OUR SPECIAL CORRESPONDENCE.

The Corn-fields of Kentucky—Straight Rows at the South, Crooked Rows at the North—Cotton Plantations—Plowing by Women—The Children of the Tropics—"Uncle Tom" and "Yellow Jack"—Novel Agricultural Implements—Southern Manufactures—A Great Invention Wanted.

MESSRS. EDITORS:—At half-past twelve at night, we were called from our rest, and entering the cars by starlight, at one o'clock on Monday morning, May 28th, we were soon whirled away from the banks of the Mississippi among the long straight rows of corn-fields of Kentucky. It is a curious fact that the Yankees, with all their ingenuity, have never learned to plow a straight furrow, while every negro in the South will lay-off a field, however large, without having a bend of a foot in a single row. The furrows are not only straight but parallel, the last one in a field a quarter of a mile square always coming out parallel with the fence. A Virginia farmer, sixty years of age, told me that he never had a short row in one of his corn-fields, in his life. In the new States, whenever you see crooked rows you may know you are among people from New York, New England and Ohio, and whenever the rows are straight, you will find that it is a settlement of Southerners. This accuracy is owing to the method of laying-off the ground. If it is desired to have the rows 3½ feet apart, two stakes are cut, each 7 feet long, one for each edge of the field. One of these is set perpendicularly, 7 feet from the end of the field, and the plowman, proceeding to the opposite edge, makes a mark there also, 7 feet from the end, and runs his furrow straight to the standing stake, operating in a direction to keep the unfurrowed portion of the field at his right hand. Returning, he splits the 7-feet strip with a furrow, thus hawing round—or, as the Southerners say, "turning haw"—at both edges of the field. The failure of Northerners to learn this simple art is mainly owing to the inveterate conservatism characteristic of farmers—their fondness for walking in the paths of their fathers—but it is also partly to be attributed to their mode of guiding their horses. I think that for driving a team attached to a wagon, the two or four reins used at the North are far preferable to the plan of riding the near-wheel horse and guiding the team by a single line on the near leader, which is in universal use at the South. But, for plowing, the single line is decidedly better than anything else that I have ever seen.

In Tennessee I saw, for the first time in my life, long rows of a broad-leafed plant, just peeping above the ground, looking something like beans. The cotton seed is planted in drills, on ridges about 3½ feet apart, generally as soon as the ground is dry enough in the Spring; and after it comes up, it is cultivated sufficiently to keep the field clean from weeds, requiring two or three plowings and sometimes two or three hoeings besides—depending on the dryness of the season. The first operationis the "scraping;" this consists in scraping the earth away from the rows of young plants by means of an implement resembling the plow, in which the share and the moldboard are replaced by a vertical plate of iron set at an angle with the beam, with the forward upright edge bent in a curve. The plants are then thinned by hand and hoed, if need be, when the ground is turned back towards the rows by means of a plow. Steel plows seem to be in general use, manufactured either at Louisville or St. Louis. The steel plow has been one of the most valuable inventions, perhaps the most valuable for all the clayey valley of the Mississippi, that has ever been made. This adhesive soil will stick to either cast iron or wood, but steel, of the proper curve and finely polished, will slip through it, requiring half the power and making far better work than the iron moldboard.

In Tennessee we saw the first slaves at work, in gangs of from two or three up to twenty. Men and women were both plowing and hoeing together, all dressed in coarse, white cotton, or that which was once white. Their movements were decidedly sluggish. There is no doubt that the negro is adapted to a hot climate. I have been told (and the assertion has been repeated to me during this ride) that sometimes, in the middle of August, when the negroes stop at noon, instead of going into the shade, they build a fire right in the open field, in order to enjoy its heat in addition to that of the sun! The negro is a child of the tropics. He is also admirably adapted to malarious regions. It is a mooted point whether negroes *ever* have the yellow fever.

The railroad from Columbus, Ky., just below the mouth of the Ohio, to New Orleans is a very good one and well furnished; the rolling stock is in admirable order. The names of the several manufacturers on our train of cars indicated not only the broad and liberal spirit in which the patronage of the road has been distributed, but also the great extent to which machine and other shops have been established in the country. The locomotive was made at Paterson, N. J.; the tender, at Wilmington, Del.; the passenger cars, at Dayton, Ohio; part of the freight cars, at Augusta, Ga.; and the others, at Charleston, S. C. All the work seemed to be good, and I noticed that the passenger cars, especially, were very thoroughly built, no rattle whatever being produced, but all parts fitting snugly.

But, oh, the dust! It is a very dry time and the clay of this valley, beaten to a very fine powder, is raised in darkening clouds by the lightest breeze, and smothers the unfortunate traveler who rides through it from morning to night. If Mr. Ruttan or any other person has got a plan for ventilating cars and keeping them free from dust, why do not our railroads adopt it? And if he has not, why do not some of our inventors produce one? It would be the greatest benefaction that has been bestowed upon travelers since the invention of the locomotive itself. If no one does it before I get back, I think I shall perform the mighty task myself! I have a plan which is a slight improvement on an invention already made, and which bears the same relation to efforts in this line that Fulton's wheel did to steam propulsion, just the last step to make the thing practicable. I will get a spirited capitalist to join me in the enterprise, take out a patent through your unequaled agency, publish, in your widely-circulated journal, an illustration by your incomparable artists, to say nothing of the transparent description that would accompany it, and having thus conferred an immeasurable blessing upon mankind and realized a great fortune for myself, I will resume my rambles about the world, writing no end of "special correspondence" to the SCIENTIFIC AMERICAN!

B.

New Orleans, La., May 29, 1860.

AMERICAN NAVAL ARCHITECTURE.

[Reported expressly for the Scientific American.]

THE IRON SCREW STEAMER "SOUTH CAROLINA."

The hull and machinery of this vessel were built by Harrison Loring, Esq., of East Boston, Mass.; it ranks as a superior vessel of the first class, both in respect to speed and construction. The essential elements of its many parts we herewith annex:—Length on deck, from fore-part of stem to after-part of stern post, above the spar deck, 210 feet 6 inches; breadth of beam at midship section, above the main wales (molded), 34 feet; depth of hold, 17 feet; depth of hold to spar deck, 25 feet 3 inches; draft of water at load line, 13 feet 6 inches; tunnage, 1,155 tuns. Her hull is of wrought iron plates (angle iron), ½ to ¾ of an inch in thickness, and very securely fastened with rivets ½ and ¾ of an inch in diameter, every 2⅛, 2¼ and 2¾ inches. Distance of frames apart, at centers, 18 inches. There are 5 keelsons, each 17 inches deep, and shaped I. The floors are shaped Z L; depthl (molded), 4½ inches, and are 3 inches in thickness; the same are connected athwartships, 17 inches in depth, and sided 7-10ths and ½ inch. The shape of her keel is I, 9 inches deep and 3 inches in thickness.

The *South Carolina* is fitted with one vertical, direct, condensing engine; diameter of cylinder, 62 inches; length of stroke of piston, 44 inches; material of propeller) cast iron.

She is also supplied with one horizontal, tubular boiler; built in 1860, and located in hold, forward of mainmast; it has water bottom and no blower to furnaces. It has also one smoke pipe and one slip joint to smoke pipe. Bunkers are of iron; water-ways are constructed of white pine, 24 by 14 inches.

The protection against communicating fire from boiler to surrounding woodwork is ample, being of felt, zinc, sheet iron, &c. In addition to these features, it is supplied with one independent steam, fire and bilge pump, bilge injections, side and bottom, and has valves or cocks to all openings in her bottom.

It possesses four water-tight, athwartship bulkheads, and two cargo or loading ports on main deck.

The owners of this vessel are the Boston and Southern Steamship Company, and the particular points of her intended service are Boston, Mass., and Charleston, S. C.

U. S. STEAM SLOOP-OF-WAR "SEMINOLE."

As the recent trial trips of this vessel of war have proved extremely satisfactory, and as she is claimed to be a very superior boat in every respect, we deem it advisable to lay before the readers of the SCIENTIFIC AMERICAN, the particulars of her construction; they will be found subjoined:—Length on deck, from fore-part of stem to after-part of stern post, above the spar deck, 210 feet; length at load line, 200 feet: breadth of beam at midship section, above the main wales (molded), 28 feet; depth of hold, 12 feet; extent of engine and boiler space, 38 feet; draft of water at load line, 14 feet 6 inches; displacement at this draft, 937 tuns; tunnage, 800 tuns. Her hull is of white oak, &c., and securely fastened with spikes, treenails, &c., of the requisite diameter, in the best possible manner.

The *Seminole* is fitted with two condensing, back-action propeller engines; diameter of cylinders, 50 inches; length of stroke of piston, 30 inches; diameter of screw 9 feet 6 inches; length at hub, 2 feet; expanding pitch of same,, 17 and 18 feet; length at periphery, 1 foot 9 inches; number of blades, 2.

She is also supplied with two of Martin's vertical tubular boilers, whose length are 22 feet; breadth of same, 10 feet 6 inches; hight, exclusive of steam chimney, 10 feet 3 inches; hight, inclusive of steam chimney, 14 feet 6 inches; number of furnaces in boilers, 12; their breadth, 3 feet; length of grate bars, 5 feet 6 inches; number of tubes in both boilers, 3,685; internal diameter of the same, 2 inches; length of these, 3 feet 1¼ inch; diameter of smoke pipe, 7 feet 6 inches; hight above grates, 50 feet. Maximum pressure of steam, 50 pounds; maximum revolutions at above pressure, 80; point of cutting off by link motion, variable; weight of boilers with water, 300 tuns.

She has one Pirsson's surface condenser; also one air-pump; diameter of cylinder, 26 inches; length of stroke of piston, 30 inches; she has, also, one fresh water pump; diameter of cylinder, 13 inches; length of stroke of piston, 30 inches; the condenser, air and fresh-water pumps being common to both engines. In addition to these features, she has one auxiliary boiler (Martin's) for donkey pump, two masts; all the blow-out cocks, &c., essentially necessary in a sloop-of-war of the first class.

The hull of this vessel was built by the United States government; her machinery was designed by Mr. T. F. Rowland, and constructed by the Morgan Iron Works, of this city.

It is certainly very evident that future wars on the seas are to be carried on mainly with vessels of war of this class and tunnage. Small craft, drawing but little water, and being able, by steam to defy wind and tide, are infinitely superior for the practical purposes of warfare, than immense line-of-battle ships and monstrous frigates. Some of the foreign powers are building gun-boats drawing 5 to 9 feet of water, and each carrying one gun of the largest caliber. They have proved, on various occasions, to be of much service and great advantage. It is well that this country follows, to some extent, their example, and continues to erect such vessels as the *Seminole*, *Brooklyn*, *Pocahontas*, *Iroquois* and others, rather than those of the expensive and larger class, such as the *Niagara*, *Susquehanna*, &c.

LOWERING HUGE WATER PIPES.—In the Eighth-avenue, this city, a huge main pipe for conveying the Croton water is being lowered to suit the change of grading in the street. This is being executed in an ingenious manner while the water is flowing through. In some places the pipe is lowered about 14 feet, in others only a few feet, all to suit the grade. The section of pipe which is exposed and operated upon at one time is about half a mile in length, which affords a long and easy incline in lowering. To provide against accidents from the pipe becoming loose and separating during the operation, and the water thereby permitted to flow out, iron flood gates has been put on at each end, so that the water can be shut off suddenly if required. The pipe is supported on blocks, while the earth is being excavated to the allotted depth around it, after which it is lowered to its seat by screws while the blocks are being removed. The operations are conducted with great care and practical skill.