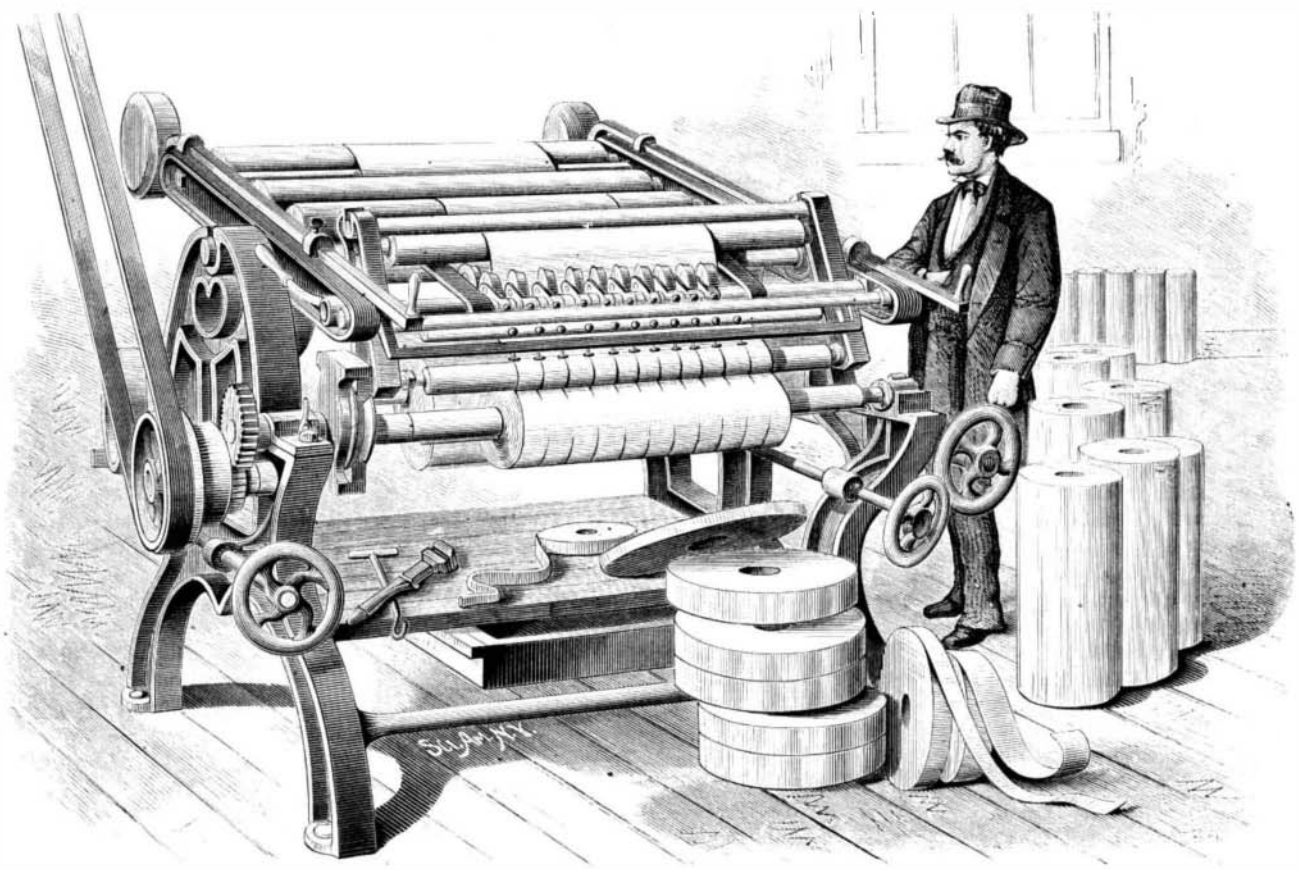
IMPROVED PAPER CUTTING AND WINDING MACHINE.

Our engraving illustrates an improved machine for cutting roll paper, such as is used in telegraphy, for rolling ribbons for hat bindings, etc.

The machine, although quite simple in its construction, is capable of performing a large amount of work. The roll of paper to be cut into strips is placed on a shaft at the rear of the machine, and is passed alternately over and under the rolls in the pivoted frame at the top of the machine, thence between circular shears to the shaft that receives the strips. This shaft is rotated by power received through the belt, and the circular shears are turned by the paper itself, which passes between elastic rollers on the shear shaft. Tension is given the paper by a friction brake on the shaft which holds the paper supply. The rollers in the pivoted frame smooth and stretch the paper, and the shears make a clean cut without danger of tearing the paper. The machine will cut paper strips of any desired width and wind them in solid coils, and it may be adapted to paper of any thickness from the finest tissue to cardboard.

The manufacturers inform us that only one attendant is required, and that the expenditure of less than one horse power will cut into strips of any desired width at least 4,000 lbs. of paper in ten hours and wind it perfectly. The machine might be easily combined with a paper machine so as to cut and wind the paper as it comes from the calender without the necessity of rewinding, in fact it seems a very important adjunct to paper machines designed to manufacture paper in rolls.

This machine was recently patented by Mr. Ignatz Frank, and is manufactured by the Cutting and Winding Machine Company, No. 124 Baxter street, New York city, Mr. George W. Gilbert, Secretary.



FRANK'S PAPER CUTTING AND WINDING MACHINE.

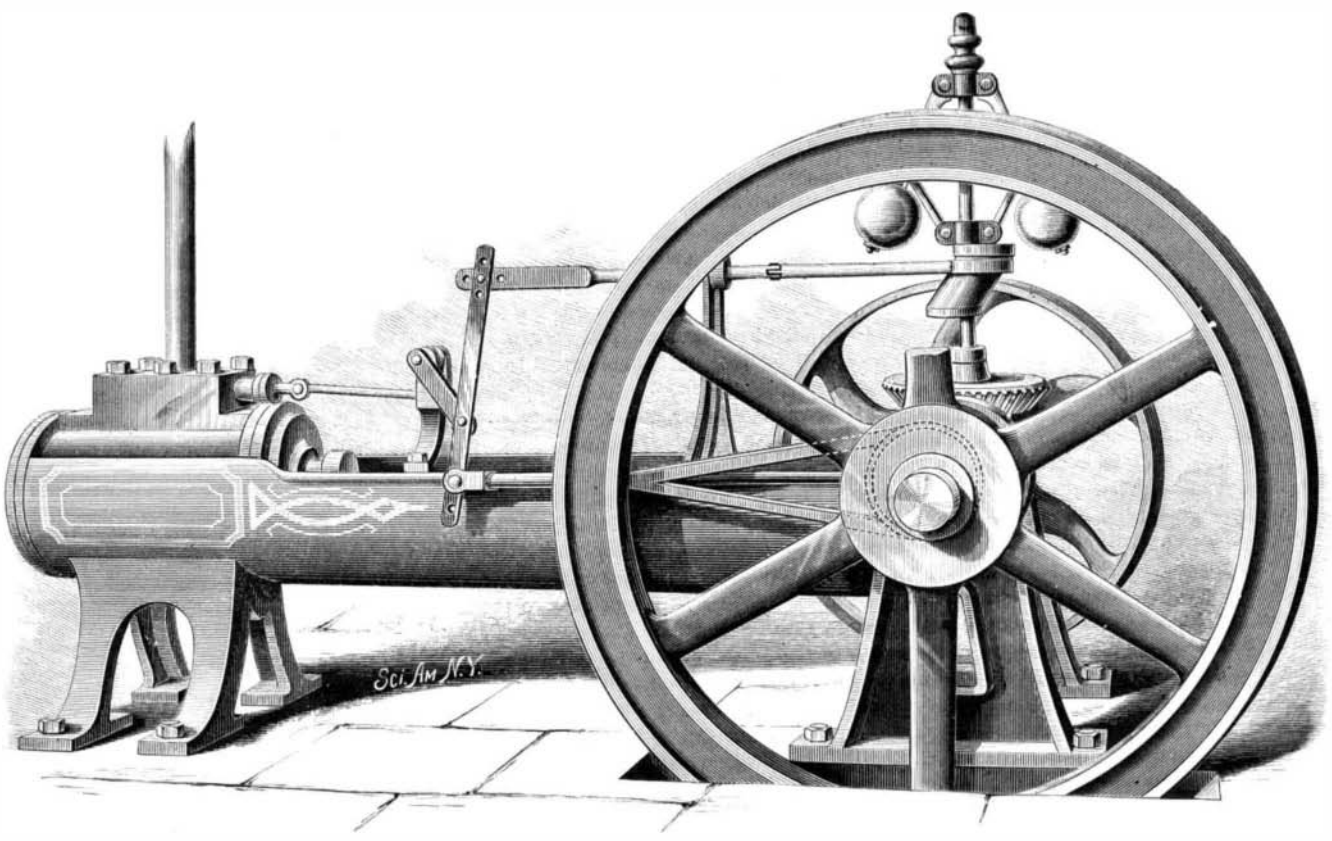
NEW CUT-OFF FOR STEAM ENGINES.

We give herewith an engraving of an engine provided with an improved cut-off recently patented by Mr. George H. Cobb, of Palmer, Mass. In this engine a single slide valve is operated by the joint action of two eccentrics, one of which is secured to the main shaft, while the other moves freely in a longitudinal direction upon the governor shaft, but is prevented from turning thereon by a slot in the eccentric and a feather in the shaft.

The cam or eccentric on the governor shaft is graduated, so that its center varies in position at every point in its width, the eccentricity passing around from one side of the shaft to the other. The governor acts upon the movable eccentric and varies its position according to the speed of the engine.

The straps of the two eccentrics are connected with a link or lever, which is fulcrumed on the lever that operates the slide valve of the engine, and the governor takes its motion from the main shaft through miter gearing.

It is a very simple matter to adjust the cut-off to the speed of the engine, the adjustment depending on the relation of the governor arms with the movable eccentric. This device appears practical; it certainly is very simple, and possesses the advantage of being applicable to engines already in use.



COBB'S IMPROVED CUT-OFF.

The Nobility of Science.

And as to nobleness of character, how can one accuse science of striking at it when he sees the minds that science forms, the unselfishness, the absolute devotion to life work that she inspires and sustains? With the saints, the heroes, the great men of all ages we may fearlessly compare our men of scientific minds, given solely to the research of truth, indifferent to fortune, often proud of their poverty, smiling at the honors they are offered, as careless of flattery as of obloquy, sure of the worth of that they are doing, and happy because they possess truth. Great, I grant it, are the joys which a firm belief in things divine confers, but these the inward happiness of the wise equals, for he feels that he toils at an eternal work and belongs to the company of those of whom it is said, "Their works do follow them."—*Renan's Inaugural Address.*

OYSTERS in China are frequently dried for use instead of being eaten fresh. They are taken from the shells, plunged for an instant into boiling water, and then exposed to the rays of the sun until every particle of moisture has evaporated, when it is said they will keep for a length of time, while preserving the full delicacy of their flavor. The finest and fattest bivalves, bred on the leaves and cuttings of the bamboo, are chosen for this process, those taken from the natural beds being inferior in quality, and not sufficiently plump for the operation.

Wooden Pendulums.

An interesting discussion recently took place at a meeting of London clock makers on compensation pendulums. The general judgment seemed to be in favor of plain wooden pendulums for all sorts of timepieces. One speaker said that wooden pendulum rods were generally in use for turret and church clocks, and also in regulators. Another concurred in that statement, and he thought that if wooden pendulums were good for church clocks, they might usefully be adopted for bracket clocks. He had accordingly altered a very old family clock of that description, and of the best London make, by substituting a wooden for a brass pendulum, with very decided advantage. It might possibly be worth while to make a similar alteration generally; brass, being a cheaper and a prettier material, having probably been used by the makers of bracket clocks without consideration. A third maker never used anything but wood, when he could help it, for railway, church, or turret clocks. Another speaker considered that one of the advantages in the use of wood for pendulums might be that, in a fall of temperature, when the rod would be shortened, the hygroscopic property of the wood would come into play, which would tend to lengthen it, and so cause a natural compensation by the thermometric and hygroscopic properties of the wood acting in opposite directions. In some climates that certainly might be the case, though in others they would work together, when the effect would be to increase the error. It was stated that a wooden pendulum with a leaden bob had been affixed to a regulator clock in one of the leading shops, and was keeping excellent time. It was a very simple form of pendulum, and might be made very economically. Further testimony was borne to that form of pendulum. Dr. Mann had used one in Natal, which was simply a rod of varnished wood supporting a cylindrical bob of lead. It was, of course, subjected there to great and rapid changes in the atmospheric pressure and to diversitics of heat, but it worked excellently for many years. Subsequently it was replaced by one of Frodsham's best steel pendulums, and though there was some improvement, it was much slighter than might have been expected. In short, it was about as good a pendulum as could be conceived.

A Curious Property of Heat.

Mr. C. J. Henderson has been conducting some experiments lately in Edinburgh with a view to finding out what is the most economical way of heating a public hall, and has decided that the best results are to be obtained by using an accumulator or stove-room, where the heat, generated by any means whatsoever, is collected, and from which it is discharged through one opening about three or four feet square and seven or eight feet from the floor. The experiments unexpectedly exhibited with what instantaneousness and equality heat is transmitted through space independent of the direction in which the entering heated air is moving; for thermometers were placed at the same height on each of the four

walls of the hall which was to be heated, and it was found that just as the heated air entered from the stove room so the mercury in the several thermometers rose, whether they were hung on the same wall in which was the opening to the stove room, or on the north wall, fifty feet away.

THE KANCHIL, OR PYGMY MUSK.

BY DANIEL C. BEARD.

Last winter while we New Yorkers were bringing into requisition all modern appliances within our reach to ward off the cold waves that came rolling over us from the mountains and plains of solid ice of the northern frozen regions, while our ears and nose, our fingers and toes, were tingling in the frosty air of midwinter, the crew of the good ship Janet Furguson were sweltering under the burning rays of a tropical sun. The ship was on her return trip from Singapore to New York with a cargo of pepper and spices. When passing through the Straits of Sunda she was met and surrounded by the usual fleet of native bum boats laden with fruits and curiosities. Among the miscellaneous cargo of these sea peddlers' boats one had aboard some of the most graceful, beautiful little creatures one could well imagine—five full grown live deer, not larger than small rabbits. The captain of our Janet Furguson after some parley succeeded in purchasing them, giving in exchange an old silver watch. The ship's carpenter soon built for them a convenient little house, about the dimensions of a small dog house, with "Deer Lodge" neatly painted over the door, and in these comfortable quarters the little midgets made in safety a voyage of 136 days, becoming great favorites with the crew. One fawn was born during the trip, but when discovered by the mate of the vessel the buck had eaten off its legs and it was dead.

Arriving off Sandy Hook the Janet Furguson encountered a cold wintry gale, all hands were kept busy, and during the confusion three of the little creatures that had managed to escape from their snug little house perished with the cold. Immediately after arriving at port the fourth, a fine buck, fell a victim to our (to them) inhospitable climate. The only survivor, a beautiful doe, represented in the above drawing, came into my possession; but she only lived about a week. In spite of all my care she too expired, killed by the cold breath of our New York winter.

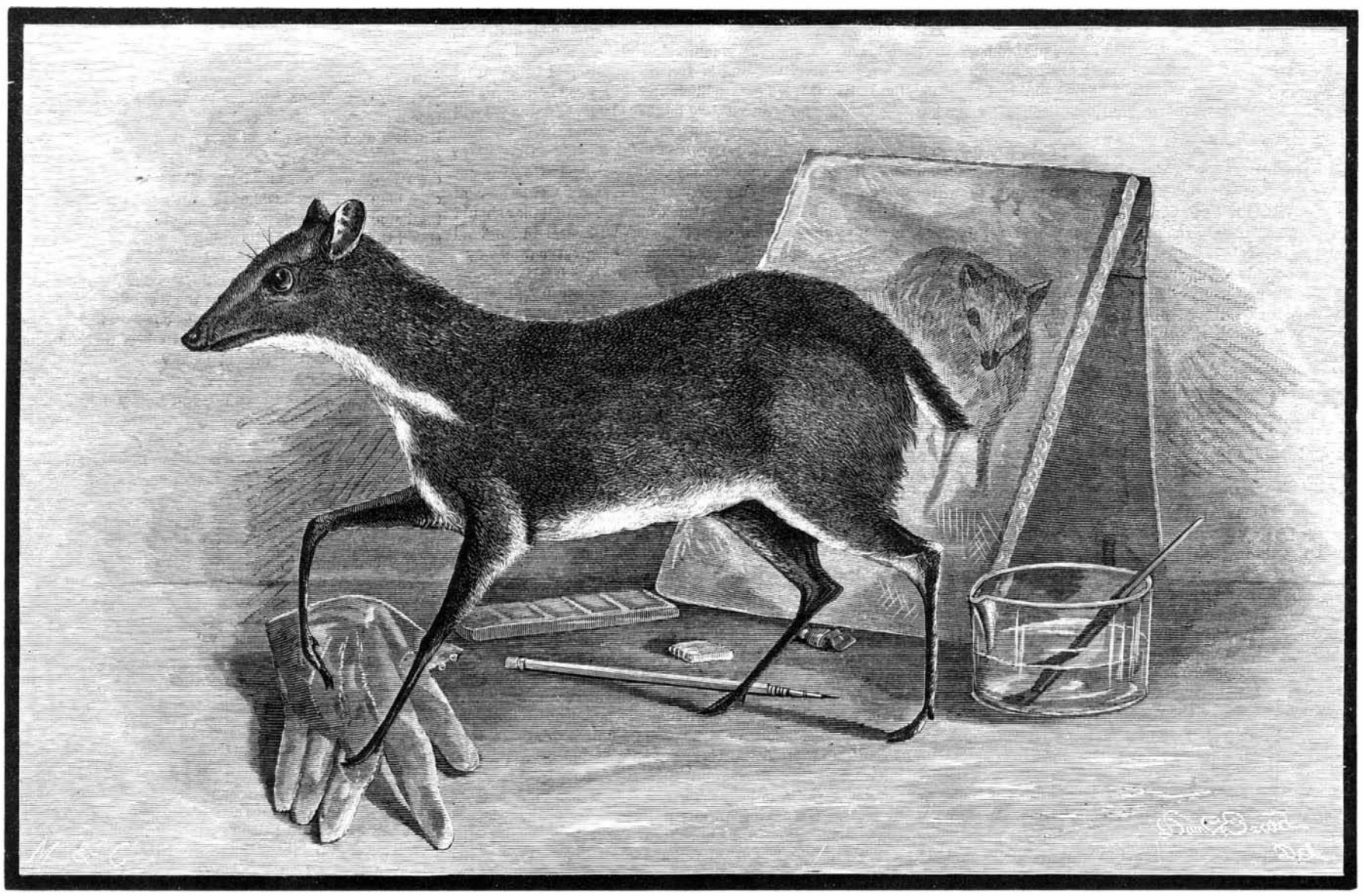
She was a timid little creature, and although perfectly tame objected to being handled, but she would take food from my hand and allow me to stroke her back. She had the pose and action of our ordinary deer. When watching her as she leaped over a footstool, or stood, head erect, with one fore foot gracefully poised, in an eager, listening attitude, or crept timidly and stealthily close to the wall and behind the articles of furniture, it was as difficult to realize that it was a real live deer as it is to believe that the midget General Mite is actually a living specimen of the genus *homo*.

The pygmy musk is common in the peninsula of Malacca and the neighboring islands, frequenting the thickets. They are nocturnal in their habits, and are often surprised by the natives in the act of making a raid upon the sweet potato patches, and captured by throwing sticks at their legs or caught in nooses; in the latter case they frequently escape by feigning death.

The Malays prize them both as articles of food and as domestic pets. It is of this species that a rather doubtful story is told to the effect that when closely pursued by the hounds they will leap into the overhanging branches of some friendly tree, and hang suspended by their large canine teeth until the too eager foe rushes by, then dropping to the ground they will calmly retrace their steps. It is said that the creatures can make most extraordinary leaps, and that they display great cunning. They have no musk bag, and like the rest of the family are destitute of horns. The antlers we see upon stuffed specimens in the windows of the taxidermist are artificial.

The doe in my possession measured 15 inches in length; the head rather large, being 4½ inches from point behind the ears to tip of its nose; nose movable, always wet and cold like a pointer dog, and like that dog she possessed a keen scent. The round, short ears gave the animal the appearance of a mouse. The canine teeth were short, slender, and sharp, and, unlike the buck's, did not extend below the lips. The ten inch mark upon the rule came above the highest part of her back. The legs were extremely delicate: a Faber lead pencil looked thick and clumsy beside them. The tiny hoofs only measured two-eighths of an inch at the broadest part, where the cloven parts united. The color is a general reddish brown, darker upon the back, where the hairs are tipped with black; an indistinct dark band runs from a point between the ears to nose; rather stiff gray hairs upon the sides and back of neck; fawn colored sides; three white streaks under part of neck; soft white hair upon belly and the anterior upper part of hind legs and the posterior upper part of fore limbs; the lower jaw is also white.

These animals could in all probability be acclimated in our Southern States, especially in Florida, abounding as that State does in swamps and thickets, where the animals could secure coverts and breed.



THE KANCHIL, OR PYGMY MUSK.—(*Tragulus Pygmæus.*)

Progress of Petroleum.

The result of the operations in the producing regions of Pennsylvania for the month of March is, says *Stowell's Petroleum Reporter*, certainly surprising, to use a very mild expression. They reveal a state of affairs that have never before existed in the oil regions, and we think gives very little hope for the immediate future. The following facts appear:

1st. That there were more wells drilling at the close of the month than in any corresponding month since 1870.

2d. More wells were completed during the month than in any month since November, 1878.

3d. The daily average production of the new wells was larger than in any previous month of which we have record.

4th. The number of rigs erected and being erected at the close of the month exceeds that of any previous month.

5th. The amount of crude produced in the month was lager than in any previous month since the commencement of the business.

6th. The amount of stock in the producnig region exceeds the amount ever before held.

7th. The shipments out of the region were larger rhan in any corresponding month in the past.

8th. The price of crude at the wells ruled lower than in any corresponding month since 1862.

The annual report of the Chief of the Bureau of Statistics on commerce and navigation for the fiscal year ended June 30, 1878, is at hand, from which we make the following extracts:

A larger percentage of the mineral oil product of the country is exported than of any other product, except cotton.

Petroleum ranks fifth in value among the exports of the United States, as shown by the following statement of the five principal commodities exported during the fiscal year ended June 30, 1878:

Cotton	$180,031,484
Wheat	96,872,016
Pork, bacon, hams, and lard	86,679,979
Indian corn	48,030,358
Petroleum and products of	46,574,974

It has been ascertained as the result of careful computations that the quantity of petroleum and its distilled products exported during the year ended June 30, 1878, was equivalent to 407,482,175 gallons of crude oil, or in other words, that the exports of petroleum constituted about 66 per cent of the entire amount produced.

25·58 per cent was shipped to	Germany.
13·97 " " " " "	the United Kingdom.
11·34 " " " " "	Belgium.
5·09 " " " " "	Italy.
5·08 " " " " "	France.
4·70 " " " " "	the Netherlands.
34·24 " " " " "	all other countries.

Of the total exports 82·24 per cent was exported to Europe, 11·75 per cent to Asia, Africa, and Australia, 0·52 per cent to the British North American Provinces, 5·28 per cent to Mexico, the West Indies, Central America, and South America.

Total exports of petroleum and its products from the United States from January 1, 1879, to April 4, 59,756,732 gallons; same time in 1878, 50,630,744 gallons; increase in 1879, 9,125,988 gallons.

The daily average production for the month of March, 1879, was 47,615 barrels, against 38,980 barrels for March, 1878, which is an increase of 8,635 barrels, or about 22 per cent, to which add 9·4 per cent produced in 1878 more than was needed for the export and home trades, and we have an increase of about 31·4 per cent in production to be provided for.

The exports from the United States from January 1, 1879, to April 4, 1879, were about 18 per cent more than were exported in the same time in 1878.