since the College of Forestry was already an organized entity by that time, it did not feel much loss because the Commission on Parks and Wildlife, lacking funds and personnel to administer the different national parks depended upon the Bureau of Forestry and of course upon the College of Forestry for personnel. In fact the authorization by the Parks and Wildlife Administrative Order No. 1 dated August 23, 1953 of the Secretary of Agriculture and Natural Resources, Mr. Placido L. Mapa, was a recognition on the part of the Commission on Parks and Wildlife that the most practical administrative procedure was to allow the Bureau of Forestry to continue performing such functions and duties as they had been performing prior to the approval of the aforesaid Republic Act No. 826, in connection with the administration and/or protection of national parks, wildlife, game and fish, game refuges, bird sanctuaries and game farm, in connection with existing national parks and game laws and regulations." It is obvious from these facts that although there had been changes in the apportioning of supervisory functions, in practice, the College of Forestry, through the Bureau of Forestry, had some amount of control over the Makiling forest reserve.

There was, however, a complete change in the set-up of the College of Forestry when Reorganization Plan No. 30-A covering the Department of Agriculture and Natural Resources took effect on January 16, 1957. Under this reorganization plan the Commission on Parks and Wildlife was abolished and a new agency called the Parks and Wildlife Office was created under the Department of Agriculture and Natural Resources. Under the same reorganization plan of the DANR, the Director of the Bureau of Forestry who had been ex-officio dean of the

College of Forestry since its foundation was relieved of all responsibility for the College which then left the operations of the College of Forestry as the sole responsibility of the University of the Philippines. Through the changes instituted by the DANR, the College of Forestry lost all rights of control, supervision, and even the right of occupancy in the Makiling National Park where the College has resided for more than 40 years. In addition to the loss of all rights previously enjoyed by the College of Forestry, more than half of its faculty members were either withdrawn by the Bureau of Forestry on account of the performance budget or transferred to the newly created Forest Products Research Institute.

One must not however think that due to these changes the College of Forestry was completely abandoned. Those of us in the College of Forestry and some of our friends and sympathizers tried to make representations to the necessity of restoring the losses of the College of Forestry, in fact the College lost its very source of its existence. It was as early as 1952, five years before the DANR Reorganization Plan took effect that the College of Forestry administrators with the support of the FOA-PHILCUSA (now ICA-NEC) administrators that the quandary was presented in clearer terms to the higher government officials. A project to study forest management in the Philippines was started in the Bureau of Forestry and somehow Mr. Paul Bedard who was the ICA Forestry Advisor was able to enlighten the national government of the crippling effects of the changes instituted by the series of acts and proclamations regarding the Mt. Makiling. When the U.P. College of Forestry-Cornell University assistance was started in April, 1957, it was more and more urgent that any further expansion of the program of the College of Forestry was hindered by its inability to have direct control over a forest reserve as a much-needed laboratory for training, demonstrations, and experiments. The College of Forestry was greatly assisted in its cause by Acting Director Ran-

dall of the United States Operations Mission to the Philippines who, in a letter dated January 16, 1960 called attention of NEC and stressed that "In view of the ICA/NEC funds that have been and will be put into the College of Forestry it is believed desirable that a land title or long-term lease should be given to the College before this problem develops into a more serious problem.

"This matter is being brought to your attention in the hope that your office can be the catalyst in solving this problem. We are anxious that a strong College of Forestry be developed as rapidly as possible. By eliminating a possible roadblock, the objective may be reached at an earlier date."

It must be admitted that one of the greatest roadblocks to the rehabilitation and expansion of this College is its land problem. It is the only forestry college that I know of that has no campus and no experimental forest of its own. Knowing the value of a college forest for instruction, research and demonstration purposes we have tried since 1955 to have the Makiling National Park or a portion of it be officially transferred to the U.P. College of Forestry. In January 31, 1957 Acting President Virata formally requested the Secretary of Agriculture and Natural Resources for the transfer of the administration of the Makiling National Park to the University and we almost succeeded in 1958 were it not for the strong opposition of the Parks and Wildlife Office. It may be stated in passing that on account of our failure to settle the land problem, the College of Forestry lost in 1959-1960 an amount of ₱34,000 for much needed College facilities and about \$80,000 worth of equipment as possible contributions from NEC and ICA respectively. More aid will be lost if the land problem is not settled for it is understandable that no assisting agency will risk its resources in a College of Forestry which has no forest in which it can invest grants-in-aid. Inspired by the justification of our cause we continued our efforts for the accomplishment of our objective—to have a strong College of Forestry which can fulfill its res-

possibility of producing properly trained men in forestry.

Finally, His Excellency President Garcia signed Proclamation No. 692 on August 2, 1960 transferring the administration of the Makiling National park from the Parks and Wildlife Office to the University of the Philippines. The College of Forestry is very grateful to the President as well as to Acting Secretary Trinidad for his favorable recommendation regarding the transfer, to Secretary Fortich for implementing the said proclamation, not to mention the encouragement and support that he gave when the proclamation was being withheld in Malacañan. We are grateful to others who are too numerous to mention, who in some form or another have helped the College in making this transfer of administration possible. The College would like to express its sincere appreciation for the cooperation of the members of the Makiling National Park Turn-

Over Committee. I would like to add that this transfer is indicative of the fuller understanding of the national government of the nature, extent, degree and quality of the service which this College is trying to maintain. There is no doubt that this transfer entails great responsibility, for the Makiling National Park is in a sorrowful state. The students, the faculty members and the administrators of the College of Forestry shall do their best to protect and administer for the fullest benefit of the country the Makiling National Park. With the cooperation and assistance of our friends, particularly those who believe in forestry and forestry education, and especially those to whom a forest is not only a source of income, but a source of beautiful things in life and to whom a forest is the symbol of a challenge to man's wisdom of husbanding natural resources. With these friends amongst us, we can only hope for success.

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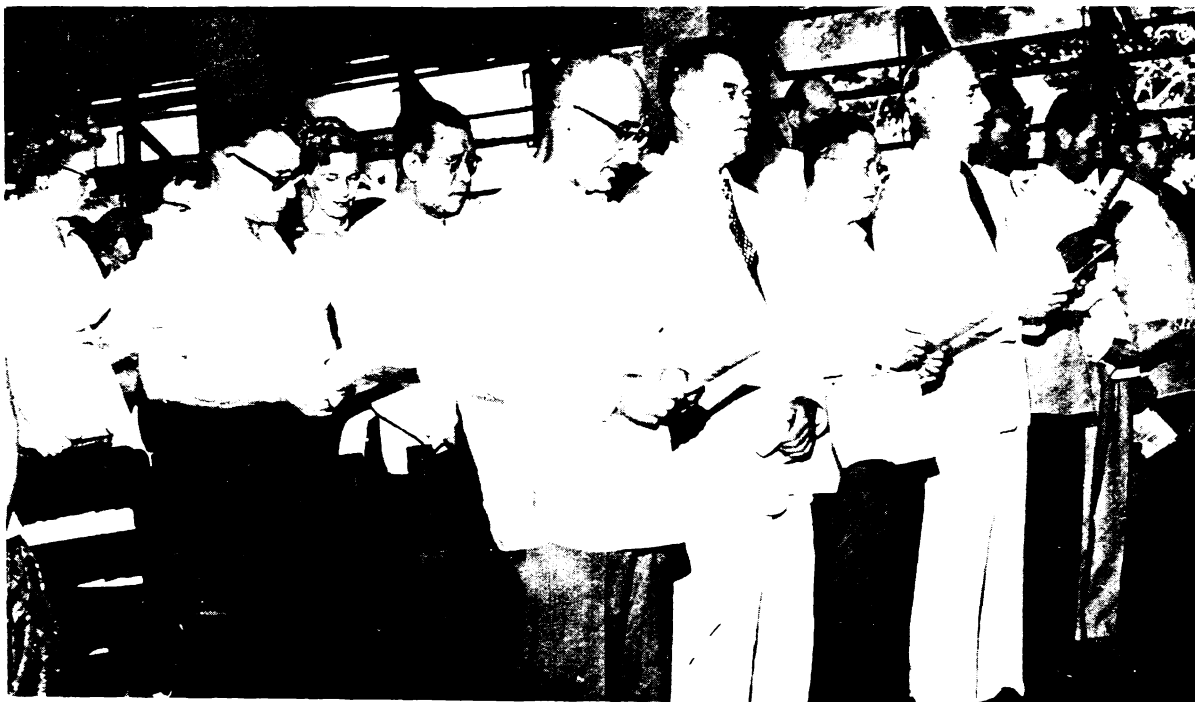
1. U.P. Vice President Enrique T. Virata pens the University of the Philippines acceptance of the administration of the Makiling National Parks as Mr. Donald Ritter, Acting Undersecretary Cunanan, Dean Zamuco, NEC Director Crucillo, Dr. Summers (ICA), and Secretary Fortich look on.



2. Dr. Summers greets Secretary Fortich upon arrival at the College of Forestry building. Dir. Crucillo looks on.



3. Secretary Fortich, Guest of Honor, bares some of his plans for the proper and better conservation of our forests.



1. The Audience sings the "Pambansang Awit." Among the prominent guests are Secretary Fortich, Vice Pres. Virata, Director Summers (ICA), Director Crucillo (NEC), Dr. Zehngraff and Dir. Marfori (soils).



2. Dean Zamuco makes the opening remarks.





**Secretary Fortich, Vice Pres. Virata, Dean Zamuco, Dir. Sumners (ICA), Dir. Crucillo (NEC) and other prominent guests from different government entities.**



**A portion of the audience.**



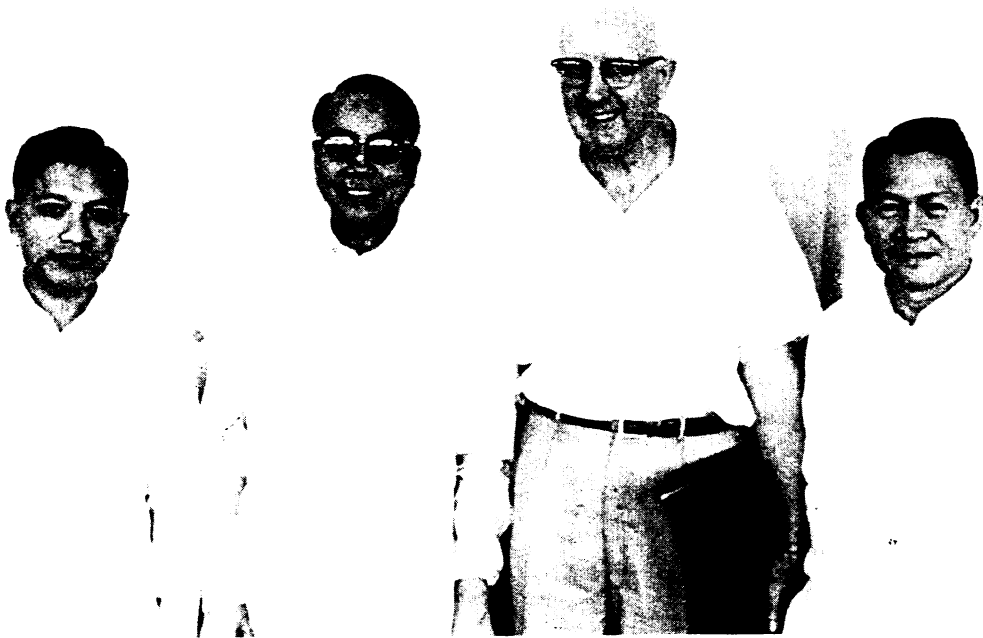
Delegates to the Fifth World Forestry Congress in front of Glenn Falls, New York.



Philippine delegates to the Fifth World Forestry Congress at Seattle, University of Washington. Shown in the photograph with Director Serevo (standing, extreme right) are members of the delegation, Foresters Francisco Tamolong, Rufino Sabado, Felixberto Pollisco, Florencio Mauricio, Manuel de Guzman and Juanito Lamanilao.



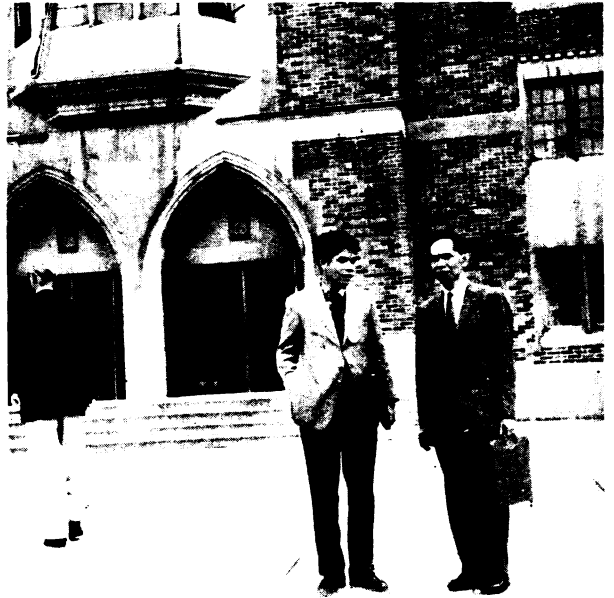
Forester F. P. Mauricic with friend at the State University College of Forestry at Syracuse, New York.



**An official Call at Vice-President Isidro's Office. Photo shows Vice President Isidro flanked by Dean G. Zamuco, Dr. Floyd Carlson and Prof. D. Jacalne.**



**Forester O. M. Valderrama with a Finnish Silviculturist in the Coweeta Hydraulic Laboratory in North Carolina.**



**Dr. Francisco Tamolang and Forester Feliberto Pollisco at the Fifth World Congress Conference at Seattle, University of Washington.**



**Atty. Salvador F. Cunanan takes his oath of Office as Acting Undersecretary for Natural Resources before President Carlos P. Garcia on November 7, 1960 at the Ceremonial Hall of Malacañang.**



**Atty. Jose B. Viado taking his oath of Office as Administrator of Reforestation on September 15, 1960 before Executive Secretary Natalio P. Castillo. In the photo are Senator Paredes, Sec. Fortich, Ex. Sec. Castillo, Atty. Salvador F. Cunanan, Congressman Tobia, members of the Administrator's family and friends.**



A group of Boy Scouts on their way to the Boy Scouts' Grove.

Miss Ohare of California, U.S.A. planting the AFS Memorial Tree.



Mass planting led by the Honorable Governor Godofredo Ramos (marked "X") and the Honorable Virgilio Patricio, (Vice Gov.), (marked "Y") of Aklan.



A group of Girl Scouts planting the Girl Scouts' Grove.



The Boy Scouts of Aklan Chapter, planting the Boy Scouts' Grove.



**ICA Forestry Advisor Paul Zehngraff appreciates practical method of potting Benguet Pine seedlings in the Baguio City nursery.**

**Sr. Forester Gulle explains to workshop seminar delegates the purpose, objectives and goals of Selective Logging.**



**Former Director Amos discovers a damaged residual at the butt due to faulty cable yarding.**

# Philippine Woods in the World Trade\*

## (Their Impact Abroad and at Home)

By NICOLAS P. LANSIGAN

### INTRODUCTION

For her size, the Philippines cuts a disproportionately large figure in the international wood export trade. Occupying hardly 0.2 per cent of the total land area and possessing only 0.3 per cent of the forest lands of the world, the Philippines nevertheless ranks among the major exporters of hardwood. At least 30 per cent of the international export trade on hardwood logs and 4 per cent on hardwood lumber are of Philippine origin.

This paper gives an idea of the magnitude and direction of this trade. But over and above the statistics, the paper also presents briefly some of the difficulties a country with an underdeveloped economy is faced with in the handling of her forest resources which, under pressure of economic forces, must have to support an unusually large wood export trade. Here is best seen the inter-play of economic forces now griping many an underdeveloped country with exploitable forest resources: how to strike the happy balance between one extreme characterized by a need to ship out as much as possible the readily available raw wood products with which to earn foreign exchange to bring in the capital goods and other items essential to build up the economy, and the other extreme characterized by the logical desire of

the people to use their forest resource prudently.

### THE PHILIPPINE FOREST RESOURCES

*Forest areas.*—Around 44 per cent or 13.2 million hectares of the total land area of the Philippines of 29.7 million hectares are in forests of various categories. Only 9.3 million of these are in so-called commercial forests which contain sufficient timber to warrant commercial logging; the rest are in non-commercial forests. Nearly all the forests are owned by the national government. Pressure of population and settlement has forced the forest line to recede farther and farther inland and up to the rough mountains in the big islands. Reduction of forest lands averaged around 80,000 hectares a year during the last 25 years.

*Timber stock.*—Philippine forests are well-known for their beautiful and durable woods. The wood flora is so rich there are no less than 3,000 wood species that attain at least a foot in diameter. The forests are typically tropical, with the members of the dipterocarp (lauan) family constituting the dominant species. About 80 per cent of the timber stock are of this family and its timbers form the mainstay of the wood-using industry and wood export trade of the Philippines. The dipterocarp forest is of the mature type and averages about 1000 cubic meters to the hectare. Among the woods of

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\* Read & submitted by the Author in the fifth World Forestry Congress held at Seattle, Washington, U.S.A. in September 1960.

the family best known in the trade are apitong (*Dipterocarpus grandiflorus*), yakal (*Hopea* sp.), guijo (*Shorea guiso*), and those under the trade name "Philippine mahogany" represented by read lauan (*Shorea negrosensis*), tangile (*Shorea polysperma*), almon (*Shorea almon*), bagtikan (*Parashorea plicata*), mayapis (*Shorea squamata*), and white lauan (*Pentacme contorta*).

There are other forest types represented by equally well-known woods, like molave (*Vitex parviflora*), narra (*Pterocarpus* spp.), tindalo (*Pahudia rhomboidio*), and ipil (*Intsia bijuga*) of the molave type, and the Benguet pine (*Pinus insularia*) and tapulau (*Pinus merkusii*) of the pine type.

The latest estimate places the timber stock at 982.1 million cubic meters (416.4 billion bd. ft.) of which 718.9 million cu. m. (304.8 billion bd. ft.) only are in the accessible commercial forests. The timber is distributed into diameter classes roughly as follows: 30.8 per cent in the 30-50 cm. class, 58.7 per cent in 60-90 cm. class, and 105 per cent in the 100 cm. and above class.

## THE FOREST-USING INDUSTRIES

*The logging industry.*—As most of the forests are government-owned, it is the government which grants the timber cutting rights. Approximately 5.0 million hectares are thus under license to logging operators numbering around 1,600, with forest holdings ranging from a few hundred hectares to over 100,000 hectares in extent. Forest charges (royalties) are collected on the timber cut based on government scale.

The logging industry is the most advanced in Southeast Asia with respect to mechanization and production capacity. Some animal (carabao) logging still persists in some places, but the use of heavy equipment is the rule. Truck and tractor logging has largely supplanted railway logging. Investment in the industry is placed at ₱38.6 million<sup>1</sup>, it employs around 35,000, and has an

<sup>1</sup> ₱2.00 equals U.S. \$1.00

output averaging 1.9 million bd. ft. annually during the last five years. An all-time high of 2.3 billion bd. ft. was recorded for 1959.

*The lumber industry.*—Much damage was done to Philippine sawmilling plants and equipment during the war. A number of mills brought by the U.S. Army after the war and purchased by individuals and companies, in addition to subsequent acquisitions from abroad, have completely rehabilitated the industry. Today, there are over 400 sawmills ranging in size from very small ones to very large ones, including one believed to be the largest hardwood sawmill in the world (Insular Lumber Co. in Negros Island).

In 1959, the number of mills in operation were 373 with a rated daily capacity of 3.4 million board feet. Total capital investment is estimated at ₱55.2 million. Actual production during the last five years averaged 433 million bd. ft.; that of 1959 was 434 million.

*The plywood and veneer industry.*—The local plywood and veneer industry is seeing an unprecedented expansion under the stimulus of the industrialization program of the government. Not only had the considerable importation of plywood usual in the past been made unnecessary, but much more now being produced above the local requirements as to result in a fast increasing export trade.

There are in operation 16 plywood mills with a total capacity of 500 million square feet of 1/4" 3-ply panel annually and 8 veneer mills with a capacity of 300 million square feet of inner and outer plies. Investment now amounts to around ₱54 million. There is wide interest in the plywood industry and more mills are expected to be established.

*Other wood industries.*—Most of the products of other wood industries are generally for domestic consumption. Railway ties, wood furniture, poles and piles, hardboard, carvings and turnery are produced in considerable quantities. Eventually some of



these will find their way in the world markets in greater quantities.

### VOLUME OF PHILIPPINE WOODS GOING INTO INTERNATIONAL TRADE

*Rank in the export trade.*— During the last five years, the export of the Philippines in logs, lumber and other wood products has occupied third rank in value among the major export items of the country, coming next only to copra and sugar. In 1958, for instance, of a total export trade of ₱982.4 million, ₱139.3 million or 14.2 per cent constitute wood products.

Exports could be considerably more but for the difficulties in foreign exchange. Prospective markets have to pay for Philippine goods in dollars. It was only in the latter part of 1959 when the Philippines shifted to multiple currency which permits trade on pound sterling, Deutsche mark, Canadian dollar and Swiss franc.

To give further incentive to domestic industries, the country tried off and on the commodity-to-commodity trade arrangement (barter) which obviates the use of foreign exchange. Logs and lumber were among those granted limited barter privilege. In 1958 for instance, ₱4.5 million (3.2%) of the total export of ₱139.3 million of these products were bartered for items needed by the country. At present, only lumber and veneer of the lower grades are extended this privilege.

*Logs.*— During the last five years (1955-1959) from a log production averaging 1,936 million board feet annually, 817 million (41.6 per cent) with a market value of ₱78.6 million were shipped to markets abroad. Much of the balance were manufactured into lumber, plywood and veneer, some of which were also exported.

Veneer is growing steadily as an export item, increasing from 6.9 million square feet in 1955 to 120 million in 1959.

### THE PHILIPPINE TRADE IN LOGS

*Position of the Philippines in the world trade.*— Under the stimulus of brisk buying

from Japan, the Philippines forged ahead of other countries in the volume of hardwood logs going into the export trade. The logs are in the categories of peelers, veneers and sawlogs ranging in size from 18 inches in diameter and 8 feet in length. The logs are rafted or trucked from the forest to the nearest port where ocean going boats pick them up.

Around 90 per cent are in the species of Philippine mahogany; the rest are in apitong and others, including the fancy woods of narra and dao (*Dracontomelum dao*). In a typical year, 1957, of the total world trade on hardwood logs of 7.1 million cubic meters, 30 per cent or 2.1 million cubic meters were of Philippine origin. The nine other countries coming next to the Philippines in their order were: (1) French Equatorial Africa, (2) British North Borneo, (3) Ghana, (4) France, (5) Nigeria, (6) Indonesia, (7) United States, (8) Sarawak, and (9) Belgian Congo.

*The principal markets.*— Asiatic countries consumed 94.0 per cent of the Philippine log export, North America 5.4 per cent, Europe 0.4 per cent, Pacific Area and Africa 0.1 per cent each. By reason of long association and special trade arrangement, United States used to be the premier market of the Philippines for logs. American ships came to the Philippines laden with capital and consumer goods and went back with the principal products of the Islands, like sugar, copra, abaca and wood. The United States still gets 17 per cent of her hardwood logs from the the Philippines, but Japan has supplanted her as top Philippine market.

Japan is the largest buyer now, accounting for 86.7 per cent of all logs shipped out by the Philippines. These logs constitute the mainstay of the Japanese hardwood plywood and lumber industry. Japan gets about 85 per cent of all her hardwood logs from the Philippines, the rest come from British North Borneo, Indonesia and others. The logs are made into plywood and lumber. Some of these products are used locally but a large portion is exported to a fast expanding world

market. Paradoxically, it is these products which compete keenly with Philippine products in the world market.

Korea, Hongkong, Taiwan, Italy and United Kingdom also import some quantities of Philippine logs.

## THE PHILIPPINE TRADE IN LUMBER

*Position of the Philippines in the trade.* — Around 4.2 per cent of the hardwood lumber going into the international trade are of Philippine origin. In a typical year, 0.15 million cubic meters of the 3.48 million in the trade were Philippine woods. Other countries which export more than the Philippines in their order are Yugoslavia, United States, Canada, Japan, Ghana, Malaya and Thailand.

Lumber is exported following the rules of National Hardwood Lumber Association of the United States. The greater bulk are in FIRTS and SECONDS, and in COMMONS. Most of the species are in Philippine mahogany, apitong, dao and narra.

*Principal markets.* — The Philippines has a wider market (50 countries) for lumber than for logs (30 countries). Imports by continents are as follows: North America 67.2 per cent, Asia 18.3 per cent, Europe 1.6 per cent, Africa 9.6 per cent, and Pacific Area 3.3 per cent.

In North America, United States for the last thirty years has continued to be the largest and most steady customer, accounting all by herself for 66.4 per cent of all the lumber exports. United States in fact gets nearly 20 per cent of all her hardwood imports from the Philippines, especially that of Philippine Mahogany. These have become very popular for high grade furniture, cabinet making and for paneling.

In Asia, Japan and Hongkong lead importing countries with 11.5 and 5.5 per cent, respectively. Taiwan, Korea, Vietnam also make some purchases. Steady customers in Europe of long standing are Belgium, Ireland, United Kingdom, Denmark and the Netherlands. In the Pacific Area, Hawaii and Guam buy Philippine lumber generally for

use in the U.S. Armed Forces installations. British Africa is a substantial customer accounting for 9.5 per cent.

## THE PHILIPPINE PLYWOOD AND VENEER TRADE

*Period of expansion.* — With an eye to securing a more sizable portion of the international trade on plywood and veneer, the Philippines is promoting the expansion of this industry. Present exports are still limited but plants under establishment and those expanding their capacity are expected to boost the trade. A program of improving manufacturing techniques and giving priority in financing and foreign exchange allocation to expansion of wood processing industries is underway.

Most of the exports are presently going to the United States (99.3 per cent), with Japan, Hongkong, Guam and Hawaii getting just a little. The products are mostly in 3-ply 3/16" panels, although shipments of doorskins and 5 and 7-play panels, are growing in volume. Core-stock and outer plies make up most of the veneer exports.

## DOMESTIC IMPLICATIONS OF THE WOOD TRADE

*Major problems.* — Among the major economic problems which confront the Philippines are those relating to a disequilibrium in her balance of trade payments and a high level of unemployment. An increasing volume of importation of raw materials and capital goods made necessary to support the industrialization program of the country with no corresponding proportionate increases in exports has strained the international reserve. Under this situation, there is every desire to promote the expansion of the exportation of Philippine products in order to earn more foreign exchange, or in the very least, to maintain the present volume of dollar-earning export items. And as wood products constitute the third largest contributor to the trade receipts the hesitation to curb exportation of these, especially that of logs, is under-

standable. Log exportation alone brings in nearly 10 per cent of the total trade receipts of the country.

Also, as unemployment level is high there exists a need for creating more job opportunities or, again, in the least, to keep those employed from being thrown out of their jobs. And here again, there is a tendency to have the jobs, approximately 100,000, which the wood-using industries absorb. Even the portion of the industry handling the log trade alone accounts for the employment of around 15,000 persons.

*The drain on the forest.* — Against these economic considerations, there is a growing apprehension that the forests of the country might not be able to sustain the large wood drain. Forest per capita had dropped from 1.17 hectares in 1933 to 0.56 in 1957, yearly forest land reduction has gone up to about 90,000 hectares and timber drain is placed at around 3.1 billion bd. ft. annually. And timber growth from reforested areas and cut-over forests which should somehow offset the drain as yet insignificant. ,

The huge timber drain is accounted for from two major sources: (a) the cutting by timber licensees, and (b) the cutting by kaingin-makers. It is estimated that the present volume of the log production of 2,310 million board feet (in 1959) could be maintained only by cutting away 60,000 hectares of the commercial forest lands. Under sound forest management techniques, such an area should be good for subsequent timber cuts. The government has a program of sustained-yield management through the use of selective logging which calls for tree marking and the leaving of healthy immature trees on logged-over areas to allow them to grow for the next cut. The program, however, has just started to be implemented and it will take sometime before all areas under logging operations could be put under this system.

In so far as the export trade is concerned, the agitation is directed principally against the fast expanding log export to Ja-

pan, which alone could account for from 25,000 to 30,000 hectares of the commercial forest lands. On top of this, the very plywood and lumber Japan manufactures from Philippine logs are proving stiff competitors to Philippine products in the world's markets.

And, finally, kaingin making is making great inroads into the forest resources. From 20,000 to 30,000 hectares are laid waste every year through this nomadic form of agriculture. A preventive and punitive program is underway to halt the practice.

*Prospects.* — The growing concern over the forests of the country has spurred a strong movement for conservation. Up before Congress are basic forestry legislative proposals intended to keep timberlands and protection forests permanently under forests, putting more teeth to forest protection laws, improving the timber licensing system, among others. The executive branch has mobilized police forces to help the Bureau of Forestry give adequate protection to the forest.

Relative to the log trade, remedial measures proposed range from a complete ban of the report to graduated restrictions. Pending a definitive policy on this matter, however, the interim policy is to promote the shift of the investment pattern from the purely logging venture to the more integrated set-up. Thus, the granting of timber cutting rights, of credit assistance and even of allocations for foreign exchange for the purchase of machinery and equipment for logging and wood manufacture are directed to promote wood processing industries, especially those which will produce exportable item. Also, the incentive of barter previously enjoyed by the log exporters has been withdrawn.

Like many a nation today, we, in the Philippines have our share of problems, including many on forestry. But we are confident that these problems are not insurmountable and that we can solve them successfully.

### REFERENCES

1. Alas, Antonio de las: Should the Exportation of Logs be Prohibited? The Lumberman, 1958 (IV, 2), Manila
2. Bureau of Forestry: Annual Reports of the Director of Forestry for the Fiscal Years 1950 to 1959, Manila (Unpublished).
3. Central Bank of the Philippines: Statistical Bulletin, 1959, (XI, 3).
4. FAO: World Forest Resources, 1955, Rome.
5. . . . Yearbook of Forestry Products Statistics, 1958, Rome.
5. Gil, Tom: Forestry Proposals for the Philippines, Forestry Leaves, 1959 (XI, 4), Manila.
7. Gooch, Winslow, L.: Forest Industries of the Philippines, 1953, Manila
8. Lansigan, Nicolas P.: An Appraisal of Forestry in the Philippines, Forestry Leaves, 1959 (XI, 4), Manila.
9. National Economic Council: Three-Year Program of Economic and Social Development, 1959, Insurance and Finance Publishing Co., Manila.
10. . . . : Raw Material Resources Survey, 1959, Manila (Unpublished).

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# Reforestation Gets New Impetus

By **CARLOS CUNANAN**  
of the *Reforestation Administration*

It is the consensus that the reforestation work in the Philippines is lagging behind. This fact is attributed to the lack of personnel. Funds intended for reforestation work could not be considered as lacking because the record shows that there are enough. Those funds, however, are not properly used — not used for what they are intended. The spirit and intent of Republic Act No. 115 is to use the money collected by virtue of this Act for actual productive reforestation work.

Indiscriminate cutting of trees, illegal kaingin making and other acts of vandalism in our public forests contributed largely to the present state of our denuded, barren and rugged areas. This lamentable state of affairs has been played in our local and metropolitan papers with banner headlines.

The typhoons "Lucille", one of the most notorious typhoons, striking at our centers of population, business, commerce and industry, in the Cities of Manila, Quezon and Pasay, and suburbs created havoc and instilled fear in the hearts of men. The people blamed the treeless region of the Marikina River Watershed within the Municipalities of Montalban and San Mateo Rizal for the destructive flood caused by typhoon "Lucille".

A scrutiny though, will unearth the revealing fact that the water from these barren hills and mountains at the time could not possibly influence the flood that caused death to human and animal lives, and damage to property because the Marikina River did not flood. These Municipalities: Montalban, San Mateo, Pasig, Pateros and Taguig, all of Rizal Province, will be the first to suffer should the Marikina River swell as a result

of the deforestation of the mountains and hills of Montalban and San Mateo. And yet no destruction to life and property was reported due to the flood caused by the typhoon "Lucille," because the Marikina River did not flood.

The tabulated statement below shows that the following Weather Observation Stations registered the corresponding amount of rainfall on May 28, 1960, "Lucille Day."

(1) La Mesa Dam . . . .	3.5 inches
(2) Balara . . . . .	5.0 "
(3) Manila . . . . .	8.0 "
(4) Pasay City . . . . .	11.5 "
(5) U.P. Diliman . . . .	12.0 "
(6) Quezon City . . . . .	12.0 "
(7) San Juan . . . . .	12.5 "

The La Mesa Dam where a rain-gauge unit of the Weather Bureau is installed, is only a couple of kilometers in a straight line from the Marikina River Watershed. This unit registered only 3.5 inches of rainfall on that fateful day. It could be concluded that the amount of rainfall within the watershed was less, otherwise the Marikina River would have been flooded at the time of "Lucille". Using again the above table, the tendency of the rainfall was to increase towards San Juan, Rizal and the Cities of Quezon and Pasay, where the destruction to life and property was greatest. *It is very clear therefore, that the flood in these three places just mentioned came about as a direct result of the amount of rainfall* (as shown on the above table) received thereon and not due to the deforestation of the Marikina River Watershed.

The public may get the wrong impression that deforested areas do not influence flood. They do. What is being proved is the fact that the downpour caused by "Lucille" on the barren hills and mountains of Montalban, San Mateo and vicinities had nothing to do with the catastrophe.

Alert technical men of the Bureau of Forestry taking advantage of the public opinion on the effects of our treeless region to life and property and the attitude of Congress on the matter prepared the necessary legislation on what finally became House Bill No. 4921 which became Republic Law No. 2706 upon the approval of the President on June 18, 1960. The enactment of this law is significant because with its passage, the misuse of reforestation fund will be stopped. It is the last milestone on the road that we hope will lead us to the realization of our objective of reforesting a new high of acreage every year, considering all other factors equal.

Some quarters claimed that Pasay City, Quezon City and San Juan, Rizal in the past had been subjected practically to the same amount of rainfall as that precipitated by typhoon "Lucille", and yet no damage had been recorded. There is truth in the claim, because mountains and forests influence rainfall and temperature. The highlands overlooking those places are still then forested. It is regretted that statistical data are not presently available for checking and comparison. There are however two factors that directly contributed to the rampaging flood waters which exacted a heavy toll on lives, property, commerce and industry.

The paved highways, including the concrete pavements and structures, manifested main influence on the flooding of the above three areas and vicinities. When the rain falls on concrete, it has no chance to go to seepage. The water collects by force of gravity to the lower areas where seepage is nil or none because of the very nature of the soil and soil cover in these places. Like any other container it has its breaking point. The rushing of the water in torrents with men, wo-

men and children clinging on anything for their lives is left to the imagination.

The second contributing factor to the "Lucille" calamity is the poor drainage system thereon. The drainage canals or pipes are small, few and far apart. Some of the drainage locations are no honor to sanitary engineering. Even a 3.5 inches rainfall for one hour will flood most sections of these three places. It is not necessary to stretch the imagination to conclude that the drainage system is poor to the point of inutility.

If we are to remember the loved ones, and the property of value, whether for sentiment or monetary value lost during "Lucille", and if we are to minimize recurrent floods to prevent future calamities, then all possible resources must be tapped by the proper authorities concerned and used with the aim in view of accomplishing the following suggested remedies.

(1) *The planting of the watersheds of destructive rivers and other critical areas subject to severe erosion*—The Reforestation Administration, inspite of its limited funds and personnel, may not accomplish wonders, but it is delivering the goods. Reforestation work is long and tedious, and the result is not readily shown, hence the people, even high ranking government officials without the technical knowledge frown upon the work as failure, and yet whenever a road bridge was washed away no question was asked.

Right at Montalban, Rizal, the Reforestation Administration has opened this year a reforestation project to take care of the planting of the Marikina River watershed. Had the rain fallen in the treeless critical watershed areas of the Marikina River, the calamity would have been manifold. All watersheds of the important rivers all over the country are to be examined by the Reforestation Administration, funds permitting.

(2) *The planting of trees in suitable sites within the populated areas of the*  
(Continued on page 114)

# • *FPRI Technical Notes* •

## PROTECTING BUILDINGS FROM TERMITE AND FUNGUS DAMAGE

Great damage is done to wood in the Philippines and other countries by termites and fungi. No accurate estimate can be made of the value of ruined wood products or the annual cost of making necessary repairs but it undoubtedly amounts to millions of pesos per year. Some of this annual loss may be unavoidable but the major part of it could be prevented or greatly reduced if proper precautions are taken.

The following brief consideration of the termites and the fungi with the short description of their respective groupings as agents of wood deterioration may aid in understanding the methods to be used to defeat them.

### *Termites*

Termites are primarily wood-feeding insects which form colonies and live in the dark<sup>1</sup>. The members of the colony are divided into three castes—the reproductives (the queen, king, and adults) which perpetuate the colony, the soldiers which repel intruders, and the workers which provide the food and are the ones most destructive to wood.

There are more than 50 species of termites in the Philippines. Only about 6 species, however, may be found doing serious damage to the woodwork of buildings. The others are mostly found in the forest. Based on their habitat, these insects may be divided into two main groups—the subterranean or ground-dwelling termites and the non-subterranean or wood-dwelling termites.

The subterranean termites, as their name implies, live and establish their primary colonies in the ground and from this home base they make tunnels in the soil or earthen shelter tubes over other materials in their search for food, which is mostly wood. They may also make secondary nests in the woods they eat. They need an adequate supply of moisture which they ordinarily obtain from the soil but may also obtain it from wet spots in the building or from any other available source.

The non-subterranean termites include species which live in the fresh wood of living trees and others—the drywood termites—which live in the dry woodwork of buildings and do not

establish ground contact. The very small amount of moisture needed by the drywood termites is obtained from the wood they eat. They enter wood and establish their initial colony in it soon after swarming flight. Their presence in wood may be detected by their fine, granular excretal pellets which they push out of their hidden galleries.

### *Fungi*

Fungi are low forms of plants which differ from ordinary green plants by having no roots, stems or leaves and by their inability to synthesize their food from the nutrients in the soil. They are filamentous (threadlike) in structure, but they often produce fruiting bodies like the visible parts of a mold, mushrooms, or “conks” which are equivalent to the seed-producing parts of other plants. They grow well in damp and warm places.

There are hundreds of species of fungi and they are present almost everywhere but, for the purpose of this discussion, we are concerned only with those that inhabit wood and depend on it for their food. These may be divided roughly into two groups: those that cause decay and weakening of the wood and those whose principal effect is staining or discoloration of the wood with little or no effect on strength.

The characteristics or evidence of fungal decay in wood are as follows:

1. The affected wood often appears water soaked and the color becomes dark or reddish brown but may also be whitish or streaked in different colors.

2. Both sapwood and heartwood may be affected but usually the sapwood deteriorates more rapidly.

3. Narrow black or dark-colored zone lines may be present.

4. The affected wood becomes light in weight and brittle and the texture varies from a spongy mass to a cracked, shrunken mass of easily crushed material.

5. The odor of wood with active growth of decay fungi usually is like that of a mushroom.

The characteristics of fungal stained wood are as follows:

1. The color of the affected wood becomes blue-grey, dark brown, green, or blackish, at times, pink, yellow, or orange. Often generally distributed; sometimes wedge-shaped in cross-section.

<sup>1</sup>There are some species of termites which travel land forage in the open.

2. The discoloration is almost entirely confined to the sapwood and it may even be superficial.

3. There is no readily noticeable weakening of the affected wood.

### *Protective Methods*

The most important precaution to take in protecting wood from decay fungi, staining fungi, and subterranean termites is to use sound dry wood and keep it dry. These three groups of organisms require a plentiful supply of moisture and they cannot live without it. Therefore, in putting up a new building or repairing a damaged one, take every precaution against the accumulation of moisture in the wood. Observe the following rules:

1. See to it that no untreated wooden structural member is put in contact with or close to the soil. Construct sound concrete foundations, footings, and floor slabs and place such woodwork as posts, sills, jambs, and studdings upon them. Builders frequently allow woodwork such as posts and door frames to extend through concrete floors to the soil. This is a disastrous mistake and should never be permitted.

2. Remove all woody debris such as stakes, slabs, scrap lumber, stumps, etc. from the soil under and around the building.

3. Keep the building site well drained and remove all unnecessary obstructions to good ventilation beneath or around the building.

4. Use designs that will keep wood dry. All forms of construction that will trap moisture in wood should be avoided. Provide roofs with considerable overhang at eaves and gable ends to protect exterior woodwork against rain wetting.

5. Provide for easy inspection of the woodwork in the substructure of the building.

6. Use preservative-treated or naturally-durable wood as much as possible.

7. In areas where cases of severe termite infestation are prevalent, treat the soil of the building site with one of the following soil poisons in oil solution or in water emulsion. Treatment should be applied after the building site has been leveled but before pouring the concrete foundation and slab floor.

- a) aldrin, 1.0 percent
- b) lindane, 1.0 percent
- c) chlordane, 2.0 percent
- d) dieldrin, 1.0 percent
- e) heptachlor, 5.0 percent

The rate of application should be about 5 gallons of the chemical solution or emulsion per 10 square feet of soil under the building and

for every 10 linear feet around foundation walls.

### *What can be done against drywood termites?*

Drywood termites are more difficult to control than the subterranean termites because they do not require access to a water supply. The simple method of keeping the wood dry does not interfere with the work of these wood destroyers. The following methods, however, will help in minimizing their attack:

1. Use pretreated or naturally durable heartwood lumber as much as possible.

2. Use wire screen, 18 to 20 meshes to the inch, on all doors, windows, and other openings in order to prevent or retard the entrance of winged termites.

3. Paint or varnish woodwork. Drywood termites ordinarily do not bore through paint or varnish to enter wood. They usually enter through nail holes, cracks, and crevices in wood. For this reason, these entrance points should be thoroughly brushed or sprayed with a good insecticidal solution or effectively closed.

### *Repairing damaged structures*

In repairing structures that have been damaged by fungi or subterranean termites, observe the same precautions as are recommended for new buildings. That is, remove all seriously damaged wood and replace with dry sound wood, prevent all wood contact with the soil and if this is unavoidable, use wood with the proper preservative treatment. Remove all debris, provide good drainage and ventilation, correct all defects of any kind that allow moisture to accumulate in the wood, and treat the soil, cracks, and crevices of the concrete slab floor and foundations under the building. If a few subterranean termites are left in the building they will die after the wood has dried unless they have access to additional moisture. If there are many of them, however, they may build tubes downward the soil in search of moisture. These should be watched for and destroyed whenever found.

In removing decayed wood in preparation for making repairs, it is desirable, when possible, to cut back two feet beyond the obviously decayed wood.

Drywood termites are difficult to eradicate, especially when the infestation is far advanced and many structural members are affected. The following measures should be considered:

1. *Replacement and repair.* — Infested structural members where permanent strength is desired need replacement with preservative-treated or naturally durable wood.



2. *Heat treatment.*—Infestation in limited areas in flooring and similar woodwork is sometimes controlled by a 10-minute exposure to infrared heat radiation. Widespread infestations, however, require other methods of treatment.

3. *Chemical treatment.*—Like the heat treatment, this method of control is only applicable to limited scale infestation and is not dependable in severe and extensive cases of termite attack. This treatment consists in either brushing insecticidal solution on the surface of the affected wooden members, injecting insecticidal solution or blowing insecticidal dust into drilled holes reaching the termite galleries in the wood.

4. *Fumigation or gas treatment.*—Heavily infested buildings, especially in other countries, are sometimes fumigated with either methyl bromide or hydrogen cyanide to eradicate dry-wood termites. Fumigation work is undertaken only by licensed and experienced fumigators because the chemicals used are extremely poisonous to man.

#### References

- Dillon, R. M. (ed.) 1956. Protection against decay and termites in residential construction. Building Research Institute, National Academy of Sciences, National Research Council, Wash. D.C., U.S.A. Publication 448.
- Heal, R. E. (ed.) 1951. Approved reference procedures for subterranean termite control. National Pest Control Association, N.Y., U.S.A.
- Hunt, G. M. and G. A. Garratt. 1953. Wood Preservation. McGraw Hill, New York.
- Snyder, T. E. 1950. Control of non-subterranean termites. Farmers' Bull. No. 2018, U.S.D.A.
- St. George, R. A., H. R. Johnston, and R. J. Kowal. 1960. Subterranean termites, their prevention and control in buildings. Home and Garden Bull. No. 64, U.S.D.A.

## WHAT IS MEANT BY HARDWOODS AND SOFTWOODS

The terms "hardwoods" and "softwoods" are commonly used commercially and in many technical publications to distinguish between two groups of tree species. They do not mean, however, that all "hardwoods" have hard wood or that all "softwoods" have soft wood for such is not the case. Some hardwoods are hard, such as molave, yakal and many other Philippine species while other hardwoods are relatively soft, including gubas, ilang-ilang and others.

There are several differences between the hardwoods as a group and the softwoods—

Botanically the terms refer to two great groups of trees or seed-bearing plants, the Angiosperms (hardwoods) whose seeds are enclosed in an ovary or pericarp and the Gymnosperms (softwoods) whose seeds are naked or exposed.

The wood of the Angiosperms is called porous because it contains tube-like water-conducting groups of cells referred to as "vessels" which run vertically in the tree. On a cross section of a tree they appear as pores. In some species these pores can be seen by the unaided eye but in other hardwood species they can be seen only with the aid of a magnifying glass or microscope. In some species the vessels or pores are open while in other species they are closed with pith-like growths called tyloses. The structure of the hardwoods is more complex than that of the softwoods.

The woods of the Gymnosperms, (softwoods) on the other hand do not contain the water-conducting vessels and do not show pores when viewed in the cross section. The softwoods have tracheids instead of pores, which perform the dual function of conducting water and providing mechanical support for the tree. It is easy for the skilled technician with the aid of a magnifying glass or microscope to determine whether a piece of wood is from the softwood or hardwood group.

In general, the hardwoods are broad-leaf trees while the softwoods have needle-like or scale-like foliage but there are exceptions to this rule. For example, almaciga (a softwood or Gymnosperm) has broad leaves while agoho (a hardwood or Angiosperm) has needle-like or scale leaves.

Generally, the hardwoods shed their leaves in winter in cold climates while the softwoods do not but there are exceptions to this rule for even in cold climates some hardwoods remain "evergreen" while some softwoods shed their needles in winter.

In the North Temperate Zone of Europe, Asia and America, most hardwoods are without leaves during the entire winter, which may be as long as five or six months, while in the tropics, although several hardwoods shed their leaves at some period during the year, a new crop of leaves quickly appears and they are without leaves for a short time only.

In the North Temperate Zone the softwoods or conifers predominate and constitute the principal commercial species, while in the tropics the hardwoods predominate.

In the Philippines the softwoods (Gymnosperms) constitute a relatively small group, consisting principally of the following species:

Almaciga (*Agathis philippinensis*)  
 Benguet pine (*Pinus insularis*)  
 Mindoro pine (*Pinus merkusii*)  
 Malakauayan (*Podocarpus philippinensis*)  
 Malaalmaciga (*Podocarpus blumei*)  
 Igem (*Podocarpus imbricatus*)  
 Pasuig (*Podocarpus amarus*)  
 Dalung (*Phyllocladus hypophyllus*)  
 Lokinai (*Dacrydium elatum*)  
 Mountain yew (*Tarus wallichiana*)

Philippine hardwoods (Angiosperms) include the Philippine mahogany group, the apitong group and more than 3000 other species. Thus,

in the Philippines, the lumber industry, the plywood industry, the furniture industry and most other wood-using industries must be based mainly on the hardwoods. The pines, almaciga and malakauayan are valuable woods industrially and highly desirable but the quantities available limit the extent to which industries can be based upon them.

Perhaps the discussion of this subject can be understood better with the aid of the accompanying table which illustrates the botanical system of classifying wood species and subdividing them into families, genera and species. Since there are more than 3500 tree species in the Philippines, the table can show only a very small fraction of the hardwoods but it shows all the commercially important softwoods of the Philippines.

### SOFTWOODS

Families	Genera	Species
Araucariaceae	<i>Agathis</i>	Almaciga ( <i>Agathis philippinensis</i> )
Pinaceae	<i>Pinus</i>	Benguet pine ( <i>Pinus insularis</i> ) Mindoro pine ( <i>Pinus merkusii</i> )
Pine family		Malakauayan ( <i>Podocarpus philippinensis</i> )
Podocarpaceae	<i>Podocarpus</i>	

### SOFTWOODS

Families	Genera	Species
Anacardiaceae	<i>Koordersiodendron</i> <i>Dracontomelon</i> <i>Mangifera</i>	Amugis ( <i>Koordersiodendron pinnatum</i> ) Dao ( <i>Dracontomelon dao</i> ) Pahutan ( <i>Mangifera altissima</i> )
Combretaceae	<i>Terminalia</i>	Binggas ( <i>Terminalia citrina</i> ) Kalumpit ( <i>Terminalia microcarpa</i> )
Ebenaceae	<i>Diospyros</i>	Ebony ( <i>Diospyros ferrea</i> ) Kamagong or mabolo ( <i>Diospyros discolor</i> )
Dipterocarpaceae	<i>Anisoptera</i>  <i>Dipterocarpus</i>  <i>Hopea</i> <i>Parashorea</i> <i>Shorea</i>  (and others)	Dagang ( <i>Anisoptera aurea</i> ) Palosapis ( <i>Anisoptera thurifera</i> ) Apitong ( <i>Dipterocarpus grandiflorus</i> ) Panau ( <i>Dipterocarpus gracilis</i> ) Manggachapui ( <i>Hopea acuminata</i> ) Bagtikan ( <i>Parashorea plicata</i> ) Tangile ( <i>Shorea polysperma</i> ) Red lauan ( <i>Shorea negrosensis</i> ) Guijo ( <i>Shorea guiso</i> ) Yakal ( <i>Shorea astylosa</i> )
Leguminosae	<i>Intsia</i> <i>Koompassia</i> <i>Pahudia</i> <i>Pterocarpus</i> <i>Sindora</i> <i>Wallaceodendron</i> (and others)	Ipil ( <i>Intsia bijuga</i> ) Manggis ( <i>Koompassia excelsa</i> ) Tindalo ( <i>Pahudia rhomboidea</i> ) Narra ( <i>Pterocarpus spp.</i> ) Supa ( <i>Sindora supa</i> ) Banuyo ( <i>Wallaceodendron celebicum</i> )
Verbenaceae	<i>Teijsmanniodendron</i> <i>Vitex</i> (and others)	Dangula ( <i>Teijsmanniodendron ahernianum</i> ) Molave ( <i>Vitex parviflora</i> )

1. Anonymous, 1954. Forest products lecture outline on properties of wood, USFPL, Madison, Wisconsin, U.S.A.
2. Brown, H. P. et al, 1949. Textbook of wood technology. Vol. I. McGraw-Hill Book Co., Inc. New York.
3. Harlow, W., 1941. Textbook of dendrology, 2nd edition. McGraw-Hill Book Co., Inc. New York.
4. Rendle, B. H., 1957. The growth and structure of wood, 2nd edition. Her Majesty's Stationary Office, London.
5. Tiemann, H. D., 1951. Wood technology, 3rd edition. Pitman Publishing Corp., New York Toronto, London.

### THE CRACKING OR CHECKING OF WOOD CARVINGS

Some Philippine carved wood products sold to the United States and other countries develop cracks, especially those that arrive there during the middle of winter and are placed in houses that are heated. The cracking results mainly from the rapid loss of moisture and the shrinking caused by this moisture loss when wood is moved from a humid climate to a dry climate. When the outer zones or the end surfaces of a carving dry much more rapidly than the inner portion, they shrink faster than the inner portion which puts the outer wood in a stretched condition. If the stretching or tensile stress is too great, the wood will crack to relieve the tension.

Cracking or checking is influenced by a number of factors including:

(a) *The dryness of the wood when exposed to the low-humidity conditions:* Wood always tries to reach a moisture content in equilibrium with the relative humidity of the air surrounding it<sup>1</sup>. Air-dry wood in the Philippines may have a moisture content of 14 to 17 percent but in heated houses in northern United States during cold winter weather it may have a moisture content as low as 5 or 6 percent. If the wood to be exported has a high moisture content, the danger of its cracking when exposed to such low relative humidity is very great.

If from the time it leaves the Philippines the further drying of wood is effected slowly and carefully, cracking can be greatly reduced and often entirely avoided. After the wood dries to the moisture content it will finally attain in the United States there is little danger of further cracking. But if the drying takes place rapidly, the danger of cracking is greatly increased. Carvings from the Philippines that arrive in the United States at the beginning or in

the middle of winter are more likely to crack than those that arrive in the States in the late spring or summer, after the heating season is over and the indoor relative humidities are much higher than in winter.

(b) *The size of the carving:* Thick, heavy carvings are more likely to crack than thinner ones. Wide carvings are more likely to crack than narrow ones of the same thickness.

(c) *The way in which the wood is cut:* Carvings made from "quarter-sawn" boards (boards cut parallel to the radius of the tree) are less likely to crack than carvings made from "flat-sawn" boards (boards cut approximately perpendicular to the radius or tangential to the circumference of the tree). End surfaces are more likely to crack than side surfaces. In carvings made from blocks containing the center or pith of the tree, cracking is almost certain to take place before the wood reaches the low indoor moisture contents prevailing in the United States during cold weather.

(d) *The species of wood used:* Different species of wood vary in their tendency to shrink or swell with a given change in moisture content and some of them will shrink 1½ to 2 times as much as others under the same conditions. In general, light-weight woods shrink less than heavy woods under the same conditions but there are exceptions to this rule. Most light-weight woods, though, are not particularly attractive in color or figure. Also some of the woods that are most attractive in appearance are heavy and have high shrinkage. Philippine woods that have low or moderate shrinkage but at the same time are attractive in color or figure are raintree (*Samanea saman*) (which is commonly called "acacia" in the Philippines or "monkey pod" in Hawaii) and narra (*Pterocarpus indicus* or *P. vidalianus*). These woods will generally crack less in drying to low moisture contents than woods with high shrinkage values, under the same conditions. Other species undoubtedly have good properties for the purpose but their shrinkage tendencies have not yet been determined.

The forgoing discussion covers the principal causes of checking or cracking in carvings and makes some suggestions that could help in minimizing the defect but it offers no sure cure for the trouble because there is no simple and practical way that is certain to prevent it. Cracking can be greatly reduced, however, and usually avoided, if the reasons for the cracking are understood by the carvers, the merchandizers and the customers and if each does what he can to avoid it.

*What the carver can do.*

1. As much as possible, use wood that has low shrinkage properties.
2. Use designs and sizes that are least likely to crack.
3. Avoid the use of blocks containing the center or pith of the trees.
4. See that the wood is thoroughly dry before carving, or at least before it is sold to customers or foreign dealers.
5. Experiment with removing excess wood from the center of large carvings by boring or chiseling. (This method should be approached cautiously for it is not known to have been worked out successfully.)

*What the dealer or jobber can do.*

1. Assist the carvers in getting wood that is most suitable in species and dryness for their purposes. This may have to be brought in from other parts of the Philippines.
2. Know the dryness of the carvings obtained from the carvers and handle them accordingly.
3. Dry slowly to a low moisture content carvings that are intended for sale in the United States and other countries with similar low humidities.
4. Maintain a storage room where suitable humidity is maintained to keep the carvings at about 8 percent moisture content while waiting sale or shipment to the States but do not put carvings in this room until they have dried down to about 13 percent.
5. Wrap each carving in suitable plastic film or in asphalt lined paper. This will slow down the rate of moisture change.
6. Ship out carvings that are as near as practical to the moisture content they will attain in service.
7. Issue a warning slip with each carving telling the buyer how to care for it so as to avoid cracking.

*What the purchaser can do.*

1. Avoid placing carvings purchased from local Philippine dealers immediately in places where the relative humidity is low or allowing them to remain for long periods in direct sunshine. In other words, avoid rapid drying of the carvings. Carvings that arrive in the United States in winter should not be brought immediately into dry heated rooms but should be kept in more humid places until the heating season is over. Some drying of the carvings will take place during the summer but it will not be so rapid as in winter and there will be less danger of cracking during the second winter than during the first. Never leave wood carvings

(or other wood items) close to a hot radiator.

2. By the skillful use of wrappings that retard the passage of moisture from the wood he can slow down moisture changes.

*Treatments and Coatings*

There is the possibility of using coatings and treatments that will slow down the rate of drying or otherwise will stabilize the wood and reduce the tendency to check during severe drying. No such treatment is known to have been so thoroughly explored that it can be recommended as yet. The following are mentioned, however, for the information of those who may wish to experiment:

(a) Green wood soaked for some days in polyethylene glycol-1000, a wax-like material that is soluble in warm water (about 104° F) is said to have its tendency to check greatly reduced. This chemical is very costly at present and is not available for sale in the Philippines. Wood so treated does not take ordinary finishes very well and, if finished at all, requires a special finishing material. Information about experiments with this material on gunstocks can be found in an article entitled, "Chemical treatment curbs shrink and swell of walnut gunstocks" by Mitchell and Wahlgren, in the Forest Products Journal, Volume IX, page 437, December 1959. No experiments with polyethylene glycol-1000 are known to have been made to date in the Philippines.

(b) Paint, shellac, or varnish finishes are not often desired on carvings but when they can be tolerated they will slow down the rate of moisture change and thus can be helpful in checking. In order to be effective, however, they must be applied to all surfaces, ends and edges of the carving, not just one or two sides. Such coatings do not prevent the escape of moisture but they reduce the rate of change.

(c) Coating all surfaces of the wood repeatedly with a drying oil, such as boiled linseed oil, and allowing it to dry thoroughly between coatings can retard the rate of drying of the wood but this will change the appearance of the carving and for that reason may usually be unacceptable. In general, coatings of linseed oil have been found less effective in retarding moisture changes than paints. Since linseed oil is not produced in the Philippines, the use of lumbang oil may be tried instead.

*REFERENCES*

1. Technical Note No. 1, The moisture content of wood in relation to air humidity.
2. Technical Note No. 2, Some facts about kiln-dried wood.

**Relationship Between Morphological  
Characteristics of Harwood Fibers  
and Pulp-Sheet Properties<sup>1</sup>**  
(Abstract)

By  
FRANCISCO N. TAMOLANG

DIGEST

The relationships between the morphological features and hardwood fibers and pulp-sheet properties for fifteen species, of domestic or tropical origin, have been studied. These species were selected over a wide range of specific gravity and wood fiber characteristics in an effort to obtain basic information on the strength attributes of kraft pulp handsheets.

One phase of this investigation was concerned with the determination of fiber dimensions. The major phase consisted of the processing of the pulps of individual species and the preparation and testing of handsheets to determine their strength properties.

The strength properties of hardwood pulp appear to be related to the morphological characteristics of fiber, intrinsic fiber strength (fiber quality, and specific gravity of the wood to a very substantial degree. On a quantitative basis, the relationship between individual characteristics, or combination of characteristics and specific properties show varying degrees of significance. In most cases, the relationships are appreciable and offer justifiable conclusions.

In the unbeaten pulp, pulp freeness is related primarily to cell-wall thickness, increasing as wall thickness increases. Flexibility ratio influences tensile and burst strengths favorably. by multiple correlation analysis, these properties are adversely affected by increasing diameter and specific gravity and improved by increasing lumen width. These relationships are consistent with sheet behavior in which strength is controlled by fiber to fiber bonding and favored by improved contact surface area.

In the beaten pulp, flexibility ratio alone seems to be quite ineffective in accounting for pulp strength and bursting strength properties. At 450 freeness, these strength properties seem to be improved by the combined influence of increasing fiber quality, flexibility ratio and freeness decrement. Pulp sheet strength at this condition appears to involve both fiber to fiber bonding and individual fiber strength but interpretation is complicated by the fact that early half of the total variation remains unaccounted for. The situation is somewhat clarified at freeness 300 where the same three factors prevail

and less than 25 per cent of the total variation remains unaccounted for.

Tearing strength of unbeaten pulp increases with increasing reciprocal specific gravity of wood. A better relationship involves an increase in tear factor with increasing fiber length and increasing lumen width although it decreases with increasing cell-wall thickness. Tearing strength is apparently related to fiber to fiber bonding in the unbeaten pulp condition. After beating, tear factor astonishingly fails to show a simple relationship with felting power or fiber length as good as that obtained with fiber quality. Fiber quality alone accounts for 50 to 60 per cent of the total variation in tear at freeness 450, freeness 300, and in maximum tear regardless of the level of freeness at which tearing strength attains its maximum. At all three conditions of freeness, the combined variables of fiber quality and fiber length account for 70 to 75 per cent of the total variation and both have a positive relationship with tear factor. Intrinsic fiber strength contributes significantly to tearing strength of a pulp sheet under these conditions.

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# *U. P. Golden Jubilee Symposium-Forum On Forestry And Forest Conservation Scenes*



A portion of the audience during the symposium-forum sponsored by the College of Forestry at the Rizal Hall on Sept. 9, 1958.



U.P. President Vicente Sinco delivering the opening remarks at the Forestry symposium.



For. Tiburcio Serevo speaking on "Classification of the Forest Based on Use."



President Sinco keenly interested in statistics on forest resources.



Mr. Florencio Tamesis answering one of the interrogators during the Forestry symposium-forum.



Dean Gregorio Zamuco of the College of Forestry speaking on "The Role of Forest Education and Research."



Some of the speakers during the Forestry symposium at the Rizal Hall on September 9, 1958.



"... the first thing that should be done is to evolve a policy that will give permanency in the use of the forest, so that we can get both the service and the production which are the final objectives of the forest."



Director Eugenio de la Cruz acting as moderator during the symposium-forum.



Speakers and guests with some of the faculty members of the College of Forestry at the luncheon served at the Philippine Columbian Club.



"Only actual demonstrations of how all concerned — capitalists, workers, traders, 'kaingineros' and all others, can profit by conserving our forests can be expected to produce the desired result."



Pres. Vicente Sinco answering one of the interrogators during the symposium-forum.



# • Campus Notes •

We are very fortunate and greatly honored by Dr. Hardy L. Shirley, Dean of the State University of New York's College of Forestry at Syracuse for accepting our invitation to be one of the speakers at our Golden Jubilee Symposium Forum this morning.

We are profoundly grateful to him for going out of his way despite his heavy schedule at Syracuse and the great distance that he has to travel, just to be with us, and to see personally what the ICA-NEC (Syracuse-UP) contract has done and will be able to do for the College.

Dr. Shirley began his professional career as an educator, teaching mathematics at the University of Nevada for three years following his graduation from Indiana University in 1922. He entered the School of Forestry at Yale University in 1925 and was awarded the Ph.D. degree there in 1928. He was appointed Dean of the State University of New York's College of Forestry at Syracuse on January 1, 1952.

At the College of Forestry, Dr. Shirley has been in charge of the research program to which New York State gave an initial appropriation the year he came to Syracuse, and which now has its own director and staff of 26 men. He also directed the graduate studies division and with the post-war increase in the size and services of the college, he recommended administrative reorganization. The trustees approved his proposal, which established divisions for physical sciences, biological sciences, and resource management and new departments of forest chemistry and forest economics.

He was designated a Fellow of the Society of American Foresters in December 1951, becoming one of the two youngest of the 60 members who bear the honor title. Dr. Shirley has served the S.A.F. as chairman of its Minnesota Section (1933); national council member ('44-'46); and editor-in-chief, *Journal of Forestry* ('46-'49).

He was instrumental in activating the Forestry Division of the FAO of the United Nations and has been a frequent speaker-participant in national, inter-American, and international forestry and conservation conferences. He has also been active on the national commit-



tee screening applicants for lectureship and research award, under the Fulbright Act, in forestry, soil, science, agronomy and animal husbandry. At the Fiftieth Anniversary of the University of Helsinki he was conferred an honorary degree.

A former member of the National Research Council, he is a Fellow of the American Association for the Advancement of Science, member of Phi Beta Kappa, Sigma Xi, Gamma Alpha, and the professional societies devoted to ecology, botany, and public administration. He was elected chairman of the Syracuse Chapter.

He wrote the "Forestry and Its Career Opportunities", numerous articles and popular articles.

\* \* \*

The transfer of administration of the Makiling National Park from the Commission on Parks and Wildlife to the University of the Philippines was made in a simple turnover ceremony on Sept. 21, 1960 at the College Auditorium.

Hon. Cesar M. Fortich, DANR Secretary and Actg. U.P. President Enrique Virata headed the list of public officials and guests who witnessed the significant occasion.

President Virata delivered an acceptance address after Dean Gregorio Zamuco had traced the history and recounted the accomplishments of the College.

The university acting head said the College of forestry will assume direct supervision over the 4,000 — hectare national park. The park will not only be maintained as such but will also serve as a botanical garden and research laboratory for forestry students.

In his keynote speech Secretary Fortich hailed Presidential Proclamation No. 692 which effected the transfer of administrative jurisdiction of the Los Baños national park to the U.P. It will be recalled that he was instrumental in the signing of the proclamation.

An outlay of ₱36,000 has been allocated by the Board of Regents from the U.P. special fund this year for salaries and wages and traveling expenses and for equipment and supplies.

Four additional forest guards with technical training in forestry have recently been appointed in order to carry out effectively park regulations and rid the area of squatters.

Prof. Agustin Pascua of this College has been designated by the dean as in charge of the park without additional compensation.

E. CORTEZ

# College of Forestry Golden Jubilee and Bureau of Forestry Sixtieth Anniversary Program

**Tuesday, November 29, 1960**

College of Forestry, College, Laguna

8:30 a.m. . . . . Registration of Alumni and Guests at the College of Forestry Main Building

9:30-12:00 a.m. . Symposium-Forum

Speakers:

“Trends in Forestry Education”

Dr. Hardy L. Shirley, Dean  
State University of New York College of Forestry  
at Syracuse University, Syracuse, N.Y., U.S.A.

“The Importance of General Education in Forestry”

Hon Jose Y. Tuazon  
Undersecretary of Education

Rapporteurs:

Mr. Benito Lim  
College of Forestry, U.P.

Miss Zenaida L. Portacio  
College of Forestry, U.P.

2:00-5:00 p.m. . . Open House: College of Forestry, Forest Products Research Institute, Forest Experiment Station and Makiling Reforestation Project  
Exhibition Games

7:30 p.m. . . . . Bonfire Program

1. Fireworks
2. Skits by: College of Forestry, Forest Products Research Institute, Bureau of Forestry, Parks and Wildlife Office, and Reforestation Administration
3. Surprise numbers

**Wednesday, November 30, 1960**

College of Forestry, College, Laguna

5:00 a.m. . . . . Reveille, Forestry Campus

8:00 a.m. . . . . Opening of Exhibits

9:00 a.m. . . . . Floral Offerings

10:00 a.m. . . . . College of Forestry Golden Jubilee Convocation Forestry Pavilion

1. National Anthem . . . . . U.P. Los Baños  
ROTC Band
2. Opening Remarks . . . . . Dean Gregorio Zamuco  
College of Forestry, U.P.
3. College of Forestry Song Audience

4. Remarks ..... Forester Nazario Peñas  
President, Society of Filipino Foresters, Inc.
  5. Song ..... The Forest Songbirds  
Mrs. Nora Flores, Conducting
  6. Introduction of the Guest of Honor ..... Dr. Vicente G. Sinco  
President, University of the Philippines
  7. Address ..... Hon. Pio Pedrosa  
President, Prudential Bank & Trust Co.
  8. Hymn (U.P. Beloved) ... Audience
  9. Recessional ..... U.P. Los Baños ROTC Band
- 12:00 ..... Luncheon
- 2:00-5:00 p.m. .. Alumni Reunion and Society of Filipino Foresters' meeting
- 7:30 p.m. .... Reception and Dance, Forestry Pavilion  
II MA Orchestra attending  
Awarding of Prizes

**Thursday, December 1, 1960**

DANR Building, Diliman, Quezon City

- 9:00 a.m. .... Registration of Delegates and Guests
- 10:00 a.m. .... Bureau of Forestry Diamond Anniversary Convocation
1. National Anthem ..... Bureau of Lands Rondalla
  2. Opening Remarks ..... Forester Tiburcio S. Serevo  
Director of Forestry
  3. Song ..... Miss Loreta H. Baja  
Conservatory of Music, CEU
  4. Remarks ..... Forester Paul Zehngraff  
ICA Forestry Advisor
  5. Introduction of the Guest Speaker ..... Forester Jose Viado  
Administrator, Reforestation Administration
  6. Address ..... Hon. Cesar M. Fortich  
Secretary of Agriculture & Natural Resources
  7. Recessional ..... Bureau of Lands Rondalla
- 12:00 ..... Luncheon (Courtesy of Reforestation Administration Personnel) By Invitation.
- 1:00-5:00 p.m. .. Seminar  
"Establishing More Effective Coordination of Functions Among Forestry Agencies"
- Speaker ..... Regent Florencio Tamesis  
Member, U.P. Board of Regents
- Moderator ..... Forester Demetrio Brillantes  
National Development Company
- Rapporteurs ..... Forester Martin R. Reyes  
Bureau of Forestry  
Forester Isidro Siapno  
Bureau of Forestry  
"Establishing and Implementing Forestry Economic Policies"

Speaker ..... Engineer Gaudencio Antonio  
President, Chamber of Commerce of the Philippines  
Moderator ..... Forester Eugenio de la Cruz, Director  
Rapporteurs:  
Forester Juan Daprosa  
Bureau of Forestry  
Dr. Francisco N. Tamolang  
Forest Products Research Institute

**Friday, December 2, 1960**  
Manila

8:30-12:00 ..... Conference  
Little Theatre, Rizal Hall, Padre Faura  
"Coordination of Functions of Government Agencies Deal-  
ing with Forestry and Forest Users"

Conference Leader .. Hon. Salvador Cunanan  
Undersecretary for Natural Resources  
Department of Agriculture and Natural Resources

Resource Persons ... Director, Bureau of Forestry  
Director, Parks & Wildlife Office  
Administrator, Reforestation Administratino  
Director, Bureau of Fisheries  
Director, Bureau of Lands  
Director, Bureau of Mines  
Director, Bureau of Soils  
Director, Forest Products Research Institute  
Dean, College of Forestry  
President, Student Body Organization, College of  
Forestry

Representatives of:

Bureau of Internal Revenue  
Department of National Defense  
National Economic Council (NEC)  
United States of America Operations Mission to the  
Philippines (USOM)  
Presidential Committee on Administration Perform-  
ance Efficiency (PCAPE)

Forest users:

Philippine Lumber Producers' Association (PLPA)  
Plywood Manufacturers' Association of the Philip-  
pines, Inc.  
Philippine Association of Log Producers and Ex-  
porters (PALPE)  
Philippine Veneer Manufacturers' Association

Rapporteurs ..... Forester Segundo P. Fernandez  
Bureau of Forestry  
Forester Rosales A. Juni  
Bureau of Forestry

12:00 ..... Luncheon (Courtesy of Philippine Lumber Producers' As-  
sociation)

1:00-5:00 p.m. ... Closing Plenary Session  
Presentation of Workgroup Reports  
Presentation of Resolutions

## *Partial List of the Contributors to the College of Forestry Golden Jubilee and the Bureau of Forestry Diamond Jubilee Funds.*

<i>Names</i>	<i>Amount</i>	<i>Names</i>	<i>Amount</i>
Luis C. Doza .....	P 10.00	Manuel B. Verzosa .....	P 10.00
Jose R. Claveria .....	10.00	Artemio B. Cabanday .....	10.00
David M. Rojas .....	10.00	Ricardo T. Liganor .....	10.00
Quirico D. Tan .....	10.00	Aristoteles Vinoya .....	10.00
Zoilo L. Udaundo .....	10.00	Mariano E. Peralta .....	10.00
Juan L. Orallo .....	10.00	Conrado C. Rivera .....	10.00
Prudencio S. Afalla .....	10.00	Andres C. Blando .....	10.00
Jose F. Sabado .....	10.00	Alfredo Zamoranos .....	10.00
Melecio Lopez .....	10.00	Heleno J. Cuadra .....	10.00
Mariano A. Caleda .....	10.00	Aquilino Porciuncula .....	10.00
Mariano Galenzoga .....	10.00	Vicente Castillo .....	10.00
Eustacio S. Velasco .....	15.00	Domingo Abarro .....	15.00
Apolonio Alfiabon .....	10.00	Nicanor O. Selga .....	10.00
Victoriano U. Blancas .....	10.00	Democrito L. Dogondon .....	20.00
Emilio A. Rosario .....	10.00	Alfredo de los Reyes .....	10.00
Serapion C. Basalo .....	20.00	Emerson B. Abraham .....	10.00
Floro A. Solsona .....	10.00	Francisco Abihay .....	10.00
Santiago Morao .....	10.00	Marcelo V. Soliven .....	10.00
Julian T. Gumayagay .....	10.00	Severo Oliveros .....	15.00
Sofronio Andalis .....	10.00	Vicente Gobuyan .....	20.00
Carmelo D. Cortez .....	10.00	Jose Makil .....	20.00
Calixto Mabesa .....	15.00	Daniel B. Allas .....	10.00
Donato R. Aranas .....	10.00	Laura Vda de Daocy .....	10.00
Cirilo B. Serna .....	10.00	Narciso S. Nacario .....	10.00
Gervasio Rarang .....	10.00	Felix Jucaban .....	10.00
Cayetano Barros .....	10.00	Julian L. Avellano .....	10.00
Delfin Balbuena .....	10.00	Simplicio T. Castillo .....	10.00
Jesus Natonton .....	15.00	Felipe N. Salvoza .....	10.00
Ramon R. Abijuela .....	10.00	Aurelio Mejia .....	10.00
Jose C. Tomas .....	10.00	Maximo Sagrado .....	10.00
Quirjino Ruiz .....	10.00	Rosie Cañeda .....	10.00
Lucilo Torres .....	10.00	Juan Daproza .....	15.00
Rogelio B. Baggayan .....	10.00	Daniel Vadil .....	10.00
Martin Lickiayo .....	10.00	Ricardo Afante .....	7.50
Jose O. Banigued .....	10.00	Jose M. Alfaro .....	8.25
Wilfrido T. Rodrigo .....	10.00	Jose B. Blando .....	30.50
Louise Vda. de Davey .....	10.00	Anastacia Calces .....	7.50
Luis J. Reyes .....	50.00	Romulo del Castillo .....	13.50
Gregorio Miras .....	10.00	Teodoro Delizo .....	26.00
Angel F. Miguel .....	10.00	Ireneo Domingo .....	13.50
Ildefonso U. Costales .....	10.00	Bernardo Evangelista .....	10.00
Norberto Orbigo .....	10.00	Francisco Faustino .....	13.50
Alvaro G. Jastive .....	10.00	Enrique de Guzman .....	13.50
Fernando A. Roy .....	10.00	Ernesto de Guzman .....	7.50
Bernardo Bisunia .....	10.00	Domingo Jacalne .....	22.75
Mariano E. Gulle .....	10.00	Juanito Lamanilao .....	13.50
Cipriano Melchor .....	10.00	Claudio Lontoc .....	6.50
Mamerto M. Villanueva .....	20.00	Lorenzo Manarpac .....	6.50
Wenceslao Soriano .....	14.35	Artemio V. Manza .....	32.50

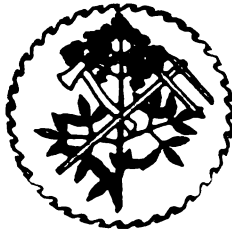
<i>Names</i>	<i>Amount</i>	<i>Names</i>	<i>Amount</i>
Florencio Mauricio	14.75	Juan M. Perez	10.00
Angelo Mordeno	13.50	Pedro P. Lazo	10.00
Vitaliano M. Pareja	11.00	Bernabe P. Zumul	10.00
Agustin Pascua	26.00	Benedicto T. Reprado	10.00
Filiberto Pollisco	14.75	Victoriano P. Soriano	10.00
Zenaida L. Portacio	13.50	Baldomero P. Davocal	10.00
Lucio L. Quimbo	14.75	Forester Felix O. Chinte	10.00
Juanita C. Ranit	10.50	Forester Jose Rubiano	10.00
Cesar Recto	22.75	Forester Marciano Basconcello	10.00
Froilan Rosqueta	26.00	Forester Gerardo Tamayo	10.00
Osiris Valderama	16.00	Forester Alfredo Eugenio	10.00
Napoleon T. Vergara	16.00	Forester Cirilo Arellano	10.00
Armando Villaflor	13.50	Forester Eulogio Tagudar	10.00
Rodolfo Yaptenco	19.75	Forester Jose A. Cruz	10.00
Gregorio Zamuco	39.00	Forester Domingo P. Ramel	10.00
Juan M. Banasihan	9.75	Forester Vicente Marababol	10.00
Amando T. Capiton	6.50	Forester Cayetano Macaraeg	10.00
Andres A. Orbita	6.00	Mr. Francisco Odangan	10.00
Salvador D. Risano	6.50	Asst. Director Carlos Sulit	15.00
Jose F. Nano	20.00	Forester Segundino P. Fernandez	10.00
Florencio Tamesis	20.00	Forester Anselmo Garcia	10.00
N. T. Capistrano	100.00	Forester Gregorio Poblacion	10.00
Ricardo Garcia	100.00	Forester Epifanio B. Fernandez	10.00
Guillermo Ponce	300.00	Forester Emiliano de Guzman	10.00
Cirilo Andrada	20.00	Mr. Agerico Gonzales	10.00
Porfirio San Buenaventura	20.00	Mr. Teodorico Montojo	10.00
Hipolito B. Marcelo	50.00	Forester Ramon Rondilla	10.00
Jose G. Sanvictores	25.00	Mr. Justino Bernardo	10.00
Felipe M. Buencamino, Jr.	25.00	Mr. Gregorio Salinas	10.00
Emmanuel Elayda	10.00	Forester Maximino R. Reyes	10.00
Crisostomo Tiongson	10.00		
Santos E. Dueñas	10.00		
Demetrio Mendoza	10.00		
Agapito L. Cenabre	20.00		
Monico T. Eteubañas	10.00		
Hermogenes Marquez	10.00		
Catalino F. Tosco	10.00		
Nazario Peñas	50.00		
Bartolome R. Reyes	10.00		
Norberto L. Denoga	20.00		
Mario F. San Luis	20.00		
Hermogenes D. Maon	10.00		
Wenceslao Agbayani	10.00		
Macario A. Mariano	50.00		
Celestino O. Tolentino	10.00		
Amado Pura	10.00		
Trazon E. Tuscano	10.00		
Serafin A. Camacho	10.00		
Lucio Abalos	30.00		
Ciriaco Ariola	10.00		

## REFORESTATION . . .

*(Continued from page 100)*

*towns and cities affected by "Lucille" should be done immediately*— This work partakes the nature of beautification and community development, hence should be led by the entities like the Parks and Wildlife Office, PACD, Agricultural Extension Bureau, etc. Beautification is not reforestation. The Reforestation Administration may still provide seedlings for beautification and Community Development at nominal cost.

(3) *The construction of more proper drainage systems and improvement of existing ones*— This is the responsibility of the engineering department of the entities concerned. The despective Mayors ties concerned. The respective Mayors have to see that something is done now.



by **MODESTO T. TOBIAS**  
Chief, Forestry Information Section

#### NEW DIRECTORS

Forestry acting director Tiburcio S. Serevo and forestry project coordinator Carlos Sulit were appointed recently director and assistant director, respectively. The two top forestry officials took their oaths of office October 21.

Serevo started his public career as ranger, rising to the positions of assistant forester, forester, senior forester, forest management division chief, assistant director and director. Sulit began as probational ranger and later promoted to ranger, forest supervisor, forester, forest investigation division chief, management division chief, administrative division chief, bureau officer-in-charge, forestry project coordinator and assistant director. Sulit has 46 years of continuous service with the bureau to his credit.

Both officials have taken up graduate courses in forestry abroad as government pensionados.) fbc

10-13-60:AJE

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#### RETIREMENT

The bureau of forestry is confronted not only with the problem of lack of funds but also personnel depletion caused by the compulsory retirement law, acting director Tiburcio S. Serevo said yesterday.

The situation, Serevo explained, is aggravated by the fact that no ready and suitable replacements are available to fill up the void created by experienced foresters who have retired.

Another veteran, Forester, Carlos Sulit, will retire November 4 this year, with nearly 46 years of continuous service behind him. Sulit is the forestry project coordinator and has been designated acting director at various times. A former U.P. College of Forestry professor, he graduated with honors both from the U.P. College of Forestry (ranger course) and Yale Forest

School (master of forestry). He had been chief of different divisions.

Other ranking foresters who have retired are Agapito L. Cenabre, 46 years of service; Florencio Tamesis, 41; Doroteo Soriano, 41; Jose F. Nano, 40; Severo Oliveros, 42; Braulio Cristobal, 40; Porfirio P. San Buenaventura, 46; 46; Ramon A. Acuña, 46; Leonor Lizardo, 40; Melecio Lopez, 42; Felipe R. Amos, 41; Isabelo Achacoso, 44; Felix Franco, 48; and Valentin Sajor, 38.—aje

\* \* \* \*

#### FOREST CHARGES

Acting forestry director Tiburcio S. Serevo vehemently denied the allegations that the forestry bureau had converted cash deposits for forest charges into reforestation fund charges. In a press release carried by one of the afternoon papers the forestry bureau had allegedly converted cash deposits into payments of reforestation fund charges and a BIR official expressed surprise on why the forestry bureau has been collecting forest charges.

Serevo explained that under Republic Act No. 115 only reforestation fund charges are paid direct to the bureau of forestry or to the treasurers concerned who in turn remit amounts of such charges to the forestry bureau and that cash deposits deposited with the forestry bureau are reflected in the forestry book of accounts as "trust fund" for payment of fees and taxes collectible by the bureau of forestry. Such deposits are not treated as payment of forest charges, he said. Seven years back, there were cases of cash deposits made with the bureau for payment of forest charges but all payments were remitted to the national treasury and not collected by the forestry bureau, Serevo further explained.

According to Serevo, erroneous payment of forest charges remitted to his bureau by municipal, provincial and city treasurers are promptly remitted to the internal revenue bureau. In

a report of the chief accountant of the bureau of forestry such remittances to the national treasury amounted to ₱51,333.09. He said that this is a cooperative measure adopted by his bureau with the internal revenue.

10-21-60

\* \* \* \*

### DELINQUENT BONDS

Acting forestry director Carlos Sulit directed his division chiefs to take action against surety companies which do not pay promptly forfeited bonds posted in favor of licensees as guarantee for compliance with forestry rules and regulations.

Sulit took the step after he had learned that forfeited bonds put up by several bonding firms have remained outstanding for several years now. He warned that delinquent surety companies would be reported to the insurance commissioner or banned from posting forestry bond.

Meanwhile, the two-year old controversy over Nueva Ecija forestry leadership appeared to have been settled temporarily when director Sulit designated forester Jose Makil of Nueva Vizcaya as head of the forestry office in Cabanatuan City. The two contending district foresters were transferred to other provinces.

#### Compliments

**Sustained yield Management  
is the Key to perpetual forest  
productivity and use.**

## AGUINALDO DEVELOPMENT CORPORATION

#### Head office:

Metropolitan Theatre Bldg.  
Plaza Lawton, Manila  
Asuncion-Kapalong, Davao

Timber Concession Under  
Sustained Yield Management

Member: Philippine Lumber  
Producers Associations, Inc.

The dispute which had reached the high tribunal started when former director Felipe R. Amos shifted Deogracias Juni to Nueva Ecija vice forester Tranquilino Orden, Jr. who was transferred to Lucena, Quezon. Orden defied the order and brought the case to the court. Sulit's action made with the approval of secretary Cesar Fortich of agriculture and natural resources is expected to restore normal forestry activities in Nueva Ecija.

Director Sulit also created a welfare committee in the forestry bureau to assist employees who become sick or whose family is visited by death or sickness. He has been in-charge of the bureau since the departure of acting director Tiburcio S. Serevo for the Fifth World Forestry Congress in Washington. — aje

9-13-60:AJE

\* \* \*

### PRIVATE WOODLANDS

Acting forestry director Carlos Sulit has suspended the issuance of private woodland registration based on *information posesoria* title. The suspension was spurred by the discovery of forged titles in Camarines Sur.

Forestry project coordinator Sulit gave the suspension instruction shortly after he had been designated acting forestry director by Malacañang upon the recommendation of Secretary Cesar M. Fortich of agricultural resources.

Sulit also opened the First Camarines Norte workshop seminar on selective logging at Daet. To enhance efficiency and employee relationship, he revived the suggestion box for forestry personnel and instructed his staff to expedite appointment and promotion papers.

The new acting director was sworn into office by Secretary Fortich. He will act as such until the return of acting director Tiburcio S. Serevo from the Fifth World Forestry Congress in the United States.

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#### FLASH

The University constituency will be happy to learn that the Budget Commission approved Thursday, Nov. 10 an appropriation of almost half a million pesos for the forest technology building for the College of Forestry at Los Baños.

An ICE-NEC project, to be completed by middle of 1961, it will house the photogrammetry, soils testing, and seedlings laboratories of the only government forestry college in the Far East.

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Nov. 3, 1960  
(official Holiday here in the  
whole of Japan)

Dear Prof. Blando:

While resting in my hotel, I came to think of writing you.

I just came from Tomakomai in Hokkaido (Northern Japan) where I visited the biggest newsprint factory in the whole of Asia. It is quite cold there now. I wore an overcoat loaned to me by a Japanese friend.

I have traveled by airplane, car and train outside of Tokyo to many parts of Japan—tourists spots, industrial places, forested regions, and agricultural areas. In brief I believe we are 50 years or so behind the Japanese in many ways.

Their small patches of tillable land are intensively cultivated, heavily fertilized (they use organic as well as commercial fertilizer) and properly irrigated. Their yields of rice is much higher than ours. Their carrots, radishes, apples, pears, etc., are giants compared to what we see in the Philippines. Their hills are reforested or afforested scientifically, the distances between planted tree seedlings are mulched with grasses or straw. They put up fire lines or fire breaks between sizeable areas of newly reforested or afforested hills or mountain slopes for obvious reasons.

Director Cruz and I were able to visit the cities of Hakone and Nikko and saw beautiful forests properly conserved, made mostly of Japanese cedars, pines, cypress, white birch, etc.

I haven't yet seen a single "kaingin" over here.

The Japanese people are highly civic-conscious. They import logs presently thus conserving their forests. Their educational system is very widespread. Athletics is pronounced in schools that is why, by and large, most Japanese students or pupils are healthy, muscular and active.

Hokkaido is sparsely populated but it has several thriving industries—pulp and paper making, brewery, fishing, forest industries, dairy, etc.

Another significant thing I notice here is the shortage of farm labor and good looking girls in rural districts. They are moving to the cities like Tokyo, Yakohama, Osoka, Kobe, Nago-

ya, and others, where the chances of employment and wages are high.

Here in the cities, night clubs or cabarets, tea & coffee houses, restaurants and hotels, commercial offices, etc., employ good looking girls by the scores. Here in Tokyo alone there are 9,000 or so of these establishments.

Their means of transportation and communication are good, much better than in our country. Electronics, shipbuilding, manufacture of chemicals, plastics, cement, fertilizer, glass, etc., etc., are on the up and up. Today Japan is enjoying a very high level of prosperity. Her people are on the whole courteous and respectful.

The technical conference on Pulp and Paper Development in Asia and the Far East terminated on Oct. 31. In the conference, we met pulp and paper experts from many countries—U.S., England, Germany, Sweden, Japan, India, Taiwan, Russia, Canada, Australia, New Zealand, etc. I believe the Phil. delegation has learned something from this international gathering which in the future can be adapted in our country.

We will explore for Taipei on Nov 9, will stay there to visit pulp and paper laboratories, mills and forest products using industries up to Nov. 15. We will observe and gather as much useful information as we can during our stays here in Japan and in Formosa. We may be able to adopt these useful information and observations for the benefit of our country, I hope.

It is high time we should be having scholars to learn thoroughly how to read and write and understand Japanese and Russian. These people have a lot of technical literature which we cannot understand or exploit. Many of their scientists know and write and understand English, German, etc. They have that big advantage.

So long and best personal regards to you and to everybody there, on the campus. We are getting along all right so far. We hope that everything there is o.k.

Sincerely,  
Manuel L. Monsalud

P.S.

For your next issue of the Forestry Leaves, you may reproduce any part of this letter if

you so desire for the benefit of your readers far and wide.

Director E. Locke and Mr. Chidester of the U.S. Forest Products Laboratory attended the conference.

'Hasta la vista.

\* \* \* \*

Dear Undersecretary Cunanan:

I am very much elated to learn of your promotion as Acting Undersecretary of the Department of Agriculture and Natural Resources. Please accept my heartfelt congratulations for the much-deserved promotion.

Your designation is no less than a due recognition of your long and fruitful years in the public service, and I sincerely believe that there could have been no better choice made by the President.

In behalf of the defense department and in my own, we wish to assure you of our continued support and abiding cooperation dedicated to greater service to our country and people.

With my deepest esteem and regard.

Sincerely yours,

(SGD) ALEJO S. SANTOS  
Secretary

Actg Undersecretary Salvador F. Cunanan  
Department of Agriculture and Natural Resources  
General Luna corner San Luis, Manila  
A TRUE COPY:  
cmg/11/3/60

DEPARTMENT OF FORESTRY

CENTER FOR FOREST DOCUMENTATION

BUCHAREST — RAION 1 MAI, SOSEAU PIPERA 46  
TEL. 12-66,33-12,04,46

October, 15th 1960

Dear Sir,

We beg to inform you that on July, 1st a Center for Forest Documentation (C.D.F.) was set up in Bucharest with the view of informing all units of production, the research and educational institutes about the latest progress in forest matters regarding silviculture as well as wood technology and industrialization.

As a consequence it has taken over all exchange of publications in this field of activity. Therefore please from now on address all your publications to us. We will review them and

in exchange will send you not only the publications elaborated by the Center itself but also by the new Forest Research Institute (INCEF) resulting after the unification of the former research institutes for Sylviculture (ICF) and Wood Technology and Industrialisation (ICE-IL).—

Sincerely yours,

Ing. Octavian Carare  
Director

Philippines — College of Forestry University of the Philippines.

The Business Manager  
Forestry Leaves  
College of Forestry  
College, Laguna

Sir:

Enclosed is Postal Money Order No. 343/145350, dated Nov. ', 1960, for ₱20.00 paid by Lucas and Taningco Trading of Kalibo, Aklan, as advertiser in the Golden Anniversary Issue of the Forestry Leaves this year.

We are also inclosing five pictures taken during this year's Arbor Week celebration at Campo Verde Reforestation Project, Tangalan-Ibajay, Aklan, but the same were not immediately available to be sent there and included in your Arbor Week Issue. However if, you still consider them of interest to the public and there is available space in the Golden Issue, please, do me the favor of publishing them. I thank you.

Picture No. 1 — mass planting lead by Honorable Governor Godofredo Ramos (marked "X") and Hon. Vice Governor Virgilio Patricio (marked "Y") of Aklan.

Picture No. 2 — A group of Boy Scouts on their way to the Boy Scouts' Grove.

Picture No. 3 — Miss Ohare of California, U.S.A. planting the AFS Memorial Tree.

Picture No. 4 — A group of Girl Scouts planting the Girl Scouts' Grove.

Picture No. 5 — The Boy Scout, of Aklan Chapter, planting the Boy Scouts' Grove.

Very truly yours,

NORBERTO ORBIGO  
Acting District Forester

# ● Sunshine Corner ●

Several women, noticing a policeman upbraiding another woman in the middle of a downtown Los Angeles street, rushed out to get a closer view. All were fined like the first — for jaywalking.

\* \* \* \*

A lady shopping in the garden of a department store noticed an object strange to her and asked the clerk what it was.

"It's a sundial," he told her, and patiently explained how the sun's shadow moving across the dial would indicate the time of the day.

"My," said the lady, "what will they think of next!"

\* \* \* \*

Your Ad: sure bring results," wrote a woman to the *Arizona Star*. "My lost dog has returned — with four pups."

\* \* \* \*

Possible Employer — "H'm! so you want a job eh? Do you ever tell lies?"

Office Boy — "No, sir, but I kin learn."

\* \* \* \*

Capsule Course In Human Relations

Five most important words: I AM PROUD OF YOU

Four most important words: What is your opinion?

Three most important words: IF YOU PLEASE.

Two most important words: THANK YOU.

Least important word: I.

\* \* \* \*

Motorist: "Aren't you the fellow who sold me this car two weeks ago?"

Salesman: "Yes, sir."

Motorist: "Well, tell me about it again. I get so discouraged."

\* \* \* \*

Not long ago I was persuaded to take mambo lessons. As I waited for my first one to begin, I stood watching the class before mine going through its paces. A very plump lady finished the routine of the arduous wriggling and collapsed in a pile on a sofa beside me. As she wiped her forehead I remarked: "Sort of different from the waltz isn't it?"

"I'll say," she puffed, nearly breathless. "It's like riding in a cadillac and then switching to a jeep."

\* \* \* \*

Each time Frank Murphy drove his car over 80 miles an hour, the motor set up a terrific knocking. He finally took it to a garage for a checkup.

The mechanic looked the car over carefully, but couldn't find a thing wrong with it. "At what speed did you say the car knocks!" he asked.

"Eighty."

"Nothing wrong with the car," the mechanic stated flatly.

"It must be the good Lord warning you."

\* \* \* \*

The Boy was sitting on the steps as the lush salesman approached.

"Hi, sonny! Mother home?"

"Yep"

The salesman knocked but nobody came to the door.

"Look, sonny, I thought you said your mother was at home."

The boy looked at the salesman a moment, then looked away as he said: "I don't live here."

\* \* \* \*

As we packed for a vacation trip through Canada, I recalled what a friend who had visited there recently had told me.

"We'll have to take different clothes than usual," I remarked.

"They say nobody there wears jeans."

My Junior high daughter, looking incredulous, asked: "Not even the girls?"

\* \* \* \*

A woman and her young daughter were looking over the livestock exhibits at a Midwestern state fair. Pausing before a stall, the mother remarked that the cow inside had won the championship in her class.

"Who," asked the child, "did she have to fight to win?"

\* \* \* \*

A small sports car purring smoothly along suddenly leaped into the air, came down, went a short distance, leaped into the air down again, up again. A startled traffic cop signalled the driver to stop.

"What's the matter with this car?" he demanded.

"N-nothing, sir," said the driver. "I have the hiccups."

\* \* \* \*

A CITY GIRL, telling friends about her brother-in-law's farm, said: "It's one of those experimental farms where the cows have calves without any bulls around — they call it artificial inspiration."

# Forestry Leaves

*Organ of the Student Body and Alumni of the College of Forestry, College, Laguna*

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*Editor in Chief*

*Associate Editors*  
EDMUNDO V. CORTEZ

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## Editorial

### LET'S REACH OUR NATIONAL LEADERS, TOO

*From the mass of technical papers and wealth of information that over 2,000 foresters from all over the world brought together at the Fifth World Forestry Congress recently concluded in Seattle, one paper stands out in my mind as of particular and timely relevance to us in the Philippines. This was the paper entitled: "The Training of Political and Industrial Leaders in Forestry Matters."\**

*Two paragraphs of the paper are hereunder quoted in full:*

*"In view of the great influence that the social, political, and industrial leaders exert on public opinion, it is essential to educate these leaders on this subject, considering that frequently their ideas and opinions on forestry are just as erroneous as those of the average citizen.*

*"Training this group presents some difficulty because, quite often, these leaders feel that their views are correct and, consequently, they resist all efforts to enlighten them on the subject."*

*It is a sad commentary that the education of our masses on forest appreciation has long been neglected. Other phases of forestry have advanced in more or less varying degrees, but the education of the public for forestry has stagnated. Efforts have been haphazard, disorganized and manifestly inadequate. It is not surprising therefore why the forest conservation movement, even at this late stage, has not gained the popular support so vital for its success.*

*But even as we must exert every effort to educate our masses on forestry principles and make them conservation-conscious, equal effort, we believe, must also be made to reach our national leaders who in the final analysis are the repositories of that power and influence needed to give life and meaning to measures intended to protect and develop our forestry resources. Misconceptions like all-lands-that will-grow-trees-will-grow-crops or our-forests-grow-faster-than-we-cut-them, to mention only the most obvious, must give way to facts. If our national leaders are to be effective apostles of forestry and not mistaken friends, they must be supplied with the basic facts of forestry.*

\* Presented by Enrique Beltran, Undersecretary, *Recursos Forestales y de Caza*, Mexico.

*In the Philippines we are fortunate that we have many men in positions of power and influence who, as demonstrated time and again, are only too eager to do their share in promoting the rational development of our forestry resources. That some of them have not considered it below their dignity to seek the counsel of technical men or to listen to the advice of men more familiar with the problems than they is a credit to the stature of these leaders. They are a boon to forestry.*

*Unfortunately, we also have so-called leaders who think they know everything and, with an arrogance born of ignorance, would inflict their notions and their pet projects on the country. Forestry — any cause for that matter — can suffer as much from its avowed enemies as from its well-intentioned friends. It is the latter group that we must make special efforts to reach and educate.*

N. P. Lansigan, Cl. '31 & '41

## *On this Golden Jubilee of Our Alma Mater*

On this Golden Jubilee of the College of Forestry we wish to remember the American Foresters, headed by Capt. George P. Ahern, who blazed the trail for Forestry education and conservation movement in the Philippines; the Honorable Jaime C. de Veyra, sponsor of Act No. 1989, creating the Forest School as a department of the College of Agriculture; Senator Geronima T. Pecson for Republic Act No. 352, changing the name of the School to College of Forestry; Congressman Jacobo Gonzales whose bill No. 342 enabled the rehabilitation and expansion of the Forestry School building; the late President Magsaysay for signing this Bill into Republic Act 989, the American Forestry Directors (ex-officio Deans) especially Director Fischer who served the bureau the longest, through whose initiative, untiring efforts and profound interest, the school was enabled to grow, develop and progress; the late Professor Cuzner fondly called the "Old Man" of Forestry, Regent Tamesis who has a soft spot in his heart for the college, the faculty and student body, and whose encouragement and moral support has kept the *Forestry Leaves* ever green, and for the Sta. Clara, Insular and Nasipit Lumber Companies' scholarships; Director Amos

for his interest in us and for the continuance of the housing privileges for the faculty, to Dean Mabesa for leaving no stone unturned until H.B. 324 was approved and for the ICA-NEC U.P. College of Forestry-Cornell University Contract which has greatly bolstered our faculty and equipment; to Dean Zamuco who untiringly and zealously worked with U.P. officials and the Department of Agriculture and Natural Resources for the transfer of the administration of the Makiling National Park to the University of the Philippines, the realization of the alumni dreams of bigger and more buildings for the College, the increase of the faculty and their promotions, and the additional aid in equipment and facilities, technical help, exchange professors, etc.; and to all who, in one way or another, have been responsible for the great changes that had taken place in this once "forgotten school", the training ground of young men, entrusted with the conservation of our vast forest resources, and who have all these years, despite handicaps and obstacles, contributed their part in the building of our Nation; and, of course, to all the contributors, our friends and well-wishers, the alumni the faculty and the forestry student body.

You who are here with us to-day will wonder at the innumerable changes brought about by the years since the last anniversary. The Campus is now leveler, the familiar trees, have grown taller, their branches now interlace above your heads. Each mahogany lining the road you once trod in your student days are fitting pillars to God's sylvan temple. You will be missing some of the Oldtimers. New and younger faces will greet you at the door. You will also note that the serious mien on the faces of your classmates during the good old schooldays has been replaced by the naughty smirk of seemingly irresponsible and happy-go-lucky "teenagers", that now compose, our student body.

But each student lives the very same life, dreams the very same dreams, like those who have gone before him. And like you he will cherish every precious memory of his days here on the Campus, and when he comes back to this memory-laden spot in the years to come, he, too, will say as you are saying now. "Nothing like the good old days". Time and Distance always lend enchantment to things of the Past. Otherwise, what are anniversaries for?

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(Required by Act 2580)

The undersigned, RESURECCION V. ASTUDILLO, 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:

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**RESURECCION ASTUDILLO**  
*Business Manager*

SUBSCRIBED AND SWORN to before me this 15th day of Nov. 12, 1960, at Los Baños, Laguna, the affiant exhibiting his Residence Certificate No. A-4611938 issued at Los Baños, on January 5, 1960.

**GENARO V. CATALAN**  
*Mayor, Los Baños, Laguna*

NOTE: This form is exempt from the payment of documentary stamp tax.  
ACT 2580 REQUIRES THAT THIS SWORN STATEMENT BE FILLED WITH THE BUREAU OF POSTS ON APRIL 1 AND OCTOBER 1 OF EACH YEAR.

# • Forestry in the News •

## TAMESIS IDEA ADOPTED BY CONGRESS *Seattle Resolution Makes Kaiñgin Problem Subject Of Continuing Research*

An idea proposed by Nasipit Gen. Manager Florencio Tamesis was adopted by the 5th World Forestry Congress held in Seattle Aug. 29 to Sept. 10.

Upon the recommendation of Mr. Tamesis, the Congress adopted a resolution urging the United Nations to create a permanent commission which would undertake research on the problem of shifting agriculture (kaiñgin) throughout the world.

The Tamesis motion was seconded, among others, by Dr. Tom Gill, internationally-famous expert on forest policy who visited the Philippines a few years ago.

Mr. Tamesis made the recommendation for a permanent commission after presenting a technical paper which showed that kaiñgin is a worldwide problem the solution of which would require application of varying remedies peculiar to local needs.

"The problem has strong socio-economic overtones that need studies beyond the confines of technical forestry," the NALCO head said.

Tamesis was one of our Philippine delegates to the Congress. With him were Forestry Director Tiburcio Serevo, who was commended for his expert handling of the chairmanship of sub-committee on tropical forestry; Director Vicente de la Cruz of the Parks and Wildlife Commission; and Nicolas Lansingán, forestry expert from the NEC.

Around 50 other Filipinos now travelling in the U.S. under various forestry grants also attended the Seattle Congress.

The Congress had for its theme this year, "Multiple Uses of Forests." Some 2,000 delegates from 65 countries attended.—*The Woodsman, October 1 & 16, 1960.*

\* \* \*

## GOV'T PLEDGES TO STEP UP DRIVE ON ILLEGAL LOGGING

A sharp reminder from Justice Buenaventura Ocampo, chairman of the Presidential Committee on Administration Performance Efficiency, prompted government agencies concerned to pledge to coordinate their efforts in pushing through the current drive against illegal cutting and smuggling of timber.

Justice Ocampo conferred with the heads of the government agencies taking part in the campaign following his receipt of a PCAPE investigating committee's report that the drive in Bataan, Nueva Ecija, Zambales, Tarlac and Camarines Sur had not

produced satisfactory results due to non-cooperation among these agencies.

After Ocampo had expressed his concern over this serious lack of cooperation, the conferees agreed to avail of the services of additional men for the effective implementation of measures against illegal logging and smuggling and to improve the system of forest protection, conservation and the collection of forest revenues.

The conferees approved the immediate hauling to a designated place of all confiscated and impounded logs within the provinces of Bataan, Tarlac and Nueva Ecija. These logs had been turned over to Defense Secretary Alejo Santos for custody but the conferees sought their speedy transfer to prevent their disappearance and deterioration and minimize the manpower used for guarding them.

Other matters taken up and agreed upon at the meeting were:

1. Organization of a PC-Forestry-Parks-BIR team in every province where there are national parks and a PC-Forestry-BIR team in places where there are no national parks as a means of effective enforcing forest and revenue laws and regulations.

2. Governmental measures to ensure the effective collection of forest charges, reforestation fees, surcharges and the proper remedial steps regarding the measurement and scaling of logs.

3. Assignment of additional prosecutors in places where the provincial fiscal's office cannot cope with the prosecution of forest violators like in Camarines Norte where there are about 400 kaiñgin cases pending trial.

4. Allocation of sufficient funds to finance underground work on fake *Informacion Posessoria* documents specially in Camarines Norte where more than 54,000 hectares of timberland is covered by alleged *Informacion Posessoria* titles.

\* \* \*

## VIADO IS THE ADMINISTRATOR FOR REFORESTATION

The massive reforestation program of the administration envisioned by Secretary of Agriculture, Cesar M. Fortich is expected to be in full swing before the end of this year, with the appointment of Forester Jose V. Viado as Administrator for Reforestation. Forester Viado took his oath recently before Executive Secretary Natalio Castillo.

The Reforestation Administration is the brainchild of Secretary Fortich. The law (Republic Act No. 2706) creating the Reforestation was approved during the last session of Congress.

Mr. Viado's appointment is something unique compared to other appointments nowadays. He never asked any politician to work for his appointment. He owes his appointment only to Secretary Fortich because he is the personal choice of the Secretary.

The new Administrator rose from the ranks. He has spent the best years of his life with the Bureau of Forestry, specializing in reforestation. His honesty is beyond question and he has had a very high scholastic record.

According to reports, Secretary Fortich has given the new Administrator a free hand to organize the Office and pick the men of his choice and confidence.

The Administrator was born on March 16, 1908 and finished his secondary education in the Abra High School. He was a pensionado graduates ranger, having graduated from the School of Forestry, U.P., in 1931 and got his Bachelor of Science degree in Forestry from the same school in 1938.

He obtained his Bachelor of Laws degree at the University of Santo Tomas in 1949 and, in 1957, he got his masters degree in forestry at Yale University, U.S.A.

Viado has advanced credits for Master of Public Administration, U.P. Institute of Public Administration. He had also been a fellow of the Food Agricultural Organization of the United Nations in the United States and had visited the various U.S. Forest Service Projects.

Following are some of the positions the new Administrator of the Reforestation Administration has occupied.

Special Trainee in Reforestation under Professor Hugh M. Curran, Los Baños, 1931-1932.

All reforestation funds collected pursuant to Republic Act No. 115 are to be turned over to the administrator of the Reforestation Administration, to be spent exclusively for reforestation purposes subject to the approval of the secretary of agriculture and natural resources.

Upon the recommendation of the Reforestation Administration, the agriculture secretary declares what areas are to be reforested and placed under the management, administration and control of the Reforestation Administration.

The new law stipulates that after the area or areas have been reforested, they shall not be declared agricultural lands.

All personnel now actually performing productive reforestation work, including all records, supplies, equipment, furnitures, vehicles and existing buildings, improvements and other facilities and properties in the various reforestation projects now in existence as well as in the central office are transferred to the new administration.

The reforestation administration shall have one administrator to be known as the administrator, and one deputy administrator, with salary ranges of 62 and 57, respectively, in accordance with the wage and position classification (WAPCO) and who shall be appointed by the President of the Philippines with the consent of the commission on appointments.

For the current fiscal years, all appropriations under the current national budget which pertains to the division of reclamation and reforestation of the bureau of forestry are transferred to the Reforestation Administration for the proper establishment and carrying out of the purposes of the new law.—*The Lumberman, August-September, 1960.*

\* \* \*

#### EXHIBIT OF P.I. WOODEN PRODUCTS OPENS IN N.Y.

A new line of Philippine wooden products for the table will be displayed to buyers here.

The "carabao" line of dishes, bowls, trays, serving implements and other articles is made of heat-resistant, warp-proof acacia wood from the Philippines.

Promoters of the products have high hopes that they will become popular in the United States and will enable the Philippines to compete with Japan in the sales of wooden table and gift wares.

Lew Shoskes, an executive of Shriro Trading corporation, told UPI that the Philippine products would have to compete with less expensive Japanese articles in the American market.

The Philippine tableware is designed to retail at from \$4.95 to \$34.95 per article.

Shoskes whose firm operates a sawmill in the Philippines cited United States department of commerce statistics showing that Philippine hardwood imports in that category had been running about \$50,000 a year compared with \$5 to \$7 million for Japanese imports.

"We expect to develop the industry so that the Philippines can compete," he said. "Wages are higher in the Philippines than in Japan. The Philippines has fewer craftsmen and lower productivity. These are some of the problems that must be overcome."

He said that two big United States stores—Tailored Woman and Nieman-Marcus—had placed orders for the Philippines wooden products and that several department stores had shown interest.

Ambassador Raul T. Leuterio, Philippine consul-general, is scheduled to cut a ribbon around the "carabao" line at Monday's opening of the "Little Management" exhibition. The ceremony will follow a champagne breakfast.

Buyers from many parts of the United States and other countries are expected to attend the one-week exhibition.



## LOG PRODUCERS MEET ON BILL TOMORROW

The Philippine Association of Log Producers and Exporters (PALPE) will meet tomorrow, to discuss a proposed bill on wood industries to be submitted to Congress next year.

Brigido R. Valencia, PALPE president, said the proposed measure contain the following provisions:

1. Regulation of log exports.
2. Determination of the needs of local plywood, veneer and lumber manufacturers.
3. Gearing local production of logs to meet local consumption and the quantitative requirements of Japan (quoted at 1.1 million bd. ft. annually beginning 1960 plus a possible increase of 10 per cent every year).
4. Encouragement of joint ventures with foreign capitalists on a long range program by the approval of entry of logging and processing machinery on deferred payment plan and financial assistance.
5. Designation of forest zones and strict protection of the same against indiscriminate cutting and against squatters.
6. Issuance of license agreements for 25 years to bona-fide and capable industrialists who can put up processing plants to create more employment opportunities.
7. Encouragement of the exportation of finished wood products by giving incentives in various forms
8. Full cooperation with the government in its program of reforestation and overall forest protection and conservation.—*Manila Times, November 14, 1960.*

\* \* \*

## DIRECTOR DENOGA OF BASILAN RECOMMENDS RUBBER AT MAKILING

Director Norberto Denoga of the UP Basilan Land Grant Thursday recommended the planting of rubber trees on a portion of the Makiling National Park recently acquired by the College of Forestry. One hundred hectares of rubber for latex products would yield a net income of ₱100,000 or more yearly, Director Denoga told Forestry Dean Gregorio Zamuco. This amount would help in financing and operation of the Forestry college and its projects, he further said.

The Basilan Land Grant has 4,105 hectares, 3,700 of which are now planted to rubber, coconut, coffee, cacao, vanilla, bananas and citrus.

Director Denoga left for Basilan Friday after a week's visit to Diliman and Los Baños campus. Accompanied by Jaime Antonio a mechanical engineer, Director Denoga purchased four dump trucks and two jeeps for the University's southern project.

Meanwhile, the radio-telephone service between the Diliman campus and the Basilan Land Grant

was opened two weeks ago. Formal inauguration of the communication service will be announced in this bulletin later.

\* \* \*

## COLLEGE OF FORESTRY FEATURED IN TELEVISION-RADIO SHOW

For the first time the public saw on TV and heard over the radio something about the college of forestry at Los Baños, Laguna.

A USIS team of movie-camera men, photographers and tape recorder technician headed by Mr. William David Bristow, Information Officer (ICA Liaison) and a representative of the press, Mr. D. Paulo Dizon, of the Orient News Service and Director, National Press Club of the Philippines, spent the whole day of Nov. 2, 1960 in the College of Forestry campus taking photographs, making recordings and gathering information about faculty, student and college activities.

The films were shown in a TV program last Sunday, through channel 13 at 9:30 in the evening. The recording were broadcasted over 29 radio stations located in various parts of the country, principally covers the talk of Dean Gregorio Zamuco about the (1) needs and problems of the College of Forestry; (2) programs and accomplishments during the U.P. College of Forestry-Cornell University Forestry Contract (1957-1960) and on the first year of the Contract between the College and the State University College of Forestry at Syracuse; (3) extent of and accomplishments thru NEC-ICA aid funds to the College; (4) the features of the program commemorating the Golden Jubilee of the College of Forestry on November 29-30, 1960; and (5) on many other matters affecting forestry education in the Philippines particularly the training of professional foresters to meet needs of the government and industry. The same information and photographs taken were featured in newspapers and magazines.

This USIS and College of Forestry joint project was made possible through the efforts of many people, both in the USIS and the College of Forestry but principally those of Mr. Paul Zehngraff, ICA forestry advisor to the Philippines; Professor Floyd E. Carlson visiting professor of Forestry Information from Syracuse; and Prof. Domingo Jacalne, counterpart in Forestry Extension from the U.P. College of Forestry.

\* \* \*

## NEED TO CONSERVE FORESTS STRESSED

The need to conserve national parks and forests was stressed yesterday in a meeting of a group of civic leaders at the Avenue Hotel.

Led by former Natural Resources Undersecretary Amando Dalisay, the group sought to initiate

a nationwide information campaign aimed at instilling in the minds of the people the dire need for forest conservation.

The move was made more urgent by the disastrous floods in Central Luzon which have been exacting a toll of human lives and millions of pesos worth of property.

A long term plan to avoid a repetition of the floods was pointed to by the group as a primary reason for conserving forests.

The group plans to enlist local and national organizations in carrying out the work of protecting and developing national parks, reforestation and soil conservation.

Dalisay noted the need for keeping permanent forest zones throughout the Philippines to maintain a balance between open land and forest.

He cited the disastrous floods in Central Luzon which he said was the result of a precarious imbalance between these two elements.

Destruction of trees in watershed areas, wanton cutting of forest cover and the shifting of the top soil from elevated areas to the river beds have been contributing factors to uncontrollable floods, he explained.

To kick off the national drive towards park conservation and development, Ceferino Picache, president of the Quezon City Rotary Club, pledged his organization's cooperation in establishing a well-protected national park in the Philippines' capital.

Director Vicente de la Cruz of the national parks and wildlife gave his support to the project and called for similar projects throughout the country as part of the national conservation efforts.

Also present at the meeting were Dr. Amando Clemente and Raoul Belos, former head of the National Rehabilitation and Resettlement Administration.—August 24, 1960.

\* \* \*

#### PANEL URGED ON PLYWOOD, LOG TRADE

A committee to coordinate the log, lumber, and plywood industries was proposed yesterday by Brigido R. Valencia, president of the Philippine Association of Log Producers and Exporters.

Valencia noted that lack of coordination among these industries has created problems which hurt interests.

Valencia called for a solid front among Philippine log producers to fight for stabilization of log prices abroad, especially in Japan where the Philippines exports the bulk of logs.

The coordinating committee, said Valencia, could be composed of representatives of the Philippine Lumber Association, the Plywood Manufacturers Association of the Philippines, Philippine Association of Veneer Products and Exports, and the Philippine Association of Log Producers and Exporters.

Valencia noted that the log lumber, veneer and plywood and other allied industries should be able to work out some kind of integrated operations.

He stressed that integrated effort among these industries would result in the protection of each other's interests.

\* \* \*

#### PLYWOOD INQUIRY SOUGHT

Oregon's Congressman Walter Norblad has urged the US tariff commission to begin a fullfledged investigation of imports of plywood in the United States.

Norblad told the tariff commission that "because of the great volume of foreign plywood imports into the United States a number of plywood mills in Oregon have been forced to close and others are running on short schedules."

Norblad's attack was aimed at the importation of Japanese mahogany plywoods which have flooded the American market through recent months.

This situation also has disastrously affected, bringing to near collapse, the Philippine plywood industry which depends largely on the American market.

The Japanese have imposed voluntary quotas on exports to America, but traders have circumvented the quotas by shipping the Japanese plywood to other ports such as Hong Kong and then re-routing them to the United States. As a result, the quotas have been far exceeded flooding the market with Japanese plywood to the detriment of American and Philippine made plywood.

Norblad told the commission: "Many plywood employes are out of work and unless action is taken to slow down plywood imports from foreign countries, the jobs of more of our own plywood workers and loggers will be lost."—*Manila Times September 26, 1960.*

\* \* \*

#### LOG TRADERS HIT DELAY IN DECONTROL

Log producers and exporters viewed with concern yesterday reports that the Central Bank cannot accelerate lifting of trade controls without Congressional action.

Leading the merchants who viewed this stand of the Central Bank with concern was Brigido R. Valencia, president of the Philippine Association of Log Producers and Exporters, who arrived yesterday from Tokyo.

Valencia, who was chairman of the PALPE trade and goodwill mission in Japan, said parliamentary measures are not needed to accelerate lifting of trade controls.

"The acceleration of the decontrol program is provided for in the margin law, and the ways and means of providing protection for Filipino interest

in the economy are also within the province of action of the Central Bank," Valencia said.

Reporting on the Japan conference, Valencia said the Japan Lumber Importers Association has given recognition to the PALPE and log trade between Japan and the Philippines may now be said to be on a stable basis.

"The successful PALPE mission to Japan looked forward to an accelerated foreign exchange de-control, hoping that it would generate increased activities in the production of export commodities. It is, therefore, like having cold water thrown on the mission to note that our CB officials seem to find no way of accelerating the control program," Valencia said.—*Manila Times*, November 4, 1960.

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#### 10-HECTARE MAN-MADE FOREST IN QC

A 10-hectare man-made forest will be developed here starting soon.

In charge of the project is a non-partisan committee headed by Finance Secretary Dominador Aytona. It will be set up at the sprawling national park site here.

Fifty-two 15-foot-high trees, each representing a province, will be planted in the park project. Each chartered city will also have one tree.

All kinds of major trees will be grown in the area.

Mrs. Leonila D. Garcia, was one of those who planted the first flower plants in the proposed site of the man-made forest.

A flowerland, where all varieties of Philippine flowers will be planted, will be one of the features of the park. This is Mrs. Garcia's pet project.

Other features are a lagoon, picnic ground, playgrounds, bicycle and horse lanes.—*Manila Times*, October 27, 1960.

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#### FORTICH BLAMES DENUDED FORESTS ON OBSOLETE LAWS

Agriculture and Natural Resources Secretary Cesar M. Fortich in a speech over the weekend blamed obsolete laws on forest conservation as responsible for the present crisis regarding the country's denuded timberlands.

Fortich was principal speaker during the Boy Scouts of the Philippines national executive luncheon meeting.

The new DANR head explained that the two kinds of taxes imposed on lumber licensees today—the forest charge fees and the reforestation fees—deprive the licensees the responsibility of reforesting commercial forest areas.

Thirty years ago, Fortich remarked, the lumbermen and even the kaingineros were the ones re-

planting the forests. Today, he added, this responsibility has been assumed by government agencies.

Fortich, however, expressed high hopes that the newly created Reforestation Administration, primarily intended to hasten the reforestation program will minimize if not entirely solve the country's major conservation problems.

The Reforestation Administration will be in the category of a bureau. It will absorb funds and personnel of the present reclamation and reforestation division of the bureau of forestry.

The DANR head also:

1) Solicited the help of the defense department to police our forest areas;

2) Corrected reports that the recent floods in Manila and suburbs were caused by deforestation;

3) Emphasized that only commercial forest areas "and not just any barren lands" will be reforested;

4) Announced a new bill in Congress authorizing both the secretary and undersecretary for natural resources to sign applications for homestead and free patents; and

5) Invited the boy scouts national council to thresh plans with DANR officials on the feasibility of cooperation toward a reforestation and conservation project of nation wide scope.—*Manila Times*, August 16, 1960.

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#### LOG EXPORT CONTROL BOARD MEET SET

Brigido R. Valencia, president of the Philippine Association of Log Producers and Exporters, urged yesterday the creation of a government agency to regulate the exportation of logs.

Valencia's proposal will be considered by the PALPE at its reorganizational meeting at the Manila Hotel on Saturday.

The PALPE head's recommendation, which was already endorsed by the organization's board of directors, proposes:

1. Allocation of exports based on production and exports during the last three preceding years.

2. Total allocation to existing exporters on the basis of completed foreign commitments.

3. That new loggers be allocated a portion of log exports commensurate to their production and actual operation.

Valencia stressed that the creation of the agency would not only stabilize the prices of logs abroad, especially in Japan, but would also help small loggers export their products at FOB value locally to big exporters at fair profits.

Valeriano C. Bueno, PALPE director, explained that Valencia's proposal would serve to prevent the overstocking of log ponds in Japan and prevent Japanese buyers from controlling log prices under unregulated exportation from the Philippines.—*Manila Times*, September 23, 1960.

## PI PLYWOOD SALES DOWN IN US MART

Philippine Consul General Benito M. Bautista was appraised today on the depressed condition of the plywood market in the United States which brought to focus Japanese dominance of the market at the expense of Philippine and American Plywood Production and Sales.

In a report submitted to Consul Bautista—Nick Daviscourt, general manager of Jones Veneer and Plywood Co., one of America's plywood manufacturers, said that "as a result of the terrific decline in the last 12 months in the US plywood market, the Philippines has steadily lost ground."

He cited the fact that for the first five months of 1960, Philippine plywood export amounted to 64,808,000 square feet compared to 74,983,000 square feet for the same period of 1959 or a decrease of 8.64 per cent.

The report brought out also the fact that for the first five months of 1960, Japan exported to the United States 303,965,000 square feet compared to 294,503,000 square feet she exported for the same period of 1959, representing an increase of 9.62 per cent.

The report also mentioned that the US department of commerce reported a production of 28,202,000 square feet from 46 United States plywood mills for the first five months of 1960. It compared this figure to 29,924,000 square feet of American production for the same period of 1959, or a decrease of 9.42 per cent.—*Manila Times, September 5, 1960.*

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## DROP IN US PLYWOOD SALE BARED

An American timber company executive reported last night a decline in the market for Philippine plywood in the United States.

Richard Bartlett, executive vice president of the Findlay Millar Timber Company, observed that the American market for Philippine plywood looked "very bad."

He returned last night by PAL Viscount from Hongkong after a two-week observation of the US market for plywood.

Bartlett told the "PNS" that the principal cause of the decrease was the increase in veneer exports to the United States.

"The only way we could hope to increase our plywood exports is to decrease veneer exports to the United States," he stressed.

Plywood is a better revenue-earning export than veneer, Bartlett added.—*Manila Times, August 11, 1960.*

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## FORESTRY FETE IN NOVEMBER

A four-day celebration will mark two grand anniversaries of Philippine forestry this November, it

was learned from Florencio Tamesis, dean emeritus of the college of forestry and general chairman of the committee handling the affair.

The bureau of forestry will celebrate the 60th anniversary of its establishment. Organized in 1900, this bureau was one of the first civil agencies to function under the American government.

On the other hand, the college of forestry will mark its golden jubilee. The college was founded in 1910, first as a department in the college of agriculture in the University of the Philippines, it developed through the years, until it became a separate collegiate unit of the state university.—*Manila Times, September 1, 1960.*

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## LOG PRICE SLUMP BLAMED ON JAPAN

The Philippine Chamber of Producers and Exporters yesterday ascribed the precipitous slump in log prices in Japan to the effective, efficient and organized workings of the association of log importers and plywood manufacturers association in Japan.

The chamber once more urged an organized concerted action from its log producer members to counteract recurrent slumps in the market abroad.

It recalled that at one time, in a meeting of the board of directors of the chamber when it was still the Producers and Exporters Association of the Philippines, it was proposed the regulation of log exports proportionate to the total production of log producers.

The log producers in the country, however, failed to rally around the proposal.

Brigido R. Valencia, PCPE 2nd vice-president and president of the Philippine Association of Log Producers and Exporters, noted that until Philippine log producers are able to work in unity and be sharply conscious of common survival, they can never protect effectively their common interest in the world market.

The PCPE rallied the plywood manufacturers to join a unified plan of log producers under the sponsorship of the chamber to regulate log, veneer exports to protect the plywood industry.

The chamber decried practice of American plywood manufacturers to use Philippine veneer as face of their plywood manufactures and pass it on as Philippine mahogany, as reported in the papers.

"Regulation of the export of veneer to the United States should counteract this practice," the chamber observed and urged.—*Manila Times, August 8, 1960.*

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## FROM BEAUTIFUL SCENERY TO HOT, DENUDED AREAS

When Olongapo, Zambales, was still part of the US Naval Reservation, the forested area along the

zigzag road leading to the town was thick and lush with forests. Travelers had a nice time enjoying the cool and beautiful scenery.

After the town was turned over to the Philippine government, I had the opportunity to visit it again. What had once been a cool, beautiful, and thickly forested area was now a denuded, charred, and very hot area.

There is a PC checkpoint and the place is not so far from local authorities who could easily reach it if they want to apprehend those responsible for the destruction.

If this destruction could be done under the very noses of our law-enforcement agencies, what will prevent kaingineros and illegal logcutters from destroying our forests in far-off places?

Is this being tolerated for some consideration? Or is it due to apathy and neglect on the part of our government?—ANTONIO C. CABRERA, Balibug, Bulacan.—*Manila Times*, August 9, 1960.

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#### PI, JAPAN LOG MEN SIGN ACCORD

The Philippine Association of Log Producers and Exporters and the Japan Lumber Importers Association yesterday agreed on a long-range program to stabilize log trade between the Philippines and Japan.

This was announced in a joint statement issued by Brigido R. Valencia, president of the PALPE, and K. Okuyama, president of JLIA.

The joint statement also said that the two associations have agreed to keep in close touch with each other and work for each other's benefit.

Valencia and Okuyama issued the joint statement after a series of conferences between the PALPE trade and goodwill mission and the Japan Lumber Importers Association.

Valencia, chairman of the PALPE mission, said that details of the trade agreement would be released as soon as the mission returns.

He and Nicanor Capistrano Jr., a member of the PALPE advisory committee, again urged the acceleration of the decontrol program and the elimination of the dollar margin fee.

"Further maintenance of controls only serves to retard the full development of wood industries in our country," Valencia said.—*Manila Times*, October 28, 1960.

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#### DANGERS TO PLYWOOD STRESSED

A businessman sounded a warning on the catastrophe that faces the plywood industry in the Philippines yesterday.

Aurelio C. Lagman, assistant general manager of Sta. Clara Lumber Co. Inc., in a speech on the growth and problems of the plywood industry before the Management Association of the Philippines Monday, bared the facts that contributed to the downfall of the business.

Lagman cited that in 1956 the production of 108 million square feet of plywood rose to 315 million in 1959 which was valued at about ₱50 million. The year 1959 was the biggest boom year of the industry, he said.

Toward the end of 1959 the American market for plywood weakened as a result of the steel strike and the low housing business. But whereas the American market is off by only 18 percent the Philippine exports dropped down by almost 40 percent. Lagman maintained that altho plant capacity had increased further production had to be curtailed leading to the closing of four plywood plants.

Lagman said there is a demand for Philippine plywood in America estimated to be one billion square feet yearly with a value of \$80 million. This market consists of high quality items that Americans normally prefer to buy from well known manufacturers in the US.—*Manila Times*, October 26, 1960.

\* \* \*

#### CONSERVATION MUST BE PART OF FLOOD CONTROL PROGRAM

I have read reports of the proposed huge drainage canal from Apalit, Pampanga, to Manila Bay. The plan is laudable and a credit to the public works engineers.

But an effective longrange program must also include upstream flood control measures, complemented by downstream projects such as the drainage canal.

The idea behind an upstream flood control plan is to keep water upstream by damming creeks and gullies, building terraces, reforesting denuded areas, or planting deep-rooted grasses. The objective is to conserve soil and rain water.

Downstream flood control projects, like dikes or levees, do not reduce the flow of flood water coming from upstream. Without proper upstream erosion control, downstream waterways will eventually be silted and become ineffective.

Unfortunately, the department of agriculture and natural resources has done very little conservation work. It is time the department formulates a long-range soil and water conservation program to help minimize the occurrence of destructive floods. It could very well study the conservation program in the United States.

Flood control is not the work of one agency. The bureau of public works will not be able to handle it alone. The agriculture department, the Reforestation Commission, and the AFP Crps of Engineers must work together, with the help and cooperation of civilian entities like the Philippine Rural Reconstruction Movement and private land owners.

Floods and their destructive effects are every-

body's concern. For centuries, erosion has been going on in this country without any apparent control. We are now reaping the fruits of our neglect and indifference to conservation.

Present projects will help solve the flood problem but more should be done. A flood control commission should be established to coordinate the functions of the different agencies. Non-coordination will result in poor planning and unnecessary projects.—DELFIN A. SANTOS, Project 4, Quirino District, QC.—*Manila Times*, November 3, 1960.

## 200,000 BOYS HEED APPEAL FOR FOREST CONSERVATION

*By Felix Caliwag*

A Filipino is never too young to help his country. Acting on this idea and moved by the desire to execute their slogan, "A good turn everyday," the Boy Scouts of the Philippines open this year's Boy Scout Week today with a timely and most welcome theme: Conservation through Scouting.

This year's choice for a theme indicates that scouting in the Philippines has not only come of age but has become considerably responsive to the country's needs.

Education Secretary Jose Romero, this year's chairman for Boy Scout Week, said that the "movement has indeed become a living force for good and has grown alive and responsive to national welfare."

The call for conservation shall be heeded by some 200,000 Filipino boy scouts scattered all over the country. Boy Scout Week which begins today ends Nov. 6.

Each day of Boy Scout Week carries a different slogan. This year's theme of conservation shall be brought to sharp focus on Saturday, BSP's Foundation Day.

Particular attention will be called to forest conservation. This is in view of recent destruction of virgin and rain forests which have reached alarming proportions.

The BSP program and call for conservation also includes flood prevention and preservation of the country's natural resources which constitute national wealth.

Gabriel A. Daza, vice-president and treasurer of the BSP, is chairman of Saturday's program.

Boy Scout plans for translating this year's theme into action include propaganda work such as distributing leaflets on how to safeguard forests from wanton destruction, visiting forest fire stations wherever they can be found, planting of hardwood trees on depleted forest areas, planting of shade trees along streets and walks and organizing seminars on forest conservation and inviting forestry experts as speakers.

The overall aim is to help stop the indiscriminate

denudation of valuable forests and to help further educate the public on the immense importance of forests.

The nation can feel confident that the boy scouts of the Philippines will prove equal to the task. The BSP has a long and admirable history that speaks for itself.

Scouting in the Philippines began in 1910 with American pioneers laying the groundwork for the organization. Among the American pioneers were Elwood S. Brown, Mark Thompson, G. H. Hummert and Sherman Kiser. The scouting organization started here as the Boy Scouts of America, largely American in character.

The organization, however, only took shape in 1923 when the first council was formed. Local civic organizations pitched in to make the Manila Council of the Boy Scouts of America a reality.

The organization was first eyed with suspicion. Many Filipinos feared that the scouting idea was a "clever scheme" to Americanize Filipino youth.

This suspicion was dispelled in 1936 when the Philippine Commonwealth National Assembly approved what became known as Commonwealth Act No. 111. The statute provided for the creation of "a public corporation to be known as the Boy Scouts of the Philippines."

The statute clearly defined the organization's purpose: To promote, through organization, and cooperation with other agencies, the ability to do things for themselves and others, to train them in scoutcrafts, and to teach them patriotism, courage, self-reliance, and kindred virtues, using the methods which are now in common use by scouts.

The bill was presented on the floor of the National Assembly by Assemblyman Tomas Confessor. President Manuel Quezon signed the bill into law.

Among the BSP's incorporators were J. E. H. Stevenot, Arsenio Luz, Carlos P. Romulo, Vicente Lim, Manuel Camus, Jorge B. Vargas and Gabriel A. Daza.

The BSP achieved national status in 1938. Local councils and regional office were organized into effective units. By 1941, the outbreak of the war, the BSP counted on a total membership of 36,201.

War suspended the activities of the BSP in the country. The Japanese outlawed the organization and one of its many supporters and leaders, General Vicente Lim, became a war casualty.

The BSP was reconstituted on February 24, 1945 and the national council quickly launched a nationwide fund campaign. By the end of 1945, the BSP succeeded in bringing in a total membership of 8,128.

Membership has grown ever since and today it has reached the neighborhood of 200,000. The BSP does not intend to stop there. Its ambitious goal

for 1961 is a membership of 360,000. This goal is connected with the BSP's four-year program which was launched three years ago and which will end on the centennial of Jose Rizal, national hero, on June 19, 1961.

The program also called for the carrying out of several projects such as production, better health campaigns and for the cultivation of leadership among the boy scouts of the Philippines.

The BSP has reason to be proud of its record. It has developed everyday heroes who have helped drowning persons, old people, flood victims, and a score of people in need or in distress.

Last year's 10th Boy Scout World Jamboree was a roaring success. It was attended by 11,856 boys and leaders from 50 scouting nations. The Jamboree has helped promote international goodwill and understanding.

The BSP has made the boy scouts a respected and admired person in Filipino communities. It has done much too to prevent juvenile delinquency.

This year's theme of Conservation through Scouting" is expected to further enhance the standing of the BSP and its 200,000 members in Filipino society.

The message of Jorge Vargas, president and chief scout of the BSP is worth pondering: "During Boy Scout Week we expect to focus the nation's attention to practices that are harmful to our rapidly dwindling resources and toward organized and united effort to improve the existing conditions."—*Manila Times, October 31, 1960.*

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## PRO AND CON TO PROBLEMS FACING PLYWOOD INDUSTRY

By HAROLD L. TAYLOR  
*Jones Veneer & Plywood Co.*

In the recent past, through the medium of the local newspapers, it has been brought to the public that the Philippine Plywood Industry is facing a total collapse. This has been attributed to one factor—the veneer exported. The assertion is based upon the fact that the U.S. manufacturer of plywood is utilizing Philippine Mahogany with Douglas Fir and other domestic woods in the Manufacture of plywood, and competing with the Philippines' foreign market in the United States.

True, the United States manufacturer does utilize domestic woods in conjunction with mahogany, and employs it now as they have for the last 25 years to produce plywood of extremely high quality.

The market level which is sought by the American manufacturer of plywood is far above that which is sought by the Philippine produced plywood. The American plywood panel, which has been used as

a criteria, is a pre-finished (finished and may be utilized by the consumer without further polishing, painting, and etc.), selling at a higher price than the plain sanded panel which is exported to the United States by Philippine Plywood manufacturers. Competition is thought to be a commodity competing with a like commodity on a common market. The fact that the American produced plywood and the Philippine produced plywood are so different in all respects, with each seeking their own level of the market, would rule out the possibility of competition existing between the two commodities.

Competition does exist for Philippine plywood on the United States market. This competition is in the form of plain sanded panels, very similar to Philippine plywood, coming from Japan in volume nearly five times greater than that exported by the Philippines. Cheap labor, along with expert technicians, and abundant supply of high grade logs from the Philippines, cheaper freight rates, and financial support from Japanese banks, enabling consignment shipments, have permitted the Japanese plywood producers to undersell the Philippine plywood producers on the United States market. This coming during an economic recession in the United States, which has resulted in sixty or more plywood factories in the United States curtailing production or closing completely, is the true cause of the slump experienced by the Philippine Plywood Producers.

How to remedy this appalling situation facing the plywood and veneer industries of the Philippines, is a question, the answer being rather obvious. First and foremost, the Philippines should sell only low grade logs to Japan and utilize their high grade logs. Secondly, the Filipino producer should keep abreast of the consumer demands in the United States and produce plywood currently in demand, advertise their product, and make a concerted effort to sell it by their own sales representatives and not brokers in the United States.

The Philippine Plywood Manufacturer has and is now attempting to ban all export of veneer from the Philippines. To do so would be committing economic suicide to the forest products industry, from which the Philippines, as a nation, is benefitting dollar-wise as well as employment-wise. No commodity which is produced locally and exported should be banned, whether it be logs, poles, piling, lumber, fitches, cants, plywood or veneer. South American countries, Africa, and other Far East Orient Countries are pointing with interest to the United States market for any and all of the forest product sales, and the loss of one commodity may well spell defeat to the now established foreign markets of timber products of the Philippines.—*The Lumberman, August-September, 1960.*

**VENEER GROUP URGES PRESIDENTIAL  
COMMITTEE TO STUDY PROBLEMS;  
SEC. LIM OPPOSES RADICAL CUT  
OF VENEER EXPORT**

The Veneer Producers' Association of the Philippines proposed to President Garcia recently the creation of a presidential committee to study the problems of the local log and plywood industry.

In a letter to the Chief Executive coured through Commerce Secretary Lim, Guillermo Ponce, VPAP president, said such a committee to be composed of representatives of plywood manufacturers, veneer producers, log producers, the Central Bank, the National Economic Council, the bureaus of commerce and forestry, and the department of commerce and industry, would study the problems of the log and plywood industry as a whole.

The veneers producers sent the petition to the President to oppose the proposed ban on the exportation of Philippine veneer.

The Plywood Manufacturers Association of the Philippines, according to Ponce, had made representations for the banning of veneer exports to offset the difficulty of marketing Philippine plywood in the United States.

Meanwhile, Commerce Secretary Manuel Lim has laid a policy objecting to any radical move to curtail Philippine high-grade veneer exports.

He said any abrupt restriction on high-grade veneer exports would create certain dislocation of the established industries.

Lim batted for a careful study on the matter taking into account the total investments of the veneer industry and the problem of unemployment.

But he was also against the establishment of additional veneer factories.

Lim had asked the plywood and veneer industries to integrate their operations for an aggressive marketing of their products abroad.

He pledged that his department will give full support to their development.

Any industrial groups that have integrated their program of projects and operations, Lim said, can get faster assistance from his department. He added that his department will in turn ask the assistance of other agencies, especially the Central Bank and the National Economic Council.

The VPAP president contended that the banning of veneer exports not only would solve the plight of local plywood manufacturers but would also endanger the market for Philippine wood products, including plywood, in the United States, and cause a dislocation in the veneer industry, which employs about 500,000 people.

It was learned that representatives of the CB export department, NEC, Industrial Development Center, department of commerce, plywood manufac-

turers, veneer and logs have already agreed that the solution to the problem of plywood was not the banning of veneer exports to the United States.

It is expected that policies will be instituted on pricing to enable plywood to compete and on grading so that the quality of exports will be boosted; and establish a mission in the United States with a program of promotion and effective marketing in the U.S.

The veneer producers said that the entire plywood, veneer, lumber and log industry in the Philippines needed a thorough and careful study by experienced members of the industry and the government to formulate a "master plan" for the industry.

This study, Ponce said, should begin with forest evaluation and conservation cover manufacturing and processing, and fix a standard for selling and pricing practices on a long-range basis.

"This orderly and authoritative study of the industry should once and for all eliminate wild demands for export banning, whether those calls be export against logs or veneer," the VPAP president said.

Ponce also proposed a stop to the further installation of plywood and veneer plants pending this study, and demanded that all demands and accusations among members of the industry be investigated.

"We submit that the proposed ban on the exportation of veneer is not the solution of the problem of our plywood producers. We sympathize with them but, certainly, the remedy is not in the direction of killing the veneer industry," Ponce said.

The VPAP president also refuted the claim of plywood producers that American plywood manufacturers importing veneer from the Philippines constitute the main competitors against Philippine plywood in the U.S. market.

According to him, it was not the Americans but the Japanese plywood producers who are the Filipino's main competitors in that market.

Buttressing their argument against the ban, Ponce stated:

The depressed status of the American market for Philippine wood products is caused by many factors and the banning of veneer will not appreciately change this condition.

**SOUTHERN PHILIPPINES  
DEVELOPMENT  
CORPORATION**

**Exporters • Importers**

*Registered Dealer in Logs*

**Butuan City**

**Philippines**



## COMPLIMENTS OF:

<u>Name of Firm</u>	<u>Address</u>	<u>Tel. No.</u>
1. Nasipit Lumber Co., Inc.	Maritima Bldg., 205 Juan Luna St.	2-92-50 & 2-99-63
2. Anakan Lumber Co.	— ditto —	2-69-74
3. Agusan Timber Co.	— ditto —	
4. Phil. Wallboard Corp.	— ditto —	2-49-86 & 2-99-63
5. Assoc. Pulp & Paper Co.	— ditto —	
6. Sta. Clara Lumber Co., Inc.	2501 Tecson St., Tondo	2-69-21 & 2-69-22
7. Phil. Assoc. of Log Producers & Exporters	320 Samanillo Bldg.	
8. Western Mindanao Lbr. Co., Inc.	1742 Florida St.	5-63-94
9. Mindanao Lbr. Dev. Co., Inc.	1742 Florida St.	5-35-18
10. Basilan Lumber Co.	306 A.I.U. Bldg., Juan Luna St.	2-98-86
11. Timber Export, Inc.	102 Trade & Commerce Bldg.	2-85-62
12. Misamis Lumber Co.	511 Madrigal Bldg., Escolta	3-46-17
13. Vic Lumber Co., Inc.	Wilson Building	2-98-06
14. Hercules Lumber Co., Inc.	1129 I. Mendoza St.	5-11-45
15. Bislig Bay Lumber Co., Inc.	3rd Floor, Soriano Bldg.	3-91-27
16. Woodworks, Inc.	8 Gral. Luna, Intramuros	3-98-08
17. Phil. Veneer Manufacturers Ass.	404 Madrigal Bldg.	
18. Aguinaldo Development Corp.	Metropolitan Theater Bldg.	3-64-81
19. Lianga Bay Logging Co., Inc.	201 El Hogar Filipino Bldg.	3-04-45
20. Surigao Timber Co.	201 Soriano Bldg.	
21. Mainit Lumber Co.	272 Roosevelt Ave.	
22. Tirador Lumber Co.	412 Madrigal Bldg., Escolta	3-53-86
23. Sta. Ines Logging Enterprise	404 Madrigal Bldg., Escolta	3-52-75
24. Golden Ribbon Lbr. Co., Inc.	— ditto —	3-16-59
25. Sanches Logging Co.	Quisumbing Bldg.	3-87-35
26. Butuan Saw Mill, Inc.	204 Roman Santos Bldg.	
27. D. O. Plasa Enterprises	319 Roman Santos Bldg.	
28. Valeriano C. Bueno	3581 Dupil St.	6-73-24
29. R. C. Aquino Trading	Roman Santos Bldg.	
30. Cantilan Lumber Co.	Isaac Peral St.	5-37-16
31. Gonzalo Puyat & Sons, Inc.	190 R. Arias	3-60-81 & 3-23-07
32. Taggat Sawmill, Inc.	181 Piña Ave., Sta. Mesa	6-76-12 & 6-34-96
33. Luzon Plywood & Co., Inc.	Durano Bldg.	
34. Pamplona Redwood Veneer Co.	— ditto —	
35. Dingalan Forest Products Corp.	380 Matienza St.	6-74-68
36. Herederos de J. Gallego	444 Dart, Paco	
37. Insular Lumber Co.	311 Ayala Bldg.	3-24-55 & 3-94-59
38. Valderrama Lbr. Mftrs. Co., Inc.	2003-A Singalong	5-65-16
39. North Camarines Lbr. Co., Inc.	760 Juna Luna St.	2-41-56
40. Sta. Cecilia Sawmills, Inc.	33 South 9th, Quezon City	7-84-10
41. International Hardwood & Veneer Co. of the Phil.	346 Isabel St.	5-30-27 & 5-56-44
42. Eastern Plywood Corp.	328 Buenaia Avenue	8-14-37
43. Phil. Lumber Mfg. Co.	16 Soler St.	
44. La Villa de Manila	673 Misericordia St.	
45. Republic Forest Products	R M S C Building	3-74-76
46. New Pacific Tbr. & Supply Co., Inc.	410 El Hogar Filipino Bldg.	
47. North Zambales Lumber Co.	974 Capt. Ticong	5-78-25
48. Findlay Millar Timber Co.	305 El Hogar Filipino Bldg.	5-16-01
49. Iligan Lumber Co.	4th Floor, Madrigal Bldg.	
50. Mindanao Lumber Co., Inc.	320 Samanillo Bldg.	3-96-49
51. Extensive Enterprises Corp.	427 Tanduay St.	3-21-48
52. Ago Timber Corp.	508 Roman Santos Bldg.	
53. Bautista Bros. Lumber Co.	656 Ronquillo St.	3-12-63

<i>Name of Firm</i>	<i>Address</i>	<i>Tel. No.</i>
54. Calapan Lumber Co., Inc.	1120 Soler St.	2-65-56
55. Jose Soriano	204 Roman Santos Bldg.	
56. Katigbak & Sons Lbr. Co.	426 Madrigal Bldg.	3-45-08
57. Luna Timber Co., Inc.	402 Alliance Bldg.	
58. Bading Timber Corp.	— ditto —	
59. Dasa Timber Co.	— ditto —	
60. Atlas Timber Co.	505 A & T Bldg., Escolta	
61. V. M. Layno Logging Enterprise	414-416 Chaco Bldg.	
62. Insular Veneer Inc.	2655-2705 Old Panaderos, Sta. Ana	5-71-42
63. General Enterprises, Inc.	141 Ayala Ave., Makati	8-93-06
64. Poblete Construction Co.	11 Buendia, Makati	8-19-85
65. E. J. Guinoo & Sons Enterprises, Inc.	260 Republic Super Market	
66. Trento Lumber Corp.	409 Alliance Bldg., Rosario	
67. Pahamotang Logging Enterprises	4th Floor Wm. Li Yao Bldg.	3-31-62
68. Dongallo's Logging Enterprises	503 Burke Bldg., Escolta	3-97-18
69. Davao Lumber Co.	788 Juan Luna St.	2-64-81
70. Plywood Industries, Inc.	1370 Pennsylvania Ave., Malate	5-39-45
71. Aras-Asan Tbr. Co., Inc.	633 Sales St.	3-10-71
72. Plaridel Lumber Co.	5 Metropolitan Theater Bldg.	
73. Southern Phil. Dev. Corp.	412 Chaco Bldg.	
74. Watts Selective Logging Co.		
75. C. Alcantara & Sons	c/o Atty. de Jesus 2912-A San Mariano	
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