AN award of the Harrison Prize will be made, according to *Nature,* in December by a committee consisting of the presidents of the British Chemical Society, the Institute of Chemistry, the Society of Chemical Industry and the Pharmaceutical Society. The prize is of the value of about £150 and is awarded to the chemist who, in the opinion of the selection committee, during the last five years has conducted the most meritorious original investigations in any branch of pure and applied chemistry and has published his results. Further information can be obtained from the President, The Chemical Society, Burlington House, Piccadilly, London, W.1.

A CANCER research institute has been established in Tokyo, in the Imperial University Medical Department. The institute is to have a research department and a hospital, and Professor Nagayo of the university is to be the director. After 1933, the government will bear a part of the expense.

THE Forest Products Laboratory of the Forest Service, which has been maintained since 1910 in cooperation with the University of Wisconsin, has moved into its new building located west of the university campus. The laboratory for 20 years has been operating in four buildings and has several minor structures. The new building is U-shaped in plan, with five stories, a ground floor, and a penthouse over the central span between the wings. The first floor is stepped back from the ground floor, and the second, third and fourth floors are stepped back as a unit from the first. A variety of woods, including Douglas fir, ponderosa and southern yellow pine, walnut, oak, chestnut, birch and red gum, have been used in the scheme of interior finish. Facilities of the new laboratory building include a log storage yard, a sawmill, dry kilns, woodworking plant, gluing and paint shops, a mechanical testing laboratory, a creosoting plant, a wood distillation plant, a complete experimental pulp and paper mill, and several chemical laboratories.

ACCORDING to the report of the Forest Service the total receipts of the national forests for the fiscal year which ended last June 30 were less than half the total for the preceding fiscal year. These receipts —derived from timber sales, grazing fees, forest-products sales, rentals for water power, permits for hotels, summer homes and resorts and penalties for trespass —amounted to $2,294,247, as compared with $4,993,-320 for 1931 and $6,751,553 for 1930. Water-power rentals were the only large source of receipts which were greater in 1932 than in 1931. Twenty-five per cent. of the national-forest receipts annually goes to the states in which the forests are located, for *pro rata* payments to their counties for the county road and school funds, and the decline in receipts will be reflected in smaller payments to the states.

DISCUSSION

FURTHER NOTES ON TWISTED TREES

I HAVE followed with much interest the discussions in SCIENCE[1] on twisted trees. These brief reports led me to make rather extensive observations in the forests of Louisiana, which afford excellent opportunity for the studies.

The observations I am reporting were made at several points in an area of pine forest about thirty miles across, most of which was in the recently named Kisatchie Wold section. The terrain was rather sharply rolling, but at no point were the trees particularly exposed to hard winds, and on every side the same type of growth extended for miles. The trees in this area were largely the long-leaf pine (*Pinus palustris*).

My first interest was to see how the relative numbers of straight-grained trees and right- or left-hand twists of this region compared with the counts reported from other sections of the country. In the above-mentioned area 1,527 trees were counted. Of this number 364 (23 per cent.) were straight-grained, 811 (53 per cent.) showed a right-hand twist and 352 (24 per cent.) showed left-hand twisting. The proportion of straight-grained trees compares very favorably with the figures presented by Wentworth[2] and Cahn,[3] but the number of trees showing left-hand twists in the area I studied is from more than

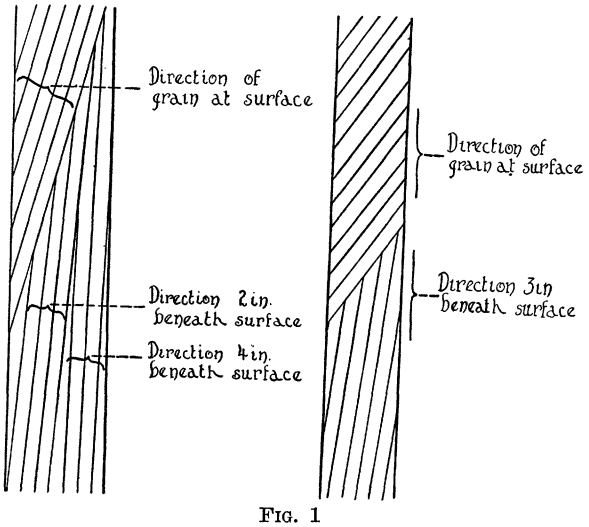

FIG. 1

[1] February 13, 1931; March 27, 1931; May 22, 1931; January 29, 1932.

[2] SCIENCE, February 13, 1931.

[3] SCIENCE, May 22, 1931.

two to eight times greater than reported by other workers.

Since many of the trees observed were fallen, weathered and partly burned, the grain in the limbs could not be determined in every case; but out of 215 observed in particular, the limbs showed the same direction of grain as in the trunk, except four cases in which the limbs showed twisting and the trunks were straight.

A new road runs through the area studied; from the roadway many trees, of various sizes, had been pulled. This condition afforded opportunity to study the roots, and the roots of 57 trees were studied. Of these, 31 (55 per cent.) showed twisting to the right of the tap root or smaller roots. Only 7 (12 per cent.) showed left-hand twisting, and 19 (33 per cent.) were straight. In practically all cases the trees had been cut so close to the ground that the direction of grain in the trunk could not be determined.

The degree of twisting varied considerably, as has been described in other regions. As measured at the surface, the direction of grain was seen, in many cases, to run at an angle of 45° to the main axis of the log. This extreme degree of twisting was observed in trees twisting to the left as well as those twisting to the right.

The most striking thing found in this study was that in any single tree the degree of twisting at the surface may be considerably greater than at any level nearer the center of the trunk or limbs. The accompanying figures illustrate conditions in trunks of actual trees and may be taken as typical examples of what was found after many careful examinations. In large, as well as small trees, this differential twisting may be taken as the general rule. This would seem to indicate that trees tend to become more twisted at the surface as they grow older. That the outer layers are twisted more than the inner ones is consistent with the observation of Cahn that larger trees were twisted more than smaller ones.

Many deciduous trees were observed that were twisted, and in some cases they were very sharply twisted, even in the limbs. Accurate records were not kept of the relative numbers, but there was a marked impression that left-hand twisting was more common than among the pines.

The purpose of this paper, simply, is to give a few additional facts on this general subject. I do not propose an explanation of the cause of twisting in trees, but I do believe that some of the observations listed here raise serious objections to the conclusion that tree twist is caused by prevailing winds. If prevailing winds cause the limbs of trees to twist, it seems reasonable to expect that the limbs on one side of a tree would twist in one direction and those on the opposite side twist in the opposite direction. All the limbs of any one tree, however, always twisted in the same direction It is believed, also, that wind could not cause roots to twist. The fact that the outer layers of the trunk and limbs are usually more sharply twisted than successive layers nearer the center is regarded as further evidence that wind is not responsible for the twisting.

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THE STINGING EPYRIS

WHEN the senior author wrote the short article, "A Small Insect Which Stings Severely," which appeared in SCIENCE for February 26, 1932 (pp. 243–245), he was unaware of the fact that the stinging propensities of the very same insect—*Epyris californicus* (Ashmead)—had previously been reported in SCIENCE by a physician, Chas. E. von Geldern, M.D.,[1] of Sacramento, California. In his article are described fully the systemic disturbances following the sting of the tiny insect from the medical view-point. Fortunately, the family referred to as living at Clarksburg is the same in both articles. In view of the increasing interest in the insect it was deemed desirable to ascertain more fully the present status of the effect of the stings on the various members of the family in question. Accordingly, the junior author, who happens to be conducting entomological investigations in the same region and who has become acquainted with the different members of the family, has secured the additional facts presented herein. The family is now composed of father, mother and four children, aged 13, 11, 9, and 3, respectively. The three older children only are mentioned in Dr. von Geldern's observations. Whereas in 1927 the father and mother both suffered considerable discomfort following the sting of the insect which resulted in asthma, numbness, nausea, localized itching and cramps, and diarrhoea, they are no longer affected seriously. For the past two years the stings have caused neither abdominal pains nor nausea. At that time also the third child, then 4, and the first, then 8, were no longer subject to manifestations of discomfort, while the second son, then 6, was greatly disturbed. At this writing the fourth boy is only irritated by the stings. The third, who up to a short time previously was only irritated, when last stung became flushed and very weak. The second son, when first stung, exhibited symptoms of asthma and general discomfort, but apparently became more or less immune until early in March, when a sting caused a flushed and swollen face and a burning of

[1] "Systemic Effects Following the Sting of a Species of *Epyris*," SCIENCE, 65: 1682, March 25, 1927, pp. 302–303.