

# *The Lumberman and the Laboratory\**

By GEORGE M. HUNT

Efficient, profitable utilization of wood is the objective of both the Forest Products Laboratory and the lumber industry. Each can contribute greatly to the welfare of the other and to the Nation as it progresses towards its individual objectives. Here is an excellent example of the interdependence of industry, science, and the national well-being. Each can go its own way without the other, but not very far and not very successfully.

Under Communist rule we see the complete subordination of industry and science to the government and the result is repression, slavery and fear. In non-communist countries, under the free enterprise system, we can find examples of individuals and companies whose sole objective is to make money, without regard to the rights of others or the damage they cause to the resources or the welfare of the Nation as a whole. Scientific knowledge can also be used for evil purposes as well as for good. Neither industry, science, nor government is inherently good or inherently bad. Whether their results are good or bad depends largely upon their individual guiding principles and objectives and the skill and consideration with which their activities are conducted.

I need not detail to you how important a well conducted business is to the national welfare in supplying the jobs, the products and the income the Nation needs. Neither is it necessary to dwell on the benefits to the country that arise out of the efforts of well directed scientific and developmental research. No thinking person is unaware of these facts today. I believe, however, that we will find it profitable to spend a little

time in thinking how these generalities apply specifically in our own field of work, and how our own interests can be served by giving thought to the interests of others.

The forests of the Philippines constitute an enormous source of national wealth and the prosperity of the country depends in large measure upon how this wealth is used. If it is used wastefully and without regard to the future, the wealth will diminish and ultimately cease to contribute to the national prosperity. The situation is comparable to an inherited fortune that can soon be dissipated through wasteful living.

We must all admit that wood utilization at present, for various reasons, is not very efficient. We leave too much wood in the forest from the logging operation because we have not found profitable ways to use it. We know that the wood left in the forest is good for many purposes. It can be made into pulp for paper or wallboard, into charcoal for industrial use, and into innumerable wood products for which lumber from good sawlogs is commonly employed. The same is true for the slabs, sawdust, trimmings and edgings that accumulate at the sawmill or at woodworking plants. We know that they can be made into useful products.

But this general knowledge is not sufficient. The problem of the individual or company is not "What can I make out of this neglected material?" The question to be answered is "What can I sell at a profit that I can make out of this material?" That is a much more complicated and difficult question to answer. In most individual cases it has not yet been answered satisfactorily

---

\* Delivered before a meeting of the Philippine Lumber Producers' Association at the Forest Products Laboratory, March 11, 1956.

and the so-called waste necessarily continues, to the disadvantage of all concerned. This second question involves costs of plant, transportation, processing, and selling, as well as market studies, taxes, and other items. Here we come face to face with specific details and the need for various kinds of technical knowledge, both in the fields of business and investment, and in the fields of science and technology.

The wood waste problem cannot be solved by generalization. Solution must come gradually through the successes of individual companies in finding and adopting methods of using profitably the unavoidable residues from their primary operations. These individual solutions will contribute to the national welfare to the extent that they provide jobs and income and reduce the percentage of wood that is not efficiently employed.

Scientific and industrial research in the field of wood utilization is a basic necessity in any intelligent search for improvements in wood products or processing, to lower costs, to improve serviceability, to reduce or avoid waste, and, in general, to aid wood in finding new markets or retaining the old ones. But research is costly, it requires much expensive equipment, much specialized knowledge, many skills, and long continued effort. Few companies in the forest products industries can finance a well equipped research laboratory and staff and fewer still are willing to do so on an adequate scale. On the other hand, no company can afford to remain long without the results of research and here is where the Philippine Forest Products Laboratory fits in.

The importance of wood utilization in the national economy and the need to get maximum values out of its forest inheritance are ample justification for the establishment of the Laboratory and spending substantial sums annually for its operation. The Laboratory is now an accomplished fact although it is still in the formative stage and not

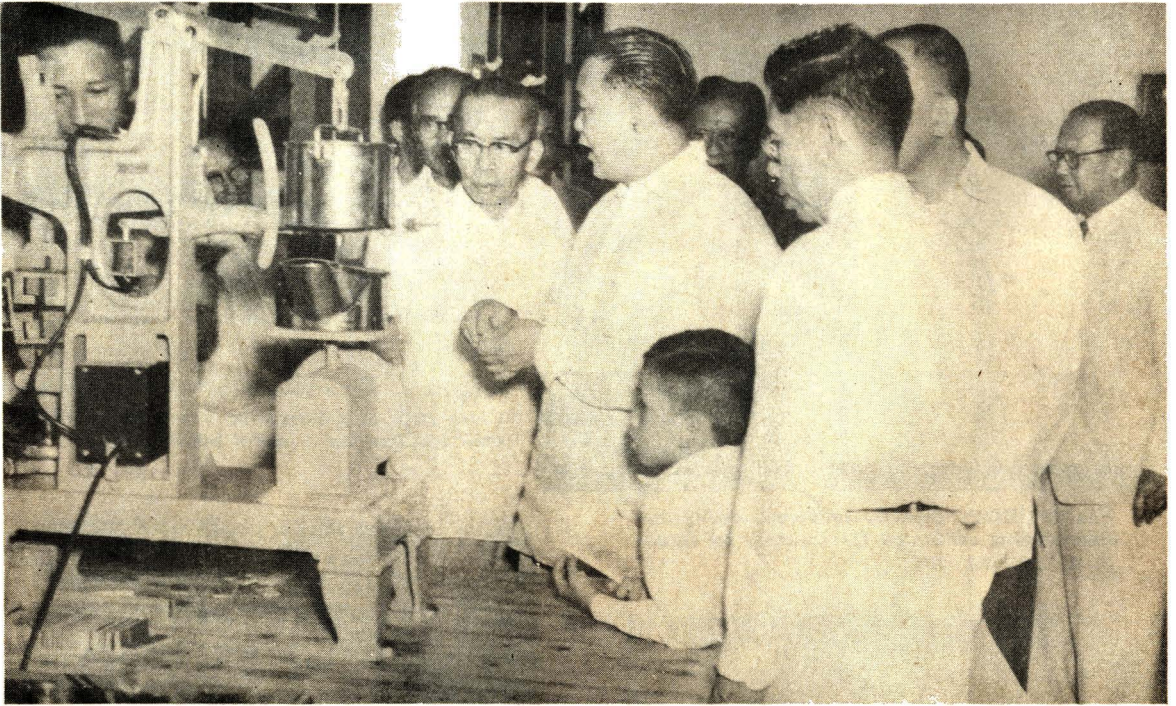
yet fully equipped or adequately staffed with trained people. Through the cooperation of the International Cooperation Administration much equipment has already been purchased and installed and more is on the way. Also through ICA, several members of our staff are already receiving specialized training in the United States. More are to be sent later under this and other technical assistance programs. The Laboratory is definitely on its way and I feel certain that it is headed toward great accomplishments if properly managed and supported.

Research is no magic thing, however. It does not accomplish its valuable results through legerdemain or trickery, but through intelligent planning, hard work, and sound reasoning. To be successful, a research institution must be staffed by people with inquisitive minds who are trained for their respective tasks. It must have the proper equipment, adequate finances, wise leadership, and freedom to concentrate on its job with minimum interference and restrictions. The Forest Products Laboratory can become completely insignificant and of no value to the country if it is made subservient to politics and manned by political proteges or the friends and relatives of those in positions of influence. Its accomplishments will be limited and slow if it is too tightly bound up in the red tape of unnecessary restriction and regulation of its activities and program. The Laboratory, on the other hand, can become an outstanding scientific institution in which the country can take great pride if it is allowed to select and train its staff on the basis of merit and suitability for the work and is given the freedom of action required for the proper prosecution of scientific research.

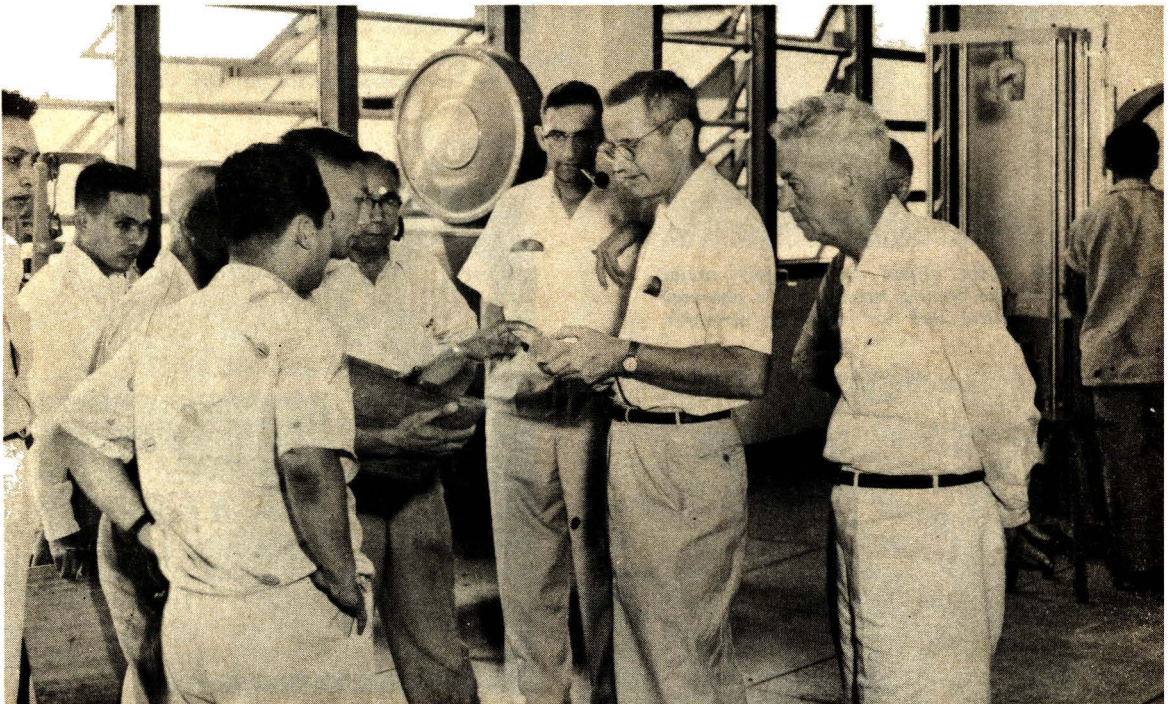
One danger the Laboratory faces is the impatience of those who demand quick results and who do not appreciate the time-consuming nature of carefully conducted research. If the technical problems faced by the Laboratory were easy of solution, they



# Recent F. P. L. Visitors



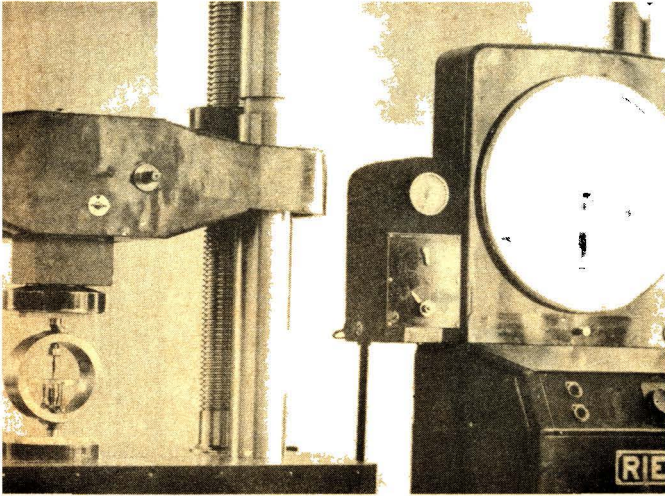
*Congressman Gonzales watching the operation of one of the FOA (now ICA) machine in the Forest Products Laboratory. (l. to r.) Engineer Manuel, Prof. de la Cruz, Prof. C. Mabesa, Congressman Gonzales, Forester L. Aguilar. Partly hidden are Dean Amos and For. D. Soriano.*



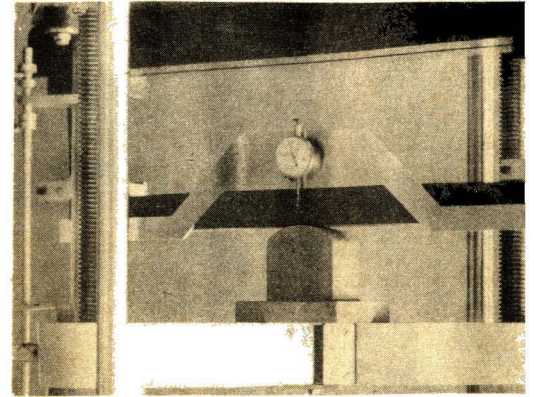
*Mr. Francisco Manuel of the Forest Products Laboratory explaining a test to (from r. to l.) Mr. H. C. Pope and Mr. H. C. Thompson of the Insular Lumber Co. and Dr. Marvin G. Cline, exchange professor from Cornell University.*



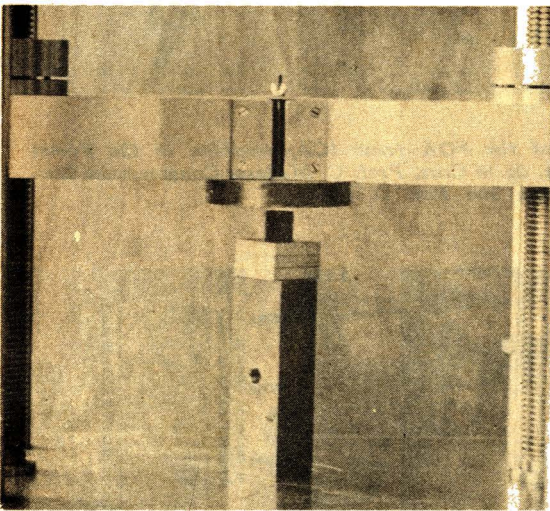
# Some F. P. L. Equipment



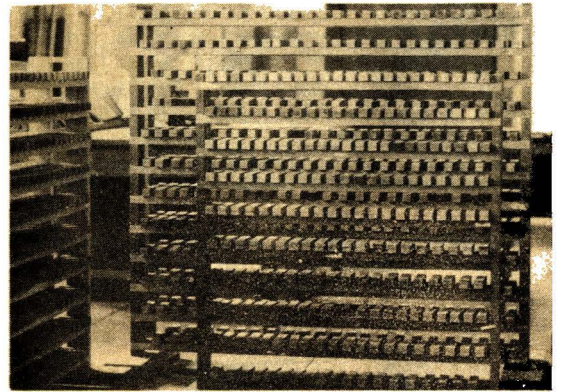
*The 200,000-lb. capacity universal testing machines being calibrated for accuracy by means of a "proving ring".*



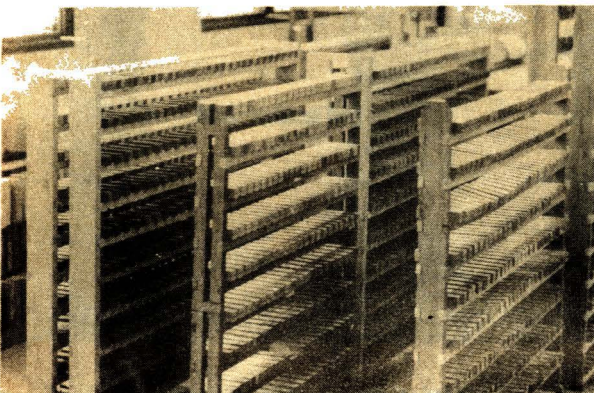
*Close view of a 2-inch by 2-inch by 30-inch specimen in place for a static bending test.*



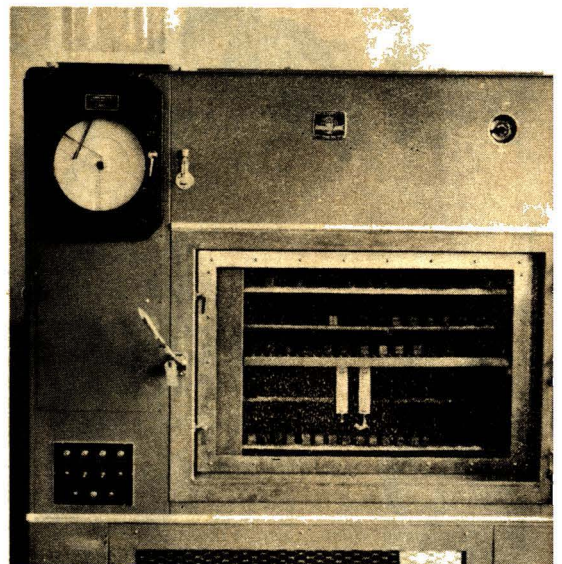
*The small black object immediately under the head of the testing machine is a charcoal briquette waiting test for crushing strength.*



*Racks of shrinkage test specimens air drying in preparation for measurement in the dry condition.*



*Racks of shrinkage test specimens air drying in preparation for measurement in the dry condition.*



*Cabinet for automatic control of temperature and humidity. Used for bringing the moisture content of dry wood to 12 per cent, for measurement of shrinkage from the green condition.*



would have been solved long ago. Their very difficult nature is one of the chief reasons for the establishment of the Laboratory with its specialized equipment and training. It is very easy to ask a question that will take years to answer satisfactorily. For example, lignin constitutes about  $\frac{1}{4}$  of the weight of wood. Enormous tonnages of lignin are being wasted everyday, especially in the pulp liquor from chemical pulp mills. Industry tells research, "Find a profitable use for lignin." A hundred chemists throughout the world have been trying to do this for the last 15 to 20 years but with very little success. They are still trying to solve the chemical mysteries of lignin and to find profitable uses for it.

Another important point to remember is that big problems are solved only by breaking them down into smaller ones and working on them one by one. Waste utilization is a big problem. In fact it may be called *the big problem* of the forest products field. But we cannot work on the whole problem at once. We must break it down into pieces small enough to handle. For example, we feel certain that pulp and paper can be made successfully out of Philippine woods waste and mill waste but there are a thousand details to work out about the pulping requirements for different species or the quality and yield of pulps that can be made from different species, or the mixtures of species that can be successfully pulped together.

Again, we know that charcoal can be made from woods waste and mill waste of mixed species but that kind of charcoal is not likely to prove acceptable to the chemical and metallurgical industries. Briquetting, however, should iron out the differences in quality of charcoal from different species. But we have a great deal to learn about the details of briquetting binders, pressures, drying and coking technique, kinds of equipment needed, and costs before we can make recommendations safely. These investiga-

tions will take much time, yet there is already a demand for results.

Much research must be done of a basic character for which the average man may see little use. This kind of research provides a general background of information rather than the specific information needed for the solution of some immediate industrial problem. Or it may be considered as supplying in advance the fundamental facts about individual species that we know will be needed in the future to assist in the solution of innumerable industrial problems. Included in this category are survey studies on specific gravity, shrinkage, mechanical properties, chemical composition, wood anatomy and others. The information will be tabulated as obtained and kept on file so that it can be consulted quickly, as needed. Even routine collections of basic survey data such as these require a great deal of time because of the large number of Philippine species and the necessity of testing several samples of each in order to get average results.

I mention these facts so that you may understand why immediate results and quick solutions to difficult problems should not be expected. On the other hand, there will be some questions or problems to which quick answers can be given, more and more so as we build up our backlog of basic information. I do not want you to believe that slowness and delay are intentional. We realize that unnecessary delay cannot be condoned and it will be the policy of the Laboratory to give service as quickly as the circumstances and the nature of the work permit. The Laboratory's main purpose is to give service in response to the country's needs. When we fail to do so we fail in our purpose.

As much as the forest products industries need the services of a research laboratory, so does the Forest Products Laboratory need the advice, the understanding, the interest and the active support and cooperation of the wood industries. Little that the

Laboratory does will be of value to the country unless the results are put to work by industry.

We need frequent contact with individuals in the forest products industries. Here, again, generalities are not sufficient. We need to know that you believe what we are trying to do is worthwhile, even if we do not always do it exactly as you may wish. We need to know you individually as understanding friends who are interested in the success of our efforts and who will try to make use of the information we obtain, insofar as it can be applied to your individual operations.

In addition to our contacts and friendships with individuals and their companies, we need the official interest and advice of your Association. If the Association should appoint from among its interested members a Committee on Forest Products Research, such a committee could be very helpful in maintaining contact and understanding between our two organizations. It would be our hope that the Committee would visit our Laboratory frequently and take time to study our research program in detail and observe the progress made. We would also want them to help us in planning for future projects so that the interests of your Association will be fully considered.

We are now facing the possibility of being reorganized into a semi-autonomous Forest Products Institute financed largely out of the inspection fees the lumber industry pays to the Government. The reorganization plan is included among a number of others that have been sent to Congress by the President and are now under consideration by a Congressional Committee. If the proposed reorganization receives final approval it will greatly facilitate our operations and give us more freedom for prompt and effective action. It will enable us to give greater service to the wood industries and the public.

You see us now as an infant institution,

just learning to walk but with the help of friends and relatives like yourselves, and with good training, we can soon develop into a competent, skillful, member of the national family who contributes greatly to the national wealth through increasing the value and usefulness of one of its greatest natural resources.

Your industry also is facing the need for growth and development. The old days of skimming off the cream of the crop and discarding the rest have passed away. In order to remain in business and grow with the country, lumbermen must find more efficient methods of using their raw material, new products to make, new markets to supply. They must give more consideration to the integration of other processing with that of lumber manufacture in order to make profits out of what the sawmill cannot use. They must give more thought to the influence of their operations on the conservation of the nation's timber supply, the welfare of their employees and the national economy. You have already made progress along these lines and I am sure you are constantly working for further improvement. There is a great opportunity to expedite progress through mutual understanding between research and industry. Let us all help ourselves by helping each other.

\* \* \*

The speaker used long and beautiful words, and the audience wasn't getting his message.

But the next speaker set every one straight by saying. "I'm sure that all of us agree with the message of the speaker we've first heard which boils down to this: "If we dont stop letting our outgo exceed our income, then our upkeep will be our downfall."

\* \* \*

Two men met each other in a restaurant in front of the cloak room.

"If I'm not mistaken, we met here last year?" one said.

"Really?" the other said. "Do you recognize me?"

"To be truthful, it is not you I recognize, but your umbrella."

"Naturally, you did not. It was I who had it."