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II. ELECTRICITY, LIGHT, HEAT, ETC.—Spectrum of the Electric Spark in Compressed Gas. By M. A. CAZIN.—Second Successful Trials of the Jablechkoff Electric Candles, London.—Applications of Electric-ity in Warfare.

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VI. MISCELLANEOUS.—How to Draw a Straight Line. By A. B. Kempe, B.A.—A lecture at South Kensington, London, 5 figures. A valuable paper.—The Hay Crop of the United States.

VII. CHESS RECORD.—Conducted by SAMUEL LOYD. Introductory Remarks by the conductor.—Portrait of Dr. C. C. Moore, Treasurer of the American Chess and Problem Association, with sketch, and examples of some of his problems.—Formation of a new Chess Association.—Grand International Chess Match, between England and the United States; names of the Contestants on both sides.—International Chess Congress, French Exhibition of 1878.—Contest, Blackburneys, Zukertort.—Origin of Chess.

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#### THE DEGRADATION OF LABOR.

Labor is honorable, and the laborer worthy of honor in direct proportion to the personal integrity, independence voluntary, is neither honorable to the individual nor profitable to the mass.

This is the American idea: it is the independent laborer that honors labor. Unhappily of late years the majority of our working men have forgotten or failed to learn this basic principle of our social, industrial, and political system. Worse: they have hearkened to demagogues who have taught them contrary doctrines—doctrines subversive of all true manliness in working men, and calculated only to degrade labor by reducing the laborer to practical slavery.

Could there be a bitterer, satire on the manliness of working men than the mainplank in the platform of the "bread winner's league "-bread beggar's league, more properlyto the effect that the government—in other words their there were no imperfect ones found; yet this must be adfellow citizens-should furnish them with employment and 'mitted to be a recommendation for the manufacturer of said wages? Is government servitude the highest aim of the present generation of working men?

Time was when the American laboring man's boast was that he was, or was bound to be, his own master, asking odds of no one. He felt himself a free man, capable of selfsupport; a man whose strength and skill need not go a-begging for employment. While this was the rule labor could that body bolsters, if made of steel, would be lighter, and in not be redundant. The laborer was not abjectly dependent on some one to hire him, for he was able and willing to to work for himself. However limited the scope of his pro- the experiment had not been tried. ductive industry, he was, or could be an independent producer; and his work was to be sought for if it was to be steel was recommended as being more likely to be free from

the laborer—tradesman, mechanic, artizan, or what not—is It was admitted that the low price of iron axles hindered not and no longer aims to be first of all a free man. On making them as good as they should be. The recommendathe contrary he desires nothing and looks forward to nothing tion for the steel axle was that it could be lighter, and its but to be dependent on some one for a job. He must be stiffness prevented crystallization. Steel axles do not bend hired, or he can do nothing; and such employment failing as iron, though they showed in some instances a tendency to he falls back, not on his own capacity for self support, not crack in the inside of the wheel hub. Lubrication was that he can overturn the fundamental laws of work and croscopic experiments to get at the cause of the iron axles wages, and dictate the terms at which he will be employed heating, and found that the fibres of the iron stuck up, as and the kind of work he will do.

fallacy that other men are in duty bound to provide them with the means of making a living. No part of the community, ing one and a half pound of loss in favor of steel. neither "capital" nor government, is in any way bound to furnish work for any one. And it matters little whether men demand or beg that employment be given them as their not seem inclined to make a change from iron to steel, unless in huddling together in increasing helplessness, is simply to were not synonymous. rivet the chains of the slavery the working classes are doing most to bind upon their own limbs. The laws of Nature cannot be reversed to relieve men of the consequences of their folly.

Not until the old spirit of manly self respect and individual self-helpfulness is revived: not until the majority of the industrial classes seek first to become, sooner or later. their own employers, will prosperity return to them. Until ing men.

tention than it had yet received.

Single copies of any desired number of the Supplement sent to any, reports that he had no difficulty in driving every steel nail; seed fields; while the house sparrow is attacked in the barn-

to the head, while he found it impossible to drive a cut nail more than half way before it would break.

In order to further test the economy of steel nails, the reand capacity that go with it. Abject servitude, even when turning board gave the following table of the weight of iron and steel nails as one of the results of their labor:

44	Iron nails	960 +	to 1h	Otaa) maila	000	40 11
			66	Steel nails	, 200	
6d.	44	145		66	142	66
8d.		90	44	66	80	"
10d.		62	61	F-	59	66
12d.	4.	47	44	**	38	44
20d.	41	28	44	41	20	66
40d.	41	13	**	41	12	"
6d.	finish'g ir	on na	ils, 192 to lb.	41	188	44
8đ.	"	"	110 "	**	92	46
10d.	66	"	84 "	41	70	66

The price of these nails was quoted as 50 cents per keg more than iron.

Steel screws were admitted by one or two persons to be fifty per cent stronger than iron, yet the majority preferred iron. Another recommendation of the steel screw was that screws. The roughness of annealed steel screws was complained of, as well as their tendency to twist. It was admitted that where iron screw heads touched iron, they were better in that condition that steel screws.

It was thought that the carlines of passenger cars, if made of steel, would be more rigid than iron. It was suggested the end might be as cheap as iron. It was thought that a sudden shock would be liable to break the steel bolster, yet

Of axles, the majority preferred steel, and open hearth cracks. Some claimed that iron axles run with the coolest But all this, it would seem, has been changed. As a rule journals, while others advocated for steel the same advantage. upon independent industry, but to the vain demand that more perfect upon steel surfaces than upon iron, and they government shall make work for him. Then having made worked with a much finer surface than iron axles, and would himself utterly dependent on wages, he foolishly imagines wear longer. One member had commenced a series of mihe said, like knife blades.

The first lesson that the working men of the country need. The majority preferred cast iron wheels, though steel was to learn is that they have no claim upon any one—individual, | thought to be safer. One fault of the steel wheel was that corporation, or government—for employment. They are it would split in the tread. Brake shoes of steel showed less not infants, but men: and they must be willing to act a man's percentage of loss by wear than the iron, and no percentage part in the great industrial struggle, or go to the wall. Ina- of difference was found in the wheel to which they were apbility to find a master is no excuse for idleness; nor more is plied. Upon a car that had run nearly ten thousand nine any lack of demand for the specific labor they prefer to do. hundred miles, the wrought iron shoes weighed, when ap-The manliness of the working man is gone, the prosperity plied, thirty-four and a quarter pounds; when removed, of the working class vanishes, the moment men give them- weighed thirty one and a quarter. A pair of steel shoes selves up to individual helplessness—the first fruit of the weighed thirty pounds, and when removed weighed twenty eight and a half pounds, having lost one half pound. Show-

A conservative character appeared in the reports upon the distinctive merits of steel over iron, and the majority did only resource against starvation, they ask only what would convinced that decided advantages were to be gained. Inbut seal their moral and industrial degradation. To persist dications seem to show that, with them, steel and strength

### ABOUT SPARROWS.

Any European conversant with the habits and color of the sparrow in his original home on the other side of the water, and who closely watches the sparrows in and around New York city, cannot fail to observe that the latter are undergoing a change of habit as well as color. Probably no part of England, if even of Europe, is more infested with then the labor market will be glutted; by their very numbers this impertinent little fellow than is the county of Kent the mob of employment seekers will destroy the chances of where the barnyards and fields abound with them. It is, all for steady employment; and by their hungry competition | however, necessary to draw a distinction, for there are two with each other they will dissipate the only hope of any for kinds of sparrows, the house sparrow and hedge sparrow. remunerative wages. It is not any absolute redundancy of The former builds a ragged, clumsy-looking nest, notable for laborers as much as the misdirection of their efforts that its size and external looseness; even the feathers with which makes or largely helps to make the times so hard for labor- it is lined are placed in no kind of order, but appear to be put together in a spirit of "that is good enough for me." The eggs are a dull white color, speckled with reddish brown spots. IRON AND STEEL IN RAILWAY CAR CONSTRUCTION. and number from four to six; rarely less than the former, At the annual meeting of the Master Car Builders' Asso- and never exceeding the latter. The house sparrows ciation, held in New York city, June, 1876, a committee rarely gather in large flocks, or indeed flock at all, save was appointed to whom was referred the subject of iron in winter. They build their nests in colonies if the and steel in railway car construction. The report of this conditions are favorable, otherwise they will build in nooks committee, given in the late meeting in Cleveland, Ohio, about cornices, under waterspouts, and sometimes in trees. was that the substitution of steel for iron in car construction Over the main entrance door to Trinity church in New York was a subject of first-class importance, and merits more at- city are several house sparrow nests built in the ornamental stonework. In the ornamental cornice work of many brown In answer to the question of iron or steel rods in car stone front residences the same will be observed. The hedge bodies, the majority preferred iron, but it must be iron of sparrow is similar in appearance to his confrère save that 60,000 pounds textile strength to the square inch. Open he is a trifle smaller. He is much more tidy, however, in his hearth steel was admitted to be tougher and denser, but was household affairs. He builds a snug little nest, neat and too expensive. It was thought that steel could be produced, compact outside, and carefully lined, with horsehair and that with less size and weight would give equal strength. feathers inside, made round and with a full open top. The Of bolts, all preferred iron, though none seemed to have fibers of which it is mainly composed neatly interwoven, tried steel bolts. Charcoal iron was specified in the report, and it is as cosy with a as a linner's nest. They build sepaand the suggestion was made that good iron was better than rately and usually in small hedgerows, leaving the holes in poor steel. Of steel nails, the majority admitted to not have trees and similar places to their city brethren, the house used them, while in one instance they were preferred because sparrows. They lay five small eggs of a beautifully clear they were lighter, and as cheap as iron. Another member blue color. The hedge sparrow it is against which the had received some samples with request to try them, and he European farmer wages relentless warfare in the grain and