

A TIE AS AN ESSENTIAL COMMODITY TO M. R. R.

By:

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A tie is a part and parcel of a railroad. Rails whereon the trains run are useless without ties. The value of a tie in the operation of railroads is appreciated these days more than ever because of the keen competition offered by other transportation facilities on land, sea and air, thus speed, safety, comfort, and dependability become more and more the prime factors in getting the patronage and support of the traveling public. A good tie, therefore, is very necessary for a good railroad to insure speed, safety, comfort and dependability in traveling.

In the case of the Manila Railroad Company, in order to insure the safety and comfort of its passengers and to allow for maximum speed of its trains pulled by its newly acquired fast diesel electric locomotives, it has to provide for every rail length of 10 meters, 16 good ordinary or cross ties, 5" x 8" x 750", or 1,600 ordinary ties per kilometer. Hence, for the total opened trackage of 844 kilometers, the MRR must place in service no less than 1,510,400 good ordinary ties on its road beds. At the present lowest open market price of ₱4.00 per tie, these would have cost the Company about ₱6,041,600.00, which is some investment to be reckoned with. Since the return of the railroad by the U. S. Army to the Philippine Government on February 1, 1946 and up to June 30, 1956, the Company had purchased 621,978 ordinary ties, valued at ₱2,919,207.45, or an average of 59,700 ordinary ties, costing ₱280,243.80 per year. This is broken down into 576,

741 molave ordinary ties, costing ₱2,735,536.96, or 93%; and 45,237 yacal ordinary ties, costing ₱183,670.49, or 7%. The average unit price is ₱4.74 per tie of molave and ₱4.06 per tie of yacal.

Molave ties are preferred by the Engineering Department because of their comparatively longer service performance than those of yacal or ipil ties. The durability of molave is 169 points as against 108 points of yacal and 100 points of ipil. In other words, if a tie of yacal or ipil cut from a mature tree has a life expectancy of 12 years, then a tie of molave cut from a mature tree should have a life span of 20 years. Thru the painstaking and wonderful manipulations of the Engineering Maintenance Crews the life span of a tie is extended to a few more years. This is made possible by reboring new holes and using both faces of the tie one after the other whenever possible. However, such operation is only usually done on molave ties and seldom if not at all, on yacal or ipil ties, or on any other substitute ties for that matter.

The work performed by a tie is mostly on two portions of its face about 18 inches from its ends, where the rails are carried over it and where boring takes place and spikes driven in the holes made. There are three distinct processes of prolonging the life of a tie. In the beginning, four holes are bored on one selected face of a tie, two placed diagonally across each rail. On level ground these holes are observed to last the full life of a tie, but on high grade track they are widened up by vibrations of spikes

caused by speeding trains. The first process of prolonging the life of a tie is, therefore, to plug these widened holes with suitable chips of yacal, and then these are bored and spikes driven in. Such yacal plugs or chips last for 2 to 3 years. The second process is to change the positions of the holes by boring another four holes, two placed diagonally across each rail and spikes driven in as in the first process, placed above and below the former holes as to form a square. These new holes last from 3 to 5 years. The third process is to turn over the tie and on the unused face four holes are bored, two placed diagonally across each rail as in the beginning and second process of prolonging its life above mentioned. The holes thus bored are so placed in such a way as not to be exactly over the former holes on the other face of the tie. These holes may last from 3 to 5 years. Thru the application of the above processes, the life of the tie is *prolonged by at least five years*. The application of the above processes, however, is discretionary on the part of the Engineering Maintenance Crews. Some processes may be eliminated or interchanged at their discretion.

Molave ties cut from mature trees have been known to withstand the three processes of prolonging the life of a tie. Proof of this contention is the fact that many of the molave ties placed on some portions of the Aloneros-Ragay connection in 1936 thru 1938, or about twenty years ago, are still going strong. A good molave tie, therefore, may last 25 years in actual service. On the other hand, yacal and other substitute ties, supposed to have been cut from mature trees, have been known to withstand only one process. Proof are the yacal and other substitute ties placed on the lines during the early rehabilitation period, most of which have been replaced and those remaining are rotting and requiring immediate replacements. Yacal and other substitute ties, therefore, may last at most only 10 years in actual service performance. Thus,

at the lowest open market price of ₱4.00 per tie of molave and ₱3.80 per tie of yacal or ipil, the average service cost of molave tie would be about ₱0.38 per year, or a difference of about ₱0.22 per tie per year in favor of molave tie, which in fact represents the deficiency per tie of yacal or ipil per year. Since the possible life of molave ties is 25 years, the actual deficiency incurred for each yacal tie is ₱5.50. Hence, for the 45,237 yacal and other substitute ties purchased in the period above mentioned, the Company had incurred a loss of ₱248,803.50 for the deficiencies of those ties.

Economics is greatly influencing the supply of ties to the MRR, especially regarding the factors influencing the grade and price thereof. The law of comparative advantage has greatly influenced the grade and price of ties, and, therefore, should not be ignored in considering purchases thereof. Molave fitches and posts are sold in the open market at about ₱0.50 per board foot, while ties of molave are sold at ₱4.00 per tie, or ₱0.17 per board foot, or ₱0.23 less than the price of the former. In spite of the big disparity between the prices of the two commodities, still the Company was able to procure good molave ties which have lasted the full expected life time of 25 years. On the other hand, yacal or ipil fitches and posts are sold in the open market at a minimum price of ₱0.44 per board foot, while ties of yacal or ipil are sold at ₱3.80 per tie, or ₱0.16 per board foot, or ₱0.28 less than the price of the former. Since the durability of yacal is 108 points, ipil 100 points, and molave 168 points, and since molave ties last 25 years, it follows therefore that yacal and ipil ties should last about 15 years instead of about 10 years life as in the case above cited. Why is it that molave ties have lasted 25 years and yacal ties, 10 years only? The reason for this is obvious.

Molave is a tree common in secondary and open primary forest, of crooked, short, and fluted bole, three to five meters (10

to 16 feet) long and up to 200 centimeters in diameter. Yacal is a medium size tree found in mid-mountain forest, reaching a diameter of about 80 centimeters or more, of straight, regular bole, 10 to 15 meters long. Ipil is a large tree scattered along seashores, back of swamps and some in inland forest, slightly crooked to straight cylindrical bole, reaching 120 centimeters in diameter and 35 meters in height.

From the above simple descriptions of their respective boles, it can be readily seen why in spite of the known durability of molave as compared with those of yacal and ipil, still the last two are more popularly demanded in the open market for posts and lumber. This is because molave posts and lumber are sold in non-commercial lengths, whereas, yacal and ipil posts and lumber are sold within and above the commercial lengths. Hence, molave posts and lumber are very slow moving commodities in the open market, while yacal and ipil are fast moving one. In the absence of a special market, therefore, enterprisers are shy in producing molave posts and lumber for sale in the open market. Thus, despite the big disparity in price between a molave tie and a molave post, the former commodity does not and cannot compete in the open market against the latter or any other lumber commodity for that matter. This fact is attributed to the possibility of utilizing sound and mature molave trees into railroad ties, which enable them to give the full service performance of 25 years.

On the other hand, yacal and ipil ties compete with yacal and ipil posts and/or lumber in the open market. Having in mind the law of comparative advantage, no same enterpriser would attempt to produce ties cut from a sound and mature yacal or ipil tree to be sold at ₱0.16 per board foot when he can readily cut therefrom, at comparatively less expenses in view of lesser pieces to be produced, posts which he can easily sell at a minimum price of ₱0.44 per board foot. The only

way possible for him to offset the law of comparative advantage is to produce ties cut from branches and/or young yacal or ipil trees and sell them at a surprisingly low price of ₱0.16 per board foot. Posts are not readily produced from branches and those produced from young trees cannot compete with those produced from sound and mature trees. Evidently, the yacal and ipil ties purchased by the Company in the past at a low price of ₱0.16 per board foot were cut from branches and young yacal and/or ipil trees. Consequently, they last only for about ten years as mentioned above.

The price of ties is also influenced by the standard of inspection. It is in direct sympathy with the standard thereof, that is, the lower the standard of inspection, the lower is the price quoted by the suppliers; and the higher the standard, the higher is the price quoted by the suppliers. For the good of the Company, the writer believes that a fixed standard or rules and regulations governing the inspection of ties, and other wooden materials for that matter, should be adopted to insure equity in the price and quality of ties purchased, thereby avoiding misunderstanding between the suppliers thereof and the Company on one hand, and between officials and employees concerned therein on the other hand.

It has been left that the supply of molave ties from Luzon and nearby islands is getting scarcer and scarcer. This is one reason why the Company had been compelled to buy yacal and ipil ties in the past in spite of the insistence of the Engineering Department to procure molave ties only. At the present rate ties are being consumed there is fear that the present sources of supply of cheap molave ties will be exhausted in the near future. There are said to be good stands of molave trees in Mindanao and Palawan, but the cost of bringing the ties from those regions to Manila is very high. There are also said to be good stands of molave trees in the Cagayan region, which may become the source

of supply of ties for the proposed railroad extension thereto and also for replacement of wornout ties. However, there is no attempt at present to produce ties thereat in view of the high cost of transporting them over to the nearest railroad station at San Jose, Nueva Ecija.

The problem that the Company has to face in the future, in the event that the present cheap supply of molave ties is exhausted, is to whether to purchase present poor class of yacal and ipil ties or to purchase high priced molave ties from Mindanao and Palawan. Or shall the Company resort to using high priced creosoted apitong, concrete, or steel ties?

Creosoted apitong ties, because of its weak nail holding capacity, would require guard plates, which is very costly. The impracticability of using steel and concrete ties is seen from the actual shortage of cement and reinforcing steel required in the manufacture thereof, attributed to various systems of government controls to conserve the country's dollar reserve. Furthermore, to benefit foreign suppliers in the face of abundant supply of local commodity would not be in keeping with the National Economic Policy. Cement produced within the country is far from sufficient to cover up local needs therefor. Hence, the writer believes that the final choice would be between using present class of yacal or ipil ties against high priced molave ties brought from Mindanao and Palawan. However, until the Company is faced with such a problem of what to use and where to get ties, there is no need for discussing the matter further.

Nevertheless, in the meantime that this problem has not yet confronted the Company, it is the humble opinion of the writer that studies be made in this essential railroad commodity, considering the big amount of money involved in the purchase thereof. In the postwar period ending June 30, 1956, the Company purchased 621,978 ties, valued at ₱2,919,207.45, of which 576,741

were of molave, valued at ₱2,735,536.96, or ₱4.74 per tie, and 45,237 were of yacal and other substitute ties, valued at ₱183,670.49, or ₱4.06 per tie. If molave ties last 25 years and yacal and ipil ties last 10 years, the average performance cost per tie of molave per year is ₱0.19 and that of yacal and ipil is ₱0.41.

Therefore, to compare with molave in service performance, the performance cost of yacal and other substitute ties would amount to ₱10.25 per tie. Hence, the 45,237 ties of yacal so purchased would incur a total service performance cost of ₱463,679.25. Taken together, the 621,978 ties of molave and yacal so purchased would incur a total service performance cost of ₱3,199,216.21. If all of the 621,978 ties so purchased were of yacal and other substitute ties, it would have cost the Company ₱6,325,274.50 in service performance, or a loss in deficiency of ₱3,176,058.29. This is no doubt an amount too big for the Company to lose sight of in the future consideration of procuring ties. On the other hand, if all of the 621,978 ties so purchased were of molave, it would have cost the Company only ₱2,948,175.72 in service performance, or a gain of ₱251,040.49. From the above may be seen the big disparity in the service performance between molave and yacal ties.

Considering the foregoing, there appears a need for imperative study and/or experimentation on how to lengthen the present cheap supply of molave ties, with the end in view of avoiding incurring high performance cost on substitute ties. It may be possible that many of the molave ties now being rejected may be used to some advantage by the Company, thus utilizing fully and conserving the future supply of molave ties. It may be worthwhile studying to what extent of crookedness a tie may be used without impairing its strength, so that such crooked ties may be utilized to help conserve the supply of molave ties. Behavior in actual service performance of

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THE IMPORTANCE...

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Reforestation projects have been told. The tremendous losses from grassfires as well as from drought are now known. A suitable solution to the problem is hereby being broached. There can possibly be no deterrent to the adoption and introduction of kudzu in our reforestation projects. Most, if not all, of our reforestation projects have been and still remain under the constant threat of fires and drought. Tens of thousands of pesos of the national income are annually allotted to reforestation projects without guaranty as yet of their sure protection from the annual hazards. Finally, our government just can not afford to waste considerable amounts in reforestation projects when such amounts are badly needed in more productive ventures of the Administration with prospects of more positive results that would redound to the economic upliftment of the country and the better-

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smaller molave ties, like molave second class ties and/or other substitute ties, is also believed worthwhile to be observed, determined and recorded. With such statistics readily on hand when the time comes that the Company is faced with the problem of what to use and where to get ties, those concerned will have easy time to solve it.

* End *

A small trouble is like a pebble. Hold it too close to your eye and it tills the whole world and puts everything out of focus. Hold it at proper viewing distance and it can be examined and properly classified. Throw it at your feet and it can be seen in its true setting, just one more tiny bump on the pathway to eternity.

—Celia Luce

ment of living conditions of the masses.

Will not the proper authorities act accordingly?

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