

NEW AUTOMOBILE TRACK RECORDS.

The second automobile races of the year to be held in the vicinity of New York occurred on the Empire City Track on Saturday, October 3. Barney Oldfield, on the Winton eight-cylinder "Bullet No. 2," was again the hero of the hour, and he startled the several thousand spectators there assembled by covering the mile course fifteen times in 14 minutes 35 seconds. This remarkable performance was incidental to the 15-mile free-for-all race. The machines competing against the 70-horsepower Winton car were a 40-horsepower Decauville, a 60-horsepower Mercedes, a 25-horsepower Packard racer, and a 24-horsepower Renault. The Decauville made the best showing next to the Winton, and finished in 15:07 1-5, thus making a new track record for machines weighing under 1,800 pounds. Oldfield's fastest mile, the tenth, was covered in 56 seconds, just one-fifth of a second more than his best record made on the same track last July on the Ford racer. After the first five miles, which were covered in 5 minutes 1 second, Oldfield maintained a pace of 56 or 57 and a fraction seconds to the mile, up to the last circuit, which he made in precisely one minute. His performance was a good example of the mastery of man over mechanism, for it should be remembered that the car is the same one which balked so badly with Mr. Winton in the Gordon Bennett race, and Oldfield himself did not succeed in getting the best he could out of it earlier in the day, when he ran a mile against time in 56 2-5 seconds. The machine took the turns with much less slewing than the old Ford racer, and driver and machine almost seemed one piece of mechanism as they flew past the grand stand.

One of the first records to be broken was that for 10 miles, for cars weighing under 1,800 pounds, which had 36 2-5 seconds clipped off it by the Decauville machine, which, in a race with the Packard and the Renault machines, covered the distance in 10 minutes 16 3-5 seconds. The last-named car dropped out, and the 25-horsepower "Grey Wolf" was lapped at the end of 8 1/2 miles.

A 5-mile race for machines under 1,200 pounds was won by a 21-horsepower Georges Richard-Brazier machine in 6 minutes 16 3-5 seconds. Despite the fact that one of the four cylinders was inoperative, the machine, running on three cylinders, made a new track record for each mile, its fastest circuit being covered in 1:13 1-5.

By no means the least interesting of the events was a 5-mile race between four 16-horsepower gasoline locomobile machines, driven by their owners. Archibald McNeil, Jr., of Bridgeport, Conn., won in 7 minutes 19 2-5 seconds.

FIRST DAY'S RUN OF THE NEW YORK-PITTSBURG AUTOMOBILE ENDURANCE TEST.

BY THE SCIENTIFIC AMERICAN'S OBSERVER.

Thirty-four American-built automobiles were started Wednesday morning, October 7, at 7 o'clock, from the historic heights of Weehawken, N. J., opposite this city, on an 800-mile test over all kinds of roads to Pittsburg, Pa., on the first annual endurance run of the National Association of Automobile Manufacturers. The weather was damp and foggy, threatening rain, which fell in a misty drizzle in the afternoon. The distance to Newburg, the mid-day control, was 60 miles, and this was covered by most of the machines in about four hours, as a splendid, smooth road was run over nearly all the way. One machine, the Toledo, made the distance in two hours and fifty minutes. After an hour spent for lunch at Newburg the majority of the contestants left there for Pine Hill, 70 miles distant, between 11 and 1 o'clock. Fairly good roads were met with to Kingston—35 miles—after which came long stretches of poor and muddy road, with many mudholes and soft spots, extremely dangerous on account of skidding. No more serious accidents occurred, however, than the striking and overthrowing of an iron hitching post, and the taking off of a hub-cap of the Knox surrey by the Packard "Old Pacific," in passing the Knox while endeavoring to avoid a rut in the road. The locomobile touring car, in making a plunge into a deep mudhole, bent its starting handle and jammed it against the radiating coils, damaging them slightly but not breaking them. The Fredonia runabout, however, was not so fortunate, for, while rushing a hill behind the transcontinental Oldsmobile, it ran into the latter and broke its radiating coils. This and other troubles prevented it from reaching Pine Hill till quite late. Two of the White steam machines had trouble with their tires, owing to the tire not fitting the wheel rim properly. One of the rear tires on the White tonneau No. 5 could not be made to stay on, and after trying first rope and afterward chain, the machine was run 35 miles into Newburg on the bare rim. At that place a tire that fitted was secured, and the car finally arrived about 8:30 P. M., while its mate was some miles behind.

The Pierce "Arrow" tonneau ran out of gasoline a few miles before reaching its destination, but fortunately managed to procure a supply from a store in a nearby village and finished the run in good time.

L. L. Whitman's Oldsmobile, which has already crossed the continent, ran from New York to Newburg on 2 1/2 gallons of gasoline, and averaged 12 miles an hour. His average speed for the rest of the day's run was about 10 miles an hour, which was very good considering the execrable condition of the roads in many spots. The new Knox tonneau car, with double, opposed cylinder, air-cooled motor, on which machine the writer rode, made a perfect score and proved itself a very smooth-running car. The three Franklin cars, as well as two other Knox machines, all demonstrated the entire practicability of the air-cooled motor over bad, muddy roads, as well as on smooth macadam.

The presence in the run of the two machines which have lately crossed the continent—the Packard single cylinder "Pacific," and the regular Oldsmobile runabout, speaks well for the enduring qualities of American machines; and the way the former plowed through the mud and made its way over the rough spots was an object lesson in staunch construction.

The rain in the afternoon made the roads over the last stretch from Kingston to Pine Hill, N. Y., very soft and slippery—conditions extremely unfavorable for rapid automobiling; and the next day in going from Pine Hill to Binghamton, N. Y., the unfavorable conditions were greatly intensified by a driving rainstorm, which made washouts everywhere, covering soft spots with water, causing the wheels in places to sink up to their hubs in mud. Many machines had ropes wrapped around their rear tires to prevent skidding, but even then the wheels would rotate in muddy, soft spots without propelling the machines. Of the thirty-four machines started, the first thirty-three completed the day's run, the Holley motorette being the only one unable to traverse the bad roads encountered. From Binghamton the route as arranged is to Buffalo, N. Y., thence to Cleveland, Ohio, and from there to Pittsburg, Pa., the run to terminate on October 14. The conditions of the run formulated provide 6,000 points as the maximum obtainable, as follows: Run without stops, 3,000; condition at finish, 1,500; weight-carrying capacity, 1,000; hill-climbing, 250; brake test, 250. Each minute of a penalized stop counts one point against the vehicle.

QUEEN VICTORIA'S IVORY CHAIR OF STATE.

Among the priceless treasures comprising the Jubilee presents of Queen Victoria, which have been sent to America by King Edward of England for exhibition at the World's Fair, is a wonderful ivory chair and footstool. These were presented to the late Queen by the Maharajah of Travancore.

The carving on the chair and footstool is a revelation of the possibilities of art. The feet are in the form of lions' paws, and the arms terminate in lions' heads. The back is in the form of a shell, supported by elephants rampant. The seat is of alabaster, and the chair has a gold and silver tissue drapery around the underside of the frame, finished with tassels and richly chased ormolu ornaments. The cushions are of green velvet, embroidered in gold and silver thread. Every outside part of the chair is covered with delicately carved figures of men and animals.

This maharajah, not satisfied with this truly princely gift, presented also to her Majesty two immense pairs of elephants' tusks. The official descriptions of these are as follows:

1. Pair of elephant's tusks, mounted on a buffalo's head, carved in ebony, which is supported on four griffins. The tusks are supported higher up by a crossbar of ebony and resting on the heads of four figures representing some of the incarnations of Vishnu. Rushing from the projecting ends of the crossbar to the tusks are two griffins with two elephants under them, linking their trunks. On the center of the bar is a sixteen-handed figure of Shive, standing on the prostrate form of an Abamaram, or fiend. All figures are ebony.

2. Pair of elephant's tusks, mounted as flower vases on a stand of rosewood covered with ivory. The tusks are mounted with gold and entwined by a pepper vine in fruit, worked in gold. The vases are supported on two elephants' heads carved in ebony, and rising from out of a base of rock and jungle worked in ivory and elephants' teeth. The trunks of the elephants support a lotus of ivory, on which is seated a golden image of Lukshine, the goddess of prosperity.

BATTLESHIP "MISSOURI'S" BUILDERS' TRIAL.

The battleship "Missouri" had her builders' trial trip recently. She steamed out to sea, and it is authoritatively stated that her performance, when no special effort was made for speed, shows conclusively that she will easily go above the contract requirement of eighteen knots an hour. All of her machinery worked perfectly.

SCIENCE NOTES.

To the Paris Academy of Sciences Dr. Finsen has reported a tabulated list of cases of lupus on which the Finsen light cure has been successfully tried. Out of 804 cases, 412 have been pronounced cured. Of this number of cured, 124 have shown no signs of a recrudescence of the disease after a period of from two to six years. The other 288 cases are of more recent date, but there are no signs of a recrudescence, and they are believed to have been cured.

J. C. Umney and C. T. Bennett have examined a sample of non-freezing fish-liver oil which, in many respects, responded to the Pharmacopœial tests for cod liver oil. The refractive index and the percentage of free fatty acids were found to be the most valuable tests for purity, the fish oil showing over 3.0 per cent of the latter. The B. P. nitric acid test has also been found to be useful for excluding fish oils from cod liver oil when time is not a matter of importance.

W. A. Jones and C. E. Waters have independently investigated the action of ozone on carbon monoxide. It is found that ozone does not act on carbon monoxide as readily as might be expected from its apparent unsaturation; there is some oxidation to carbon dioxide at high temperatures, the oxidation depending on the amount of ozone present in the oxygen. Jones did not find the least evidence of oxidation by hydrogen peroxide, even when concentrated solutions were employed.

A Liverpool firm which does a large trade with East and Southwest Africa, received recently a species of a plant hitherto unknown, which produces rubber. The plant grows under ground, and probably will be found in English East Africa. If the bark of the plant is broken the rubber keeps the pieces together and is of extraordinary elasticity. The rubber is directly beneath the bark and is of unsurpassed quality. Ordinarily the roots, when about one month old, contain from 6 to 6 1/2 per cent of rubber; if the bark is removed, the percentage is from 12 to 15.

P. Duhem reaches the following conclusions in an investigation of Röntgen rays and Hertzian oscillations: (1) Transversal electromagnetic waves are propagated in dielectric media according to the laws of the electromagnetic theory of light. (2) Longitudinal electromagnetic waves are propagated in all dielectric media with the same velocity, equal to the velocity of light in *vacuo*; they travel also with this same velocity in perfect conductors. Attention is called to the analogy which appears to exist between longitudinal electric oscillations and the Röntgen rays.

M. G. Claude, of the French Académie des Sciences, has discovered a further development of the well-known process of obtaining oxygen from air by the liquefaction of the latter. In the general method of obtaining oxygen by this process, the *modus operandi* is to condense the air as a whole, and then to re-evaporate it, thereby enabling the nitrogen, which is the more volatile gas, to escape first, leaving subsequently a liquid containing a richer proportion of oxygen until the last 10 per cent of the liquid contains approximately 92 per cent of oxygen. M. Claude conceived the possibility of obtaining a gas richly impregnated with oxygen without previously liquefying the whole proportion of nitrogen present. For this purpose he designed a special apparatus, and by this means the liquid was drawn off as rapidly as it was produced. The result of this experiment demonstrated that as much as 48 per cent of the liquid was oxygen.

The use of balloons for keeping a lookout upon the coast has been attempted in several cases by steamships, but the trials which have been made with the ordinary spherical balloon did not prove successful, and difficulties arose which were insurmountable, owing to the fact that the balloon is constantly driven about by the wind. A new system has been devised by a Swedish inventor, Parseval-Siegsfeld, which bids fair to be successful, as it consists of a balloon-kite, and like all apparatus of this kind it takes the direction of the wind and keeps its position with but little oscillation. As the character of the Swedish coast, with its numerous rocks and islands, makes it difficult to observe the different straits which separate them, an apparatus of this kind is especially needed, and therefore a special boat has been constructed which carries the kite-balloon, and in this way affords an observation point over a great extent of the coast, and any hostile approach can be at once noted. The new vessel measures 152 feet long and 34 feet maximum width, and gages 200 tons. It is provided with a set of apparatus which inflates the balloon with hydrogen. The gas is contained in large reservoirs and is sent to the balloon through a set of tubes. The machines which serve to inflate the balloon or to draw out the gas are operated by electric motors. The current is produced on board the vessel by a dynamo which is driven from two petrol motors of 40 horse power. One peculiar feature is that the vessel is not built to be propelled by its own motive power, but is towed by a small tug.