VALVOLINE.

We present herewith an illustration of the display of Leonard & Ellis at the Paris Exhibition. For a number of years this firm have been experimenting in the production of a superior lubricating oil, that should contain none of the deleterious qualities inherent in the animal and vegetable oils that have been in use since the discovery of steam as a motor. After a series of experiments, and a careful study of the laws of lubrication, they finally produced an oil which they call the "Valvoline Cylinder Oil." This new oil was thoroughly examined and tested by the judges of our late Centennial Commission, among whom were such distinguished names as Professor C. F. Chandler, who has had more experience than any man in this country in testing mineral oils, and Rudolph Von Wogner, of Germany, who stands at the head of chemists in the old country. This commission, in their published report, commended the valvoline cylinder oil for its "purity, high fire test, and excellent lubricating body." Certainly nothing more favorable could be said of any oil. The commendation, coming from such a source, is the highest indorsement.

Valvoline is a hydrocarbon or mineral oil. For its production a heavy natural lubricating oil is taken, and all light and objectionable oils expelled by high steam heat; it is then thoroughly filtered through animal charcoal, cloth, and paper, by which means all bitumen and earthy matter are removed, leaving a clear, pure oil of the highest lubricating quality. The destructive acids which are common to animal and vegetable oils are unknown to valvoline. It is a well ascertained fact that the action of high pressure steam liberates the margaric, stearic, oleic, and other acids inherent in all animal and vegetable fats, and these acids attack the joints, valves, cylinder heads, bolts, and other parts of machinery lubricated, oxidizing the metal and feeding the element of destruction in it rather than simply subserving the useful purposes of lubrication. Mineral oils do not contain fatty acids; they are not capable of being decomposed, and do not form insoluble soaps. Valvoline being a mineral oil, purified and refined according to the most approved processes, and capable of standing a high temperature, is probably the best lubricator now in use. It does not oxidize or corrode the metal, but it is said to case-harden it. Its influence on boiler incrustations is most salutary in diminishing their clinging tendency. It will not saponify, and acts as a preventive in foaming boilers.

The importance of this subject of lubricators cannot be overestimated. In the late reports of the British Government, they strongly recommend the disuse of animal and vegetable oils. The Manufacturers' Mutual Insurance Company has gone into elaborate detail in the matter of lubricating oils. The company has been making experiments for the benefit of manufacturers, and has adopted mineral oils. Manufacturers and engineers throughout the country, who are desirous of correct and trustworthy information on this subject, may address Messrs. Leonard & Ellis, 93 West street, New York city.

PARIS EXHIBITION.—LEONARD & ELLIS' EXHIBIT OF VALVOLINE.

American Microscopes.

Professor J. Gibbons Hunt, M.D., of Philadelphia, in a recent lecture, stated that, in his opinion (and he is one of the most experienced microscopists in this country), England, which first introduced cheap instruments, sits at the feet of America in respect to both lenses and mechanical appliances. He says it is affectation or stupidity for Americans to send to Europe for microscopes when they can purchase better ones at home.—*Medical and Surgical Reporter.*

The Shrimp Fishery in San Francisco Bay.

The Chinese of California have developed a large and, to them, profitable industry along the shores of San Francisco Bay, in the capture and curing of the shrimp, with which those waters swarm. Over five hundred Chinamen are engaged in this work, distributed mainly along the southern portion of the bay, in camps of from twelve to forty men each. According to the San Francisco *Bulletin*, the business at first hands now amounts to $15,000 a month, and new markets are constantly opening. At certain periods the demand is so great that two trips into the bay are made daily, which nearly doubles the amount of ordinary supply, and necessitates the employment of a large force of extra men. The most serious disadvantage of the trade is that it can at present be prosecuted only during the dry season, the rain preventing the exposure of the shrimps for drying purposes. This difficulty will probably be obviated as the business enlarges, by the drying and crushing of the shrimps in heated rooms, instead of the open air, during the winter. To avoid infringing the very stringent fishery laws of California, the nets are sunk from twelve to twenty fathoms, or below the level usually traversed by the fish of the bay. The nets used are funnel-shaped, and about 36 feet in length. The diameter at the mouth is 18 feet, but decreases by gradations to one foot at the lower extremity. The mesh is usually a half inch on the square for a distance of 30 feet from the orifice, but is less than a quarter of an inch in width from that point to the smaller end. The time chosen for setting the nets is when the tide is coming in, and they are allowed to remain in the water until after the ebb. They are then lifted and the contents conveyed to land. The camps described possess 36 boats, and five men constitute a crew. Each boat contains from 12 to 15 nets, and 20 baskets of shrimps at a single catch is a fair average. These baskets will hold about 150 lbs. each.

After landing, the shrimps are placed in vats of boiling water, with a fire underneath, and boiled for about half an hour, being frequently sprinkled with coarse salt. They are then spread out on hard, dry ground, and left to dry and bleach for three or four days, being frequently turned. At the expiration of this time the shells, spawn, and dirt are either detached or in such a dry and cracked condition as to be easily removed. A force of Chinamen is then put to work tramping the beds of dry shrimps with heavy wooden shoes. The trampers go over and over the mass, sliding their feet as does a negro dancer when he is shuffling over the stage. The tramping process concluded, the miscellaneous mixture is put into a winnowing machine, where the shells are separated from the meat as perfectly as chaff is from grain. There are three spouts to the separator, through one of which the whole shrimps are shot into a basket. The other spouts are used respectively for the shrimps crushed by the tramping and the detached hulls. Thus dried and skinned the shrimps are put in bags and sent to the city. A few of them are shipped to China, but owing to the high rate of transportation, which makes the article more of a luxury than a commodity in that country, the export trade has not proved profitable. The first price of dried shrimps in San Francisco is from 5 to 8 cents per pound. A sack containing 150 lbs. of the undried article will produce from 8 to 10 lbs. after the drying process. Before curing, the spot price of shrimps is from 2 to 3½ cents per pound. Delivered to restaurants the price is 5 cents per pound. The principal camps of Chinamen are in the interior towns, where the shrimps command a high figure, and when made into soup are esteemed a dainty dish.

The broken shrimps, whose segregation has been alluded to, are ground into a coarse flour, which retails at from 3 to 4 cents per pound. A use has also been discovered for the shells, and they are shipped exclusively to China. There they are valuable as manure, and as a poison to the worm which works such destruction to the tea plant of that country. There is nearly as much profit from the sale of the crushed shells as from that of the shrimps themselves. The Chinamen state that this is the only remedy at present known for the tea pest, and the heavy shipments indicate that this article has more virtue than other fertilizers.

A GROOVELESS tramway was recently inspected in Birmingham, England. Mr. C. A. Edge, the inventor, had laid a quarter of a mile of line in the shape of a figure 8, with several gradients, and he ran cars upon it throughout the most of the day. The rail is a flat plate, regularly pierced with holes, and protuberances on the wheels fit into the holes. The object is to get rid of the inconvenient grooves of the tram systems now in general use.

Disabilities of British Workmen.

Mr. Graham Bell's account of the difficulty he experienced in getting any novel idea put into material form by British workmen has called out the following statement by Thomas Fletcher, in the *English Mechanic:*

"The letter of Mr. Graham Bell, I think, only gives the really true state of things. After twenty years' experience in experimental work in England I can only say that the experience of Mr. Bell is precisely the same as my own. The British workman, having, as a rule, no general training or knowledge worth the name, seems almost unable to get out of a groove in which his ancestors ran. For the last ten years, in anything requiring judgment on the part of the workman, I have found it far less trouble to make the thing with my own hands than to give a workman instructions, which in many cases he will not follow because he does not understand, nor does he care to learn the reason why of anything. Many tools in common use have serious faults, and are not properly adapted for their work.

"When I have applied to the makers, showing them the faults, and asking for modifications, irrespective of price, I am met on all sides by a refusal to entertain the idea, the invariable reason being that the workmen will not go out of their regular groove. I have in many cases sent rough sketches of modified tools to America which I have totally failed to get made in England at any price, and have afterward been able to buy the very things, of American manufacture, in English tool shops. I know of cases where English tool makers have been obliged to buy American made tools to do their work, tools which English workmen would or could not copy.

"'The proof of the pudding is in the eating.' I have at this moment at least three fourths of my tools of American manufacture, many of which have been bought at a very fancy price. If it were not an absolute necessity I should be exceedingly foolish to buy American tools at a high price if English tools were to be bought which would do the work equally well. From my own practical experience the difference between the two is, that an English workman does not, in the first instance, learn what a tool is for, and adapt the tool to the requirements; an American workman will, as a rule, use his brains and make what you want without spoiling the whole by ridiculous blunders.

"The Americans are fully capable of making rubbish, but they are not alone in this point; many English things are simply made to sell; but certainly, if I needed a thing, making which required judgment on the part of the workman, and I could not give personal and constant supervision, I should, as the simplest way to get the thing right, send the instructions to America.

"The English employer is, as a rule, a man of sound knowledge, and fully capable of undertaking anything in his own department, except in the matter of getting his workmen to do what he requires with judgment; the man is a machine, not expecting to have to use his brains, and the few workmen who do use their brains are so very rare and valuable that the effect on the mass of workmen and work is exceedingly small, gradually becoming *nil*, as these men usually become masters, and in their turn have to exert their energies, not to work, but on the British workman.

"The first thing to be done is to give apprentices not the present rule of thumb education, but start them with a training purely technical, and combine this with practical work; one is of little use without the other."