### Impending Change in Street Car Propulsion.

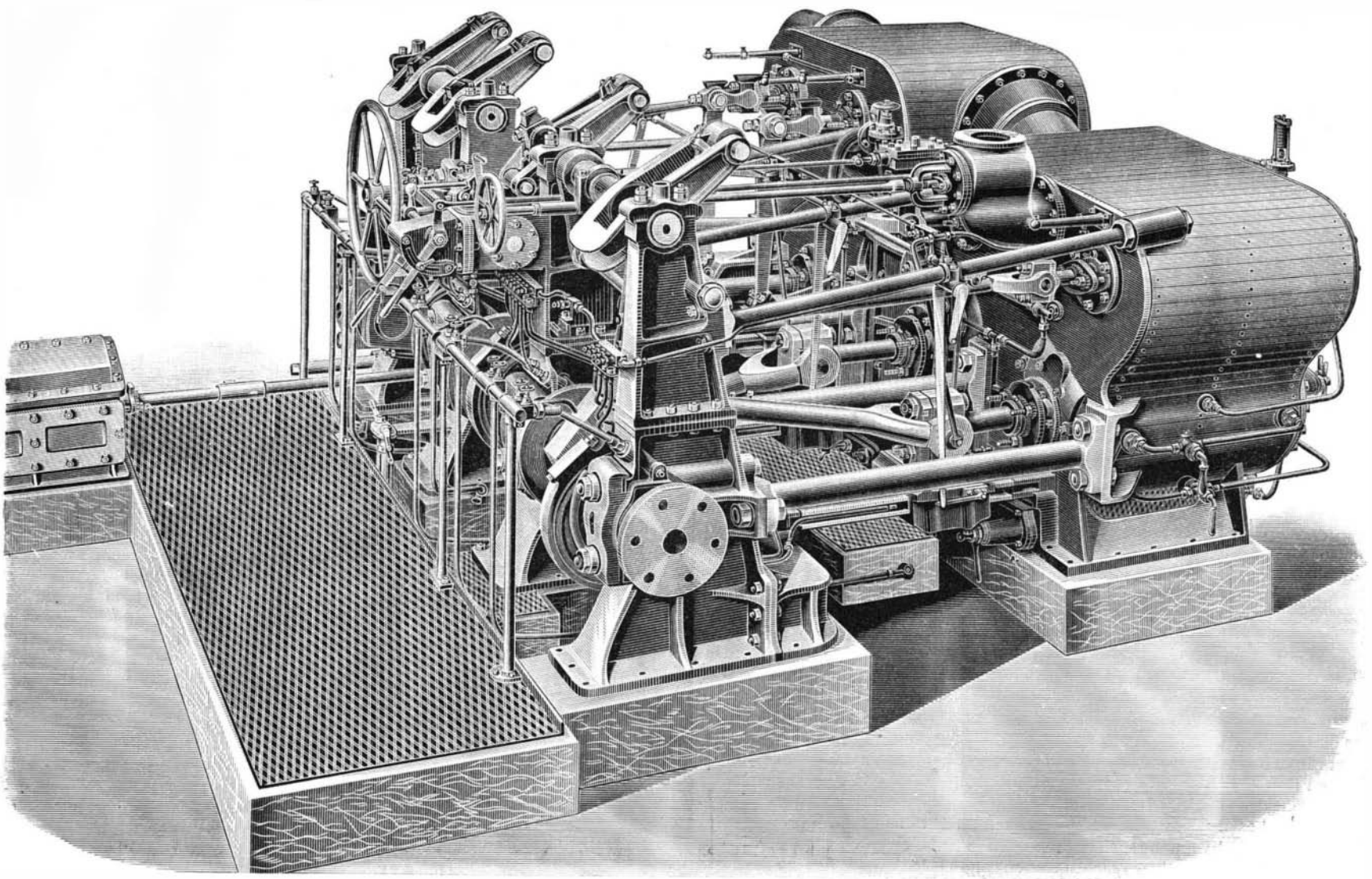
In his recent remarks before the American Institute of Electrical Engineers, Mr. Anthony Reckenzaun said:

With regard to the general application of electricity to street car propulsion, there is a very great future in store for us, and the time is very near when horses on street cars will be entirely abandoned. We have, I might say, almost passed the experimental stage, and we are now entering the more profitable stage of manufacturing and supplying street railways with electric motors. The advantages in electric motors are not only economy, but cleanliness and great saving of space at the depots and great saving of space in the streets. If you take crowded streets like Broadway, New York, and many other thoroughfares where every square inch of space in the street, you might say, is of value, and do away with horses, you save in length about twelve feet, and in width, of course, the width of the track. Now, it would seem ridiculous for me to make such a remark, but if there are hundreds of cars running in a crowded street, it makes many thousand square feet of space saved, and in that space other vehicles can pass. Another great advantage in electrical propulsion will be (apart from economy, which is certain to be a result) that we shall be able to travel at a greater speed. Horses cannot pull a car at a greater speed than six miles an hour. The average speed of all the horse cars in America and Europe is five miles an hour, including stoppages. Now, if we can travel at the rate of eight or ten miles an hour, a great deal of time will be saved, and passengers will avail themselves more of the new mode of traction. They will save a great deal of time. The traffic is constantly increasing. I have heard recently that the street car traffic of New York alone has increased in the last ten years fifty per cent. If it increases in the next ten years another fifty per cent, it would be impossible to cope with the traffic at all if we employ horses. The elevated railroads, it appears, are doing a large amount of business, almost as much as they are capable of doing, and the only loophole, it seems to me, out of the difficulty is either by building underground railroads or by propelling the street cars at a greater speed, so that the same number of cars will carry double the number of passengers in the same time.

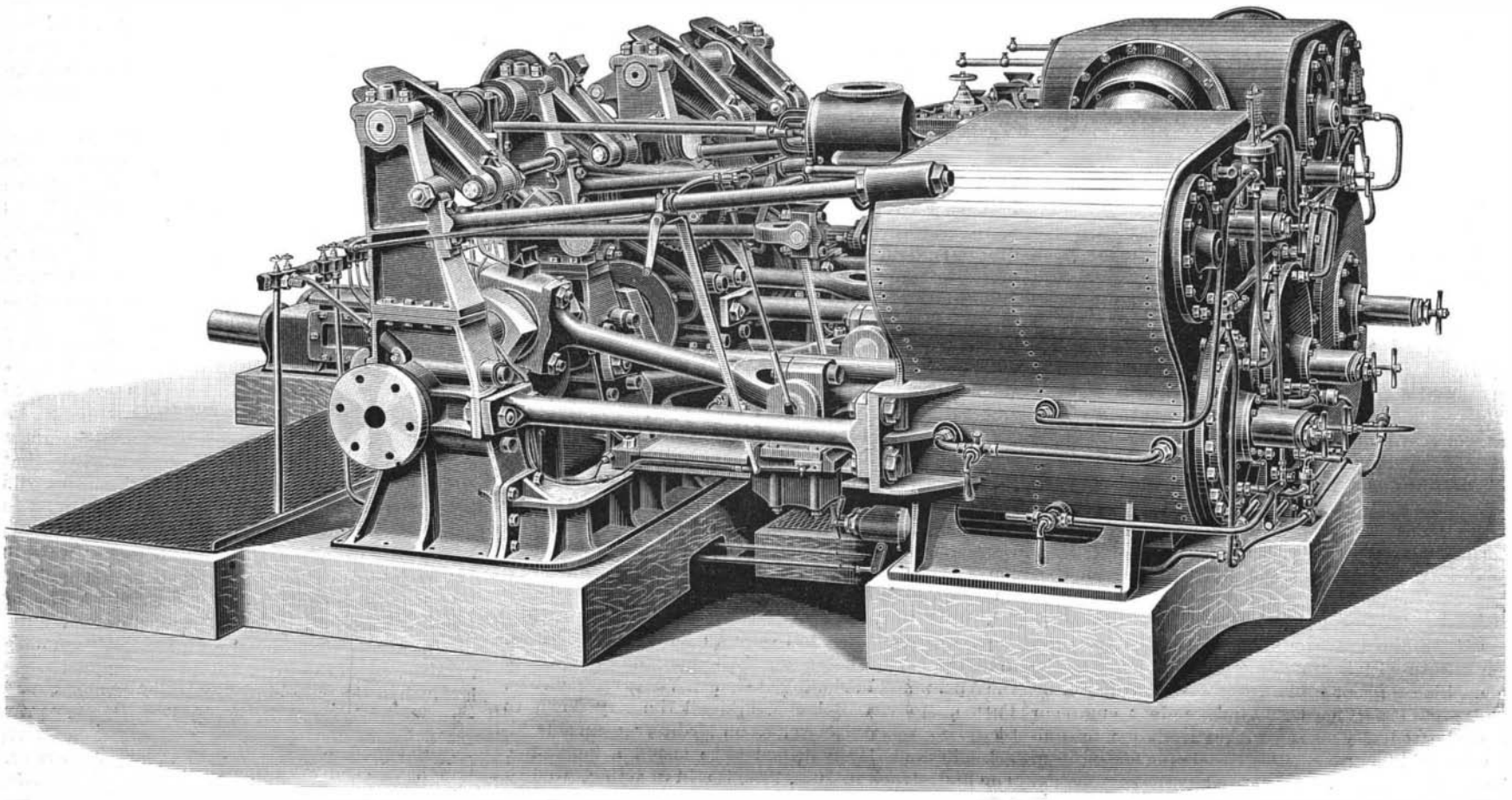
### ENGINES OF THE DOGALI.

The Dogali is a new and powerful war ship constructed for the Italian government by Sir William Armstrong, Mitchell & Co., Newcastle on-Tyne. We give a sectional elevation and perspective views of the engines as they stood in the erecting shop, for which we are indebted to the *Engineer*.

This vessel is the first war ship fitted with triple expansion engines. They were made by Messrs. R. & W. Hawthorn, Leslie & Co., of Newcastle-on-Tyne, and are of the twin screw horizontal type. Each set of main engines has three cylinders, 30 in., 45 in., and 73 in. diameter, with a stroke of 2 ft. 9 in. The piston valves are worked on Marshall's system, which admits of a very large range of expansion being adopted, and gives as equable a distribution of steam when working



IMPROVED TRIPLE EXPANSION ENGINES.



IMPROVED TRIPLE EXPANSION ENGINES OF THE ITALIAN CRUISER DOGALI.

at low speeds as when working at full power. The propellers are three-bladed. The whole of the engine pumps are driven by separate independent engines. The condensers are of brass. Steam is supplied from four boilers, each having six furnaces, capable of being worked either with natural or with forced draught. The air for the forced draught is supplied by eight fans, each driven by a separate Brotherhood engine. The whole of the auxiliary engines may be made to exhaust either into the main condensers, auxiliary condenser, or into the atmosphere. The engines are situated in two separate water-tight engine rooms, the communication between which may be closed at any time by water-tight doors moving horizontally, worked from the deck. The boilers also are placed in two water-tight stokeholes. This subdivision of the vessel, and the fact that the whole of the auxiliary engines, as well as the main engines, are in duplicate, renders the chances of a complete breakdown very remote. During the trial the engines worked well, running at a speed of 155 revolutions per minute, and developing a power of over 7,600 horses, the vessel attaining a speed of 19·66 knots per hour.

### Refining of Fuller's Earth.

Until about three years ago the valley which lies between the village of Combe Down and Midford Castle, near Bath, England, was one of the most peaceful and secluded spots to be found in the whole of England. Along the slope of the hill at the upper end lay rich and fretile gardens, whose rows of luxuriant fruit trees seemed to melt almost imperceptibly into the woods that clothed the greater part of the north side. The opposite hill was mostly pasture land, but, toward the lower end of the valley, it also was covered with a thick hanging wood, out of which peeped the quaint little spire of the keeper's lodge, and, higher up, the peculiar trefoil-shaped tower of the castle itself. None of the land being under cultivation, and the valley not being on the road to anywhere in particular, there was neither traffic nor labor to disturb its quiet, and the wild birds and animals were left in peace throughout the greater part of the year, until, with the fall of the leaf, came gun and beaters to startle them rudely out of their fancied security. The valley is still, to outward appearance, much the same as ever, but its privacy and seclusion have been invaded; large excavations have taken place on the brow of the further hill, and a snorting steam engine at the bottom of the hollow gives evidence, by its unromantic presence, of the pitiless march of progress and the universal struggle for existence.

It was in 1883 that, a large deposit of fuller's earth having been discovered near the summit of the hill in question, a company was formed for the purpose of working it.

Fuller's earth is found in considerable quantities in many places in the neighborhood of Bath—such as Lansdown, Combe Down, Wellow, and Midford—and in these places it has the same geological characteristics, that is to say, it crops out, in all cases, about 80 feet below the brow of the hill, and runs in a horizontal seam about four feet deep right across to the opposite side, where it again comes to the surface. The outer portion of this seam, for about 100 feet into the ground on either side, is of a yellow color, while the earth in the middle is all blue. This effect is, I believe, produced by its greater or lesser proximity to the surface strata in each case. Although the color of the earth varies in this way, the chemical composition of the two kinds is precisely the same, and opinions differ as to which is the best. It would appear, however, that the consumers have their own ideas on the subject, those who use blue earth refusing with scorn anything to do with the yellow variety, while the purchasers of the latter are equally decided in their condemnation of the blue. The question, however, is as unimportant to society at large as was the famous contest between the blues and the buffs which, in days gone by, distracted the independent electors of the borough of Eatanswill, so we will pass on to consider the way in which the earth (of whatever color) is prepared for the market.

The method of Mr. Dames, which is used at the Midford works, consists of a new and beautifully simple way of separating the pure fuller's earth from all extraneous matters, such as shells, stones, gravel, and insoluble line. When this has been done, the earth only requires to be thoroughly dried and is then ready for sale. The latter part of the operation is no novelty, but Mr. Dames' plan is the only one by which the separation can be effectually accomplished and the commodity produced in a perfectly pure condition.

The advantage of this to the consumer is, of course, immense, since, when he buys the imperfectly cleaned article, he is not only apt to find that the cloth to which it is applied is damaged by the presence of foreign bodies, but he is also paying a higher price for the carriage of gravel and dirt, which cannot be looked upon as an advantageous speculation.

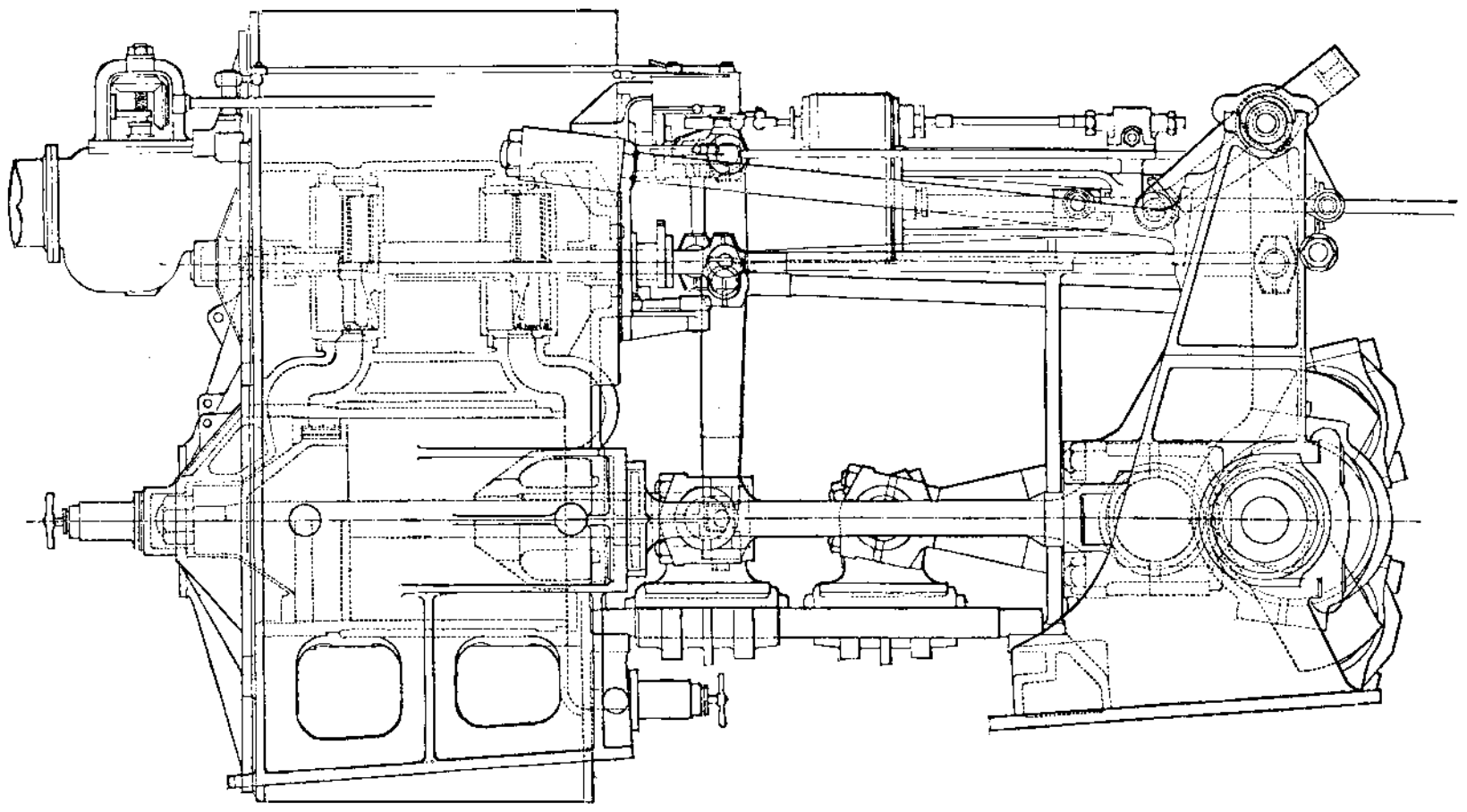
The works at Midford are built close to the Somerset coal canal, at the lower extremity of the valley of which I have been speaking. The deposit of earth being at the top of the hill, and at a considerable distance up the valley, a system of conveyance had to be organized by which the raw material could be brought in the cheapest manner to the tanks and receptacles prepared for it. Advantage is taken of a small stream of water which runs at the base of the hill to carry it down to the works without any expense, and at the same time to prepare it, to a great extent, before it reaches them. It is done in this way. From the spot where the raw earth is dug out of the hill side a double line of rails is laid to the bottom of the valley—a very steep incline. The earth is run down these rails in trucks, which travel by their own weight, each full one, as it descends, drawing up an empty one on the other line, the rope passing round a drum at the top. When the truck load reaches the bottom of the hill, it is put into a "pug mill" and ground up, with about three times its own bulk of water. This "pug mill" is worked by the steam engine to which allusion has been made, and consists, essentially, of a large circular vat or tank round which two heavy rollers are constantly traveling, so as to thoroughly crush, disintegrate, and, generally speaking, churn up the mixture of earth and water.

When the churning is completed, the compound, technically known as "slurry," is turned into a series of little tanks, or "catch pits," close to the engine. All the pure fuller's earth is now in a state of suspension, being but little heavier than the water. The coarser matters, however—gravel and stones and such like—soon sink to the bottom by their own weight, and a great deal of the purification is thus speedily accomplished.

The pea-soupy-looking fluid, containing still a certain amount of extraneous matter, is then allowed to run into a long earthenware drain, laid underground, which carries it straight down to the works, nearly a mile away. When it emerges at the other end, it is caught in a long shallow trough, called a "maggie." As it slowly flows along this trough all the particles of dirt and sand, which keep sinking to the bottom, are caught and detained by a series of little wooden steps placed across the bottom, which rise only a short way up into the liquid. It is, in fact, a kind of inverted process of skimming. By this means, when it reaches the end of the "maggie," the fuller's earth is in a perfectly pure condition, and only requires to have the water dried out of it. In order to do this it is first run into enormous tanks, of which there are four at the works, the largest capable of holding somewhere about 1,000 tons. Here it is allowed to stand until the gradual settlement of the suspended earth allows the water to rise to the top. The tank is provided with a kind of sluice gate and a board with perpendicular row of holes, about two inches in diameter, stopped by wooden pegs, so that when the sediment has sunk below any one of these holes, the peg can be knocked out and the surface water allowed to drain off, in a perfectly pure and drinkable state and very soft. Then, as it still gradually settles, another peg is removed, and so on. At last it will sink no lower, the last peg hole has done its work, and a damp mass remains at the bottom. To bring it to this condition generally requires about thirty days.

It will not dry any more by itself now, so means have to be taken to get rid of the rest of the moisture. The first step in this process is to put it into an enormous tank, under cover, like a huge swimming bath, 160 feet long, with a floor made of porous tiles. Underneath this floor are nine wide flues, running from a furnace at one end of the drying tank to a tall chimney which stands at some distance from the other end; the top of this chimney is quite 300 feet from the furnace. Now, when a roaring fire is kept up in the latter place, which is fifteen feet in width and eight in depth and has three fire doors, a tremendous draught is, of course, created between the fire and the chimney. This draught, together with the rarefaction of the air by heat, has a tendency to produce a vacuum in the long flues that run underneath the half dry "slurry" in the tank, and so strong is the tendency that the water remaining in it is drawn down into the flue, in the shape of steam, through the earth and porous floor, and is expelled in a cloud at the top of the tall chimney. The drying shed looked like a great caldron of boiling mud, the surface heaving and quivering, and covered with bubbles which rose in every direction and burst in little jects of steam.

Fuller's earth is used principally for scouring and "fulling" cloth, because it has the property of readily absorbing all oil and greasy substances. Besides its utility in the cloth manufactory, it is largely used for refining oil, and is also employed in dressing wounds, while of its soothing qualities when applied to the skin more will shortly be heard.—*Bladud.*



TRIPLE EXPANSION ENGINES OF THE ITALIAN CRUISER DOGALI.

### The Art of Flavoring.

Preparatory to giving recipes for cordials or liqueurs, it would be well to record some sort of protest against the use of certain artificial chemical flavorings, which are sold under the name of essences as often as not, without being anything like so harmless or so pure. In the report of the juries to the great exhibition of 1851, we find the following remarks, that are sufficiently interesting to be quoted at length: "Several of the perfumes, or rather essences, exhibited are of a particular interest, and deserve our especial notice. We allude to a series of artificial organic compounds possessing qualities which permit of their substitution for natural volatile oils and essences. Most of them are substances belonging to the group of compound ethers.

"The fruity odor of these bodies has been long known, but they do not appear to have been used in flavoring until the chemist had shown that many of the oils of vegetable origin resemble in their composition the above mentioned products of the laboratory. For some years past a scent called wintergreen oil has been extensively used in perfumery. It is obtained from an ericaceous plant, the *Gaultheria procumbeus*, and is imported from New Jersey in America, where it is obtained in considerable quantities. Chemical analysis of this oil has yielded the interesting result that it is a true compound ether, consisting of salicylic acid and pyroxylic spirit, which may be formed by a combination of its proximate constituents, so as to possess all the characters of the natural substance. This observation was not lost upon commercial enterprise, and several of the numerous ethers prepared by the chemist were soon discovered to possess the odor of certain fruits in so marked a degree that it was difficult not to conclude that the fruits in question owed their smell to these ethers."

This would appear to convey an argument in favor of these artificial essences; but, although it may be urged that the compounds are almost exactly like the fruit essences, yet that "almost" may suffice to make the difference necessary for their condemnation, and render them deleterious, if not actually poisons. It must not be supposed, however, that we are condemning artificial essences wholesale, for there are many sent into the market by trustworthy chemists that are not only quite harmless, but positively superior in their delicacy to anything that could be produced from the actual fruit.

There are several artificial essences of this kind. Neither the time nor the quantity of material at the command of the reporters permitted them to examine all these products. They were, therefore, obliged to confine themselves to a notice of the following:

Pear oil is a spirituous solution of acetate of oxide of amyl. The latter may be obtained with facility and to any amount by distilling equal parts of concentrated sulphuric acid and fusel oil (the oily residue obtained by the rectification of potato or grain spirit) with two parts of acetate of potash.

It is remarkable that the ether itself does not possess a very pleasant odor, and that its striking resemblance to that of pear does not become apparent until properly diluted with spirit. Artificial pear oil is now prepared in large quantities in England. It is chiefly employed in the manufacture of the lozenges called pear drops, of which the exhibition presents some specimens, so that the flavor in its applied state may be tested side by side with the perfume.

Apple oil consists mainly of valerianate of oxide of amyl. It is obtained as a secondary product in the preparation of valerianic acid, by the distillation of fusel oil with bichromate of potash and sulphuric acid. The distillate has to be shaken up with a dilute potash solution in order to remove the valerianic acid, when the ether floats on the top, and may be removed with a pipette.

Pineapple oil is contributed by most of the exhibitors of artificial essences. The specimen analyzed was found to consist almost exclusively of butyrate of oxide of ethyl. It is easily obtained by boiling butyric acid (obtained from sugar by fermentation with putrid cheese) with strong spirit and a small quantity of concentrated sulphuric acid. It resembles the acetate of oxide of amyl in not presenting the characteristic agreeable fruity flavor in a pure state; it requires to be considerably diluted before the odor appears. The oil is largely manufactured in England, and is employed in the preparation of a beverage called "pineapple ale."

The process commonly used for its preparation does not yield perfectly pure butyric ether. It consists in saponifying fresh butter with potash. The soap that forms is separated from the liquor, dissolved in strong alcohol, and distilled with concentrated sulphuric acid. This yields a mixture of butyric ether and various other ethers, but the liquid obtained is perfectly adapted for the purpose of flavoring.

*Cognac Oil and Grape Oil.*—Specimens of these oils, especially of the former, are contributed by English, French, and German manufacturers. They seem to be often employed with the view of giving ordinary varieties of brandy the prized flavor of genuine cognac. Unfortunately, the samples exhibited are too small to permit of a careful analysis. A few superficial examinations proved undoubtedly that they are compounds of fusel oil dissolved in a large quantity of alcohol; and it is curious that a substance which is most carefully eliminated from brandy on account of its offensive flavor should be introduced in another form and in minute quantities in order to render the same beverage aromatic.

*Artificial Oil of Bitter Almonds.*—As early as 1834, Professor Mitscherbich, of Berlin, pointed out a peculiar liquid formed by the action of fuming nitric acid upon benzole, and possessing the odor of natural oil of bitter almonds in a high degree. It was called nitro-benzide or nitro-benzole.

Dr. Hassall says in his "Food: Its Adulteration": "Another essence extensively used for flavoring sweetmeats and confectionery is ratifia, essential oil of almonds, essence of peach kernels, or hydride of benzoyl. It is obtained by distilling bitter almond cake with water, and it contains from six to twelve per cent of prussic or hydroganic acid, but is most variable in its strength. As small a quantity as twenty drops has been known to occasion death."

There is another compound of prussic acid, called "almond flavor." It contains about one drachm of essential oil to seven drachms of spirit, but its strength varies very much. Many fatal cases have resulted from the use of this flavoring substance.

Professor Taylor, in his evidence before the Parliamentary Committee on Adulteration, declared that the presence of prussic acid in these almond flavorings was not at all necessary to the power of their flavor, and added, with much feeling, "There is no excuse for selling prussic acid in these compounds but laziness and ignorance," and we are fain to agree with him.

Raspberry flavoring for sugar confectionery is made entirely of currant jelly and orris root; "but," adds Dr. Hassall, "organic chemistry has in these days reached such a pitch that the odor and flavor of almost any fruit is capable of being imitated. We have recently received samples of the following artificial fruit essences: Essence of apples, pears, quince, pineapples, raspberries, strawberries, cherries, peach kernels, rum, gin, cognac, maraschino, hops, vanilla, parsley, celery, and curry powder," and tacitly confess that he has found no harm in either.

Without overlooking or ignoring the value and ingenuity of these discoveries, our inclinations naturally lead us to prefer the non-artificial essences made from the fruit or material itself; but, in regard to cost or labor, the artificial cannot be satisfactorily compared with that which can be purchased of the manufacturing chemist.

The correct method of preparing *bona fide* essences is by distilling the substance in alcohol, when the spirit comes over laden with the aromatic principle; but that must be left to the manufacturing chemist.—*Theodore F. Garrett, in Practical Confectioner.*

### Forms of Bird Life in Central Texas.

E. M. HASBROUCK.

To the ornithologist who visits Texas for the first time, nothing is more striking than the meeting with species which he supposes he has left far north, and the apparent scarcity of others new to him. These features may be traced to two direct causes, first of which is the same old story of visiting a new country, being unacquainted with the "station," so to speak, the foliage different to that in which one has been accustomed to hunt, and the lay of the land; second, to the fact that one cannot help retaining the idea that those species which migrate north do so in a body and as a whole, while in truth many change their abode only in part, leaving countless numbers who remain in the winter home throughout the year. Conspicuous among these is the common little mourning dove (*Z. carolinensis*), which, as far as my observation goes, is to-day the commonest bird in the State. Every hill, mountain, and plain is inhabited by thousands and thousands of them, and the most striking feature in connection with these is their tameness. Every one aware of their extreme shyness and timidity at the North, can imagine my astonishment on finding that the old saying of "Put salt on the tail" could almost be fulfilled on these very birds. In connection with the mourning dove, one point is worthy of notice—the lateness to which the breeding season is carried; for while collectors believe that the breeding season closes in the South at a much earlier period than that at the North, with this bird at least it is protracted far beyond any date at which I have known it to be in the Middle States, as I have taken the nests containing eggs in all stages of incubation throughout the summer, and as late as August 26 found one with eggs perfectly fresh. Do not suppose that this bird furnishes the only instance of late breeding, as many others could be cited, and among them that of the scissor-tailed fly catcher (*Milvulus forficatus*), on July 9, and the chaparral cock (*Geococcyx californianus*) July 29. Other instances are on record, but this is sufficient to show that nidification is protracted by many species in Texas to a period exceeding that at which the latest breeders of the Middle States (*S. tristis* and *A. cedroneus*) have nested. What, then, can be the cause for such tardiness? Is it that the birds, knowing the length of the seasons here, are slow to mate, preferring to take matters easy and breed all in good time? Or is it that the heat of the climate to a certain extent affects birds the same as it does the inhabitants, making them lazy and indolent? Or perhaps we can hit the mark closer by taking into consideration the fact that some species raise two, and even more, broods a year, and that here the number is increased. This certainly looks the most reasonable, and is, I think, a fair answer to the above questions—but enough.

On arriving here, one is told that the scissor-tails and chaparral cocks are very common, and yet, as hinted above, until acquainted with the "station," he will search for them in vain, declaring Texas to be a fraud and the people liars. Then, when he does meet with them in abundance, he never fails to reflect on his own foolishness and fallibility. Starting again with our first subject, from which I have somewhat wandered, we will treat first of those birds found both here and in the Middle States. These, as near as I have been able to observe thus far, are represented by twenty-four families, divided according to the following schedule:

*Turdidæ*—mocking bird, bluebird.
*Sylviidæ*—blue gray gnat catcher.
*Paridæ*—tufted titmouse.
*Sittidæ*—white-bellied nuthatch.
*Troglodytidæ*—Carolina wren.
*Vireonidæ*—white-eyed vireo.
*Laniidæ*—loggerhead shrike.
*Hirundinidæ*—white-bellied swallow, cliff swallow.
*Tanagridæ*—summer redbird.
*Falconidæ*—sparrow hawk, red-tailed hawk, red-shouldered hawk.
*Cathartidæ*—black vulture, turkey buzzard.
*Charadriidæ*—killdeer.
*Fringillidæ*—cardinal.
*Icteridæ*—meadow lark, crow, blackbird.
*Corvidæ*—common crow.
*Tyrannidæ*—kingbird, wood pewee.
*Caprimulgidæ*—night hawk, whip-poor-will.
*Picadæ*—pileated woodpecker, red-headed woodpecker.
*Alcedinidæ*—belted kingfisher.
*Cuculidæ*—black-billed cuckoo, yellow-billed cuckoo.
*Strigidæ*—barred owl, horned owl.
*Columbidæ*—mourning dove.
*Ardeidæ*—great blue heron, green heron.
*Scolopacidæ*—least sandpiper, greater yellow-legs.

Thus making a total of thirty-seven species whose geographical range extends from Texas to New York. These are all more or less common, inhabiting the tracts of land similar to those they frequent elsewhere, the meadow lark alone showing any difference in habits, and this noticeable only in his comparative silence.

Turn now to Texas birds proper, taking up only a few of the most striking, found in the central part of the State, and which the new-comer first meets. First among these let me place the scissor-tailed fly catcher (*M. forficatus*), or "paradise bird," as they are called by the people. This last name, while doing well enough here, although applied to an elegant bird, hardly applies in the mind of him who has seen the true bird of paradise. These fly catchers are one of the commonest birds in Texas, frequenting every place, excepting the heavy timber and mountain tops, preferring the open, mesquit flats to other places, and here hundreds may be seen in a few miles' ride, sometimes singly, more often in companies of five to a score, darting through the air in every direction, and screaming vociferously. To one who sees them for the first time, a thrill of delight at beholding a creature so beautiful shoots through the mind; but when awakened before daylight, morning after morning, the thrill of delight changes to one of righteous indignation, and after seeing them constantly for a week, they become tiresome and even distasteful. It is a relief to leave the open land and seek the shelter of the scrub cedars and oaks, the abode of the chaparral cock. Here, while passing through the timber, one suddenly espies one of these strange birds, bearing a near resemblance to the peacock, but in reality belonging to the *Cuculidæ*. Although a shy bird by nature, if approached cautiously they seem to be anxious to show themselves off, and frequently come out into the road before the traveler, strut about with tail spread and head thrown back, seeming to court attention. Then, mounting a tree or bush close beside you, he will sit for some time as if to have a better look at you. Although afraid of an approach, noise seems to possess little or no terror for them, as I fired twenty-four shots at one, one day, with my revolver while thus perched, always taking good care not (?) to hit him, and he never budged. The local name for these birds is "road-runner," and truly this name is appropriate, for at times they will run the road just ahead of you for some distance, and no matter how good a horse you may possess, they will outstrip him. They prefer running to flying, even when hard pressed, and are said upon good authority

to outrun the best horse in a fair race. The people frequently take them when young, as they are easily domesticated, and make very interesting and amusing pets.

Among the smaller birds, two are more noticeable than any others, and for widely different characteristics. The painted bunting (*P. ciris*), for its brilliant colors, and the lark sparrow(*P. anthinus*), for its sweet though harsh song; the one being found in the timber tracts of the river bottoms, the other being common nearly everywhere, going in flocks of a dozen or more, and, when singing, mingle their song with a peculiar harsh, rasping note thrown in with every three or four, which makes the whole song highly amusing and interesting. These are but four out of many to be found here, but as yet they are all that I have had time to secure and positively identify. There are quantities of small birds, wrens, vireos, fly catchers, etc., which, although I have seen, have not had the time to collect. At my earliest opportunity, however, I shall do my best to make a careful investigation, and write you the results.

### CHEVREUL AT 101 YEARS.

Mr. Chevreul has just entered upon his hundred and second year. Mr. Nadar on this occasion has taken an instantaneous photograph of the illustrious savant, which we here give an exact reproductionof. The venerable dean of students has not changed physiognomy since his centenary. The imposing national fete which was celebrated last year was a bath of youth for him. Always just as vigorous, sprightly, and cheerful, Mr. Chevreul imperturbably continues to devote himself to his multiple labors and to fulfill his official functions. The day of the one hundred and first anniversary of his birth, he presided at a session of the Agricultural Society, and was present the next day at the weekly reunion of the Academy of Sciences, receiving with joy and serenity the congratulations of his colleagues, and shaking hands with everybody. The Anjou Wine Society afterward sent its congratulations to him, and he addressed to the delegates a charming little speech full of wit and humor. Telegrams and letters of congratulation poured into his dwelling all day long, while at the same time all the rooms of his house were converted into conservatories.

In the evening, Mr. Chevreul's old domestic asked him with solicitude whether he did not feel fatigued by the day's labor, and advised him to spare himself, on account of his great age. "In fact," answered Mr. Chevreul, "I *am* beginning to get a little old, and shall take some precautions." There is a charming irony against old age in this reply, and a promise of a renewed longevity which we hope may be realized. Everything gives us a guarantee of it, and we may, without fear, offer ourselves the luxury of a prophecy, based upon a certainty, that in a year science will have to congratulate Mr. Chevreul on his triumphant entrance upon his hundred and third year.

The venerable patriarch has often been asked what secret he has used to reach his hundred years without infirmities and without a particle of change in his great intelligence. "I do not drink wine," answers he, imperturbably. This is a witty, evasive reply. We must seek for the cause of this happy longevity in a severe moral and intellectual hygiene. We address our respectful felicitations to the illustrious savant, and our wishes for his good health. His long life so fruitful, his green old age so active, is an eloquent lesson for youth. It proves that the best means to live and become old is to work constantly and much.—*Paris Illustre.*

MR. CHEVREUL AT 101 YEARS OF AGE.

### The Significance of Left-handedness.

An editorial writer in *La Normandie Medicale* has taken the trouble to summarize and compare certain observations on this subject, and he thinks that it is not wholly elucidated by M. Galippe's generalization that we are right-handed by atavism and left-handed by morbid heredity. He implies also that it is not altogether to faulty education that left-handedness is to be attributed, and suggests that it might be useful to seek for a solution of the problem in comparative anatomy and pathology, by endeavoring to ascertain if the lower animals do not show a predominance of one side over the other. The writer first considers M. Debierre's investigations by comparative measurements of the bones of the right and left limbs in infants. These measurements show a slight excess in the average length of the left os brachii, but, curiously enough, in that of the right radius and femur; and there are persons, it seems, who, being right-handed, have the left lower limb somewhat more developed than the right, and those also who, being left-handed, have the right lower limb predominating over the left. But all these differences in the length of the bones are inconsiderable, and in M. Debierre's opinion they are not original, but created by habit, so that our primordial type was that of ambidexterity, and it is only by education that we become right-handed or left-handed.

M. Galippe considers left-handed persons as in a certain sense degenerate, and he seems to regard left-handedness, as well as squinting, mother's marks, supplementary fingers, hare-lip, prognathism, and other like blemishes, as implying a disposition to physical, moral, or intellectual deficiency. It is stated that many epileptics are left-handed, and figures are given showing that 4·13 per cent of insane men and 4·27 per cent of insane women are left-handed, but these percentages do not seem to vary strikingly from those found amonghealthy persons. Among criminals, however, according to Marro, the proportion of the left-handed is much greater—13·9 per cent in men and 22·7 per cent in women. Anomalies in general are said to affect the left half of the body more frequently than the right, and the experience of dentists is brought forward by M. Galippe as showing a very common exemplification of the fact, dental caries being declared to be oftener met with on the left side than on the right, as well as the non-appearance of the wisdom teeth or the occurrence of derangement of the health at the time of their appearance. Moreover, it is alleged that the teeth of the right side are generally somewhat larger and harder than those of the left side. On the other hand, irregularity of the canines is set down as more common on the right side. The left half of the jaw itself is said to be somewhat less developed than its fellow, as a rule.

It is evident from the facts brought out in these various inquiries that the question of the cause or causes of left-handedness is not a simple one, and it may be said, in particular, that the occasional coincidence of a predominant right arm and a more highly developed left leg, and *vice versa*, seems to vitiate the theory that refers the preponderance of one side to an encephalic inequality.—*N. Y. Med. Jour.*

### What the Morphine Habit Will Do.

The ingenuity of morphine victims to hide their vice has never been better illustrated than in the case of a young girl at a fashionable young ladies' boarding school near Philadelphia, as told by a contemporary.

The disclosure came about accidentally. When the young student returned to the school this fall, she had periods of deep despondency, and often asked the privilege of going to the room in the seminary set apart as a hospital. There she would lie for a day at a time, only rousing herself when any one approached the table, on which stood an ink bottle and a stylographic pen. The nurse having occasion to send a message to the doctor attempted to write with this pen, the young girl at that time being asleep. The pen not only refused to write, but the practiced eye of the nurse instantly recognized in the point the puncturing needle of a hypodermic syringe. This led to an examination of the ink bottle. It was a four ounce bottle, but there was no ink in it. It was painted black on the outside, and contained Magendie's solution of morphia, enough for 128 one-half grain doses, or sufficient to last until the Christmas holidays. The principal of the school was summoned immediately, and the sleeping girl's arm bared. It was punctured from the shoulder almost to the hand, and the livid blue marks confirmed the suspicion, which was changed to absolute certainty by the small abscess which had begun to form in the forearm just above the wrist. The habit had been formed about two months only, and there is a possibility that a cure can be effected.

THE carriage which was made by the United States government especially for the use of Lafayette during his visit to this country in 1824 is owned in Chicago. It is a quaint old ark, hung on big springs and wide straps, and from his lofty seat the old Frenchman used to descend to the ground by steps with many foldings.