OUR EASTERN COAL FIELDS.

A London Colliery Journalist Discusses Their Future.

THE COAL OF GOOD QUALITY

He Says, and It Will Find Two Great Markets in Ontario and New England —Transportation Problems.

Following is a paper by Mr. C. Ochiltree-Macdonald, of the London *Colliery Guardian*, which was read before the Council of the Board of Trade of that city:—

I would preface this paper on the coal fields of the Gulf of St. Lawrence with a few remarks equally short. The writer has studied this coal field from the point of view of the British and European tonnage owner in particular, and from the point of view of an economic supply of coal to the Canadian and New England consumer. For this purpose he has made two distinct visits from London to Cape Breton, and although he has not fully interviewed the Canadian consumer, he has devoted considerable time to the consideration of the New England manufacturers' relations to the Canadian Atlantic collieries. The opinions formed in the course of these researches have been published from time to time in various parts of England as well as in Canada, and appear in part in their latest form in the shape of a brief pamphlet, entitled "Cheap and Rapid Coaling in Nova Scotia," recently addressed to three hundred British and foreign shipowners. This paper, it is felt, embodying, as it does some of the salient features of these publications, will be interesting to the most eminent Board of Trade in the colonial empire of Great Britain, and is now respectfully presented. In and around the shores of the Island of Cape Breton, almost midway between the factories of the St. Lawrence and New England, 3,000,000,000 tons of virgin coal lie undisturbed. Out of the soft rocks in which this coal is found, the Atlantic ocean has excavated six magnificent tidal harbors. The bluff coast of the Island, in almost every case, throws out rough headlands to protect these insular ports. Along the shore, nine collieries are in active operation. The problem of mining in Cape Breton is simple. That of transportation to the sundry markets is not as simple. The latter may be divided into four classes, viz.: Land, coastwise and river carriage.

LAND TRANSPORTATION.

Land transportation in Cape Breton is at this time never more than ten miles from pit to loading pier, but these piers being only accessible for about eight months in the year, it has become necessary to procure the independence of the island of drift ice by a much longer line of rail into Louisburg. Twenty years ago this project was actually initiated by Mr. Gisborne, whose association with Mr. Cyrus W. Field in the laying of the first Atlantic cable, will be fresh in the memory of the older members of this board. Under the influence of a passing fear that the English coal fields were approaching exhaustion, this gentleman federated three Anglo-Cape Breton coal companies, and spent $3,125,000 in a manner which has never yet been satisfactorily explained to the English stockholders. While this expenditure was going forward, the British American coal trade was going backward, and by the report of a Royal commission on the Home coal fields, the public mind of Great Britain was relieved of its anxiety respecting the domestic coal supply. Colonial coal stocks consequently declined in value and the Cape Breton Coal Company speedily collapsed. It was eventually re-constructed into the "Sydney & Louisburg Coal & Railway Company," (now in the hands of a Boston coal corporation), which was the first to secure rail connection with the winter port of Louisburg over a narrow gauge railway. The port became a favorite bunkering resort, but owing, probably to the expense of keeping the line open in the then severe winters, shipments were discontinued in 1886. Cape Breton then reverted to its old position in winter, of an ice-blockaded coal field, from which it is now only being rescued by an American company, which has purchased all the collieries, except Sydney mines, since my first visit in 1891. A line of railway is now about half built, standard gauge, into the old French town. When this is completed, the collieries will all be connected by 20 to 30 miles rail haul with the winter port. This distance, although undoubtedly a drawback, is not to be compared to the distances over which American coal has to be hauled, and in consequence Cape Breton is much more favored than her rivals in the South.

RIVER TRANSPORTATION.

River transportation, as a feature of the development of the coal industry at this time, demands, and appears to be obtaining, the careful attention of the operators. It is complex because of the prevalent fogs, the tortuous channels and other features of St. Lawrence navigation, well known to this board. Individual vessels do not, it is true, suffer as severely from these drawbacks as is sometimes asserted, but the economic transportation of Cape Breton coal to market is not a matter of individual vessels at all, but of scientific towage. On the American rivers as much as 40,000 tons of coal are moved at one stroke and by one tugboat. The ambitions of Cape Breton in this direction are said to be restricted by the choppy seas in the Gulf, which make it unsafe for barges, and the difficulty of steering same in the well thronged channels of the stream is said to be a severe obstacle. But this is probably exaggerated. An alternative system is shipment in large steamers, holding perhaps 5,000 tons, and this would seem to be at the present time a convenient and cheap method of coal transportation. The existing evidence seems to point to the adoption of the latter system.

COASTWISE TRADE.

The problem of moving coal into southern Nova Scotian points has been pretty well ventilated by the disasters of last year, by which both tugboat and barge, in one case, were totally lost, with all hands, and in another case by the barge being separated from her consort and left to the mercy of the elements for many days. Coal towage, it may be said, can never be relieved of extraordinary perils on the coast of Nova Scotia, and will probably be largely discarded in favor of the ordinary system of transportation by steam colliers, as practised between London and the North of England. The same applies with even greater force to the supply of the New England market.

Next in order of review comes the well disputed subject of the quality of the Nova Scotian, and especially of the Cape Breton coal. Undoubtedly this is a matter in which the entire future of the Atlantic coal industries is bound up, as well as the supremacy of Canada, as the coal power of the Atlantic coast. It is fair to infer from the widespread discussion both in Europe and the United States at this time, that this is clearly realized. A very great deal has been written on the quality of the coal, and much unfavorable evidence has been presented. I find, however, that a good deal of this evidence is perhaps as much as fifty years old; that in some cases it has been repudiated as insufficient by the compilers themselves, and that all the tests made during the past ten years reveal a tendency to place the best class of Cape Breton coal

ON A LEVEL WITH THE BEST ENGLISH

and Welsh fuels. The actual origin of much of the current difference of opinion on this polemic of quality is to be found in the system of handling, shipping and discharging, long, and at this time, in vogue. This system is undoubtedly primitive, reducing as it does the cleanliness and shape of the fuel and has long since been discarded in the Welsh, North of England and American trades. At this time, however the owners of the Nova Scotia mines seem more fully alive than ever before to the essential nature of improved shipping, handling and discharging facilities, and during the late year very respectable improvements have been made. There are two markets upon which Nova Scotia is anxious to place her right and left hands. These are the Ontario and New England. Respecting the first, a great deal of valuable evidence was brought forward at the time of the last coal trade commission. The main tenor of this was that the ever increasing volume of down St. Lawrence freights made it possible to send coal to Brockville, Ottawa and other points west of Montreal. This was based upon the supposition that the profits accring from the return cargoes would liquidate any excess in the cost of transporting west of Montreal. Although nothing was done beyond a few experimental cargoes, the idea seems to have been simmering in the minds of the coal owners all these years. Personally I have taken an interest in this matter and in reply to my communication, the leading Ontario coal merchants have handed me their opinions. In a word these are that the exportation of Nova Scotia coal, west of Montreal, will be

HAILED WITH PLEASURE AND INTEREST

in Ontario, that a large down stream traffic will result to the colliers engaged in any such trade; but that the time is not yet ripe, owing to the still shallow draft of the canals and the, as yet, incomplete condition of distributing facilities. These opinions are encouraging, and have elicited a fact hitherto little known, viz.,: "That Ontario is quite willing to burn Nova Scotia coal when she can get it sent into the province." In New England, after travelling up and down the country, I am forced to conclude that the people have but a very vague idea of the dimensions and positions of the Atlantic coal fields of the Dominion of Canada. A very prevalent idea is that the fields are poor, wet and insignificant. The origin of the belief that Nova Scotia coal is poor lies in the exceedingly primitive fashion in which the coal was exported to the Massachusetts and other markets during the Civil war. But these prejudices are not sufficiently deep rooted to discourage Canadian energy, and if the usual enterprise of the Canadian merchants and coal operators is steadfastly brought to bear upon the New England consumer, the Northeastern states will again be brought within the sphere of influence of the Nova Scotian mines. There are

TWO ADDITIONAL ASSURANCES

of this. The first is that these states are steadily retrograding, as in Massachusetts, from first to third among the manufacturing states of the American union, owing to the superior facilities of the sister states for the assemblage of raw material and the restriction of purchasing power among the Western consumers. This is compelling Massachusetts to look out for cheaper supplies in raw material—iron ore and coal. By introducing cheap material she hopes to introduce competitive rates and secure supplies at a very low figure. The only country so situated geographically as to be able to come into competition with the native coal and iron states is Nova Scotia. Coincident with this, active enterprise in New England is being directed by the owners of several of the Cape Breton mines, and it is thought that they will succeed in getting for Nova Scotia a fair share of orders. There is, however, a wider range of opportunity for Nova Scotia than all this. An important problem at present exercising the minds of the European steamships owners is the reduction of working expenses to something like conformity with profits. The days of 50, 60, and 70 per cent. dividends, in which the writer once shared, are gone, abolished by the fatuous ship-building policy of the English people of the past ten years. Bunker coal in the western ocean is a case in point. The British steamships' owners are ready to learn when cheaper bunker coal can be procured than is at present consumed beneath their boilers in these latitudes. It is necessary that cheap coal be easily procurable by these European steamships on the edge of that vast circle traversed by multitudes of vessels between Europe and the Southern United States ports. Cape Breton is exactly in

THE MOST FAVORABLE POSITION

for this economical bunker trade. If a vessel leaving, say, New Orleans for Europe, instead of turning off at right angles to her course and steaming a day's steam into Newport for coal, keeps right on she will encounter the Canadian mines drawn out into her course along a rocky whart which reaches out to within 80 hours' steam from the British Isles. Cape Breton's relation to the dividends of the European steam tonnage owner will thus be seen at a glance, and I have chosen the present as a fitting opportunity to impress the facts upon him, through the machinery of this august body of Canadian merchants. In conclusion it only remains for me to point the moral of all this: The progress of the Nova Scotian collieries is intimately allied with the prosperity of the trade and industries in which the members of this board are engaged, for in the expansion of the coal industry exists the expansion of consumption of Canadian produce. By granting this paper the few moments' indulgence necessary to this reading, this board is setting its seal, so to speak, upon the efforts after progress of the coaly East. Such will entitle this paper to the attention of all those interested, or who should be interested, in the progress of the collieries, and the facts cited will be received with interest in many parts of Europe, and reacting to the welfare of the Nova Scotia collieries will thus be ultimately helpful in introducing new maritime provincial business to the Upper Canadian producers and manufacturers.

SPRING SMILES.

A howling swell—A baby with the mumps.

A Boston girl spoke of a tight-rope performance as an "inebriated cordage entertainment."

Money talks, but with many of us at the present time it seems to have an impediment in its speech."

The philosopher who said that all things come to him who waits, might have added that the man who goes after them gets them much quicker.

Father—"Is the girl you are going to marry economical?" Son (enthusiastically)—"I should say so. Last year she spent $500 in bargains."

Mistress—"Cook, don't you know there" a place for everything?" Cook—"Yes, mum but I never made hash and I never will; so there."

"I can't understand how Mrs. Smiley can waste so much of her time with her pet dog." "Well, you would if you had ever met her husband."

Mamma—"Robbie, why is it that you always quarrel with the little girl next door?" Robbie—"'Cause she won't ever hit a fellow like boys do."

"What a quiet, simple little bonnet you have this Spring, my dear." Daughter-in-law—"Yes, I bought it to please John; you know it's just exactly like him."

Axton—"Was your marriage the result of love at first sight?" Exton (sadly)—"Yes, on my part. Had I been gifted with second sight, I'd never have married.

"I want," said the astronomer, "an inscription for my new telescope which shall be in the nature of a new address to the stars." "How would 'Here's looking to you' do?"

"What makes Smith stutter? He didn't use to." Well, you see, when he asks a man to loan him $5, and says it over three times, he sometimes gets fifteen."

Jackson (in a restaurant)—"This chicken of mine was kept too long after being killed." Currie—"And the one I'm eating was kept too long before it was killed."

"I'll never wash the dishes,"
The girl in waiting said;
Her words were quite prophetic, for
She broke them all instead.

A subscriber writes, asking the meaning of the "silent watches of the night." We answer with pleasure that they are those which the owners neglect to wind up before retiring.

She—"I should think you would be ashamed to come home to your wife half drunk." He—"I am, m'dear, but (hic) so many places (hic) closed I couldn't get any more."

"The flush of thy cheek in Winter,
In Summer flees, oh, winsome maid."
She giggled before she gave reply.
"Perspiration," was all she said.

Mamma—"Oh, I am terribly worried about Robbie." Papa—"What is wrong with him now; some simple little ailment?" Mamma—"No; he has washed his face twice without being told."

"Well, I don't believe I will have to worry over Tommy learning to swim." Mrs. Smith—"Is he afraid of water?" "Mercy, yes; he'll cry if I just pour a little into the washbowl when he is near."

Frail man an egotist is, forsooth,
When the truth about him is told;
In the days when he is young he is proud of his youth,
And he's vain of his age when he's old.

Jones—"Oh, what a very charming baby! I have always taken such an interest in very young children. How old is it?" Mother (with pride)—"Only just eleven weeks." Jones—"Really! A—and is it your youngest?"

The Aunt—"I think Sibyl's conduct is simply outrageous. Flirting disgracefully, and only just buried her husband!" The Niece—"That's not very bad. Some of us would not wait so long."

Kleptomania is so much on the increase that a young lady, alarmed at her mother's delay in returning from shopping, was heard to exclaim: "Oh, dear, I am so worried about mamma! I do hope nothing has caught in her cloak button, and they've arrested her."

He—"I understand you have been attending a Bellevue ambulance class. Can you tell me what is the best thing to do for a broken heart?" She—"Oh, yes. Bind up the fractured portions with a gold band, bathe with orange blossom water, and apply plenty of raw rice. Guaranteed to be well in a month."

Another Prince.

Prince George, of Prussia, whose strong literary tendencies are well known, and who has published a number of books and dramas under the pseudonym of "Conrad," is writing his reminiscences. Although, says the Pall Mall Gazette, they will hardly treat of much that is new from a political point of view, they are sure to contain many facts of literary and general interest. Prince George has never engaged in politics, nor has he cared to play any prominent part in the life of the court. For the last ten years he has lived in seclusion, devoting himself exclusively to his literary and artistic pursuits. He is a great bibliophile, and his passion for collecting old printed books goes so far that he takes the greatest pleasure in visiting second hand shops and rummaging among their contents. His dramas, which fill several volumes, were given to the world as the works of "G. Conrad." One of them, "Phædra," has won considerable success on the stage.

The people who talk most of giving the Devil his due often forget to pay their share of the minister's salary.

ARCHITECTS OF THE AIR.

CURIOUS HOUSES BY THE CUNNINGEST OF BIRDS.

The Social Weavers Who Construct a Whole Village of Nests Under One Roof Thatch and Dwell in Harmony.

Henry Coyle contributes to Vick's Magazine an interesting article on bird architects. Speaking of the humming bird, of which there are a hundred varieties, he says it constructs its nest of the finest silky down and of cotton, or, if these are not available, some other similar material. The inside is lined in the most delicate manner with soft substances; the outside is covered with moss, usually the color of the bough or twig to which the nest is attached, thus giving it the appearance of an excrescence. The delicacy and ingenuity of workmanship

NEST OF SOCIAL WEAVERS.

and skill could hardly be excelled by human art.

The nest of the golden-crested wren, a most beautiful bird found in England and other parts of Europe, is a fine example of weaving. It is made of moss and lichen and lined with feathers; it has a very small entrance at the top and the interior of the nest is also small, bearing no proportion to the size of the structure. The weaving of this nest is a work of great

WOODPECKER DRILLING A HOLE.

labor and assiduity, and, compared with the bulk of the bird, it is of large dimensions.

The nest is suspended from the under surface of a fir branch, thickly clothed with foliage, by which it is almost entirely concealed and partly protected from the rain. Thus beneath a natural canopy this little bird rears her brood, whose cradle swings to and fro with every breeze. The eggs are from seven to ten in number, and of a pale brown color.

A naturalist who watched a nest containing eight small birds with a powerful opera glass, observed that the parent birds came to the nest with food every two minutes, or upon an average of thirty-six times an hour; and this continued full sixteen hours a day, which, if equally divided between the brood, each would receive seventy-two feeds, the whole amounting to 576.

The woodpeckers are carpenters; they not only bore holes in trees in search of food, but they also chisel out deep holes in which to deposit their eggs and rear their young. They generally build their nest in May, selecting an old apple tree in the orchard; the boring is first done by the male, who pecks out a circular hole; as the work progresses he is occasionally relieved by the female. They both work with great diligence, and as the hole deepens they carry out the chips, sometimes taking them some distance to prevent discovery or suspicion. The nest usually requires a week to build, and when the female is quite satisfied she deposits her eggs, generally six in number and of a pure white color.

A bird called the grosbeak builds a nest shaped like an inverted bottle with a long neck, through which it passes up to a snug little chamber above. The nest is skilfully constructed of soft vegetable substance, sewed together in a wonderful manner, and suspended from a twig of a bush.

The social weaver is found in the south

NEST OF THE TAILOR BIRD

of Africa. Hundreds of these birds in one community join to form a structure of interwoven grass containing various apartments, all covered by a sloping roof impenetrable to the heaviest rain, and increased year after year as the population of the little community may require.

A traveler, returned from a journey through South Africa, writes: "A tree with an enormous nest of these birds was quite near where our party camped for the night. I dispatched a few men with a wagon to bring it to the camp that I might open the hive and examine the nest in its minutest parts. When it arrived I cut it to pieces with a hatchet, and saw that the chief portion of the structure consisted of grass, without any mixture, but so compact and firmly woven together as to be impenetrable to rain. This is a canopy under which each bird builds its particular nest; the canopy projects a little, which serves to let the water run off when it rains. The nest contained 320 nests, and it was calculated that the number of birds would exceed 600 in this one nest alone."

NESTS OF THE BOTTLE BIRD.

The bottle-nested sparrow is a basket maker; it is found in India and is a very intelligent bird. It resembles our native sparrow in some particulars, but its color is brown and yellow. It associates in large communities and builds its nests on palm trees. It is formed in a very ingenious way, by long grasses woven together into the shape of a bottle, and it is then suspended at the extremity of a branch in order to secure the eggs and young birds from numerous enemies, such as serpents, monkeys and other animals, which infest that part of the world.

These nests excel in the neatness and delicacy of their workmanship. They contain several apartments intended for different purposes; in one the female deposits her eggs; in another is stored the food which the male gathers for his mate during her maternal duties, and a third is sleeping apartments for the male bird.

The sand martin is a most curious member of the swallow tribe. It appears in the Spring a week or two before the common swallow, and it is fond of skimming swiftly over the surface of the water. This bird makes a hole in a sand bank, sometimes two feet deep, at the extremity of which it constructs a loose nest of fine grass and feathers, in which it rears its young brood. The beak of the sand martin is like a sharp awl, very hard, and tapering suddenly to a point.

The tailor bird is not the least interesting of the bird family; it has a curious bill, which it uses like a needle, and it forms its nest by sewing the material together, instead of weaving.

SCIENCE AND INDUSTRY.

The question of comparative effectiveness as between gas and oil lighting on the railroads in India is declared to have been proved, in some recent tests, decidedly in favor of the former. To determine this question there was employed an experimental or special train, consisting of a first-class car and a guard's van, lighted with the well-known Pintsch's compressed oil gas; the illuminating power of the gas proved to be some tenfold that of the oil lamps employed. In order to ascertain the degree of steadiness pertaining to the gas flame, the fastest possible speed was resorted to, and, notwithstanding the oscillation of the cars, the gas flames exhibited not the slightest flickering or wavering; the pressure in the gas reservoirs, which at starting stood at six atmospheres, was hardly affected during the short run, the reduction in fact not exceeding three pounds to the square inch. The smallest newspaper type could be read with ease in the gas-lighted cars.

A notable work in its line is described by the Engineering News, namely, a suction sand dredge with a capacity of 4,000 tons per hour, built by the Naval Construction and Armament Company of Barrow-in-Furness, England, for operations on the Mersey bar. The sand-pumping machinery consists of two centrifugal pumps with thirty-six-inch suction and delivery pipes. These pumps are on each side of a well, and draw from a T-head at the top of the suction pipe; and around this head as a trunnion the tube can be raised or lowered to suit the depth of the water, and a ball and socket joint gives a certain amount of lateral motion. The suction nozzle is turned over at the bottom, with its aperture almost at right angles to the axis of the tube. The hull of the dredge is 325 feet long by about 20 feet 6 inches deep, and 46 feet 10 inches wide, the loaded draft being 16 feet and 4 inches. She has twin screw engines and a speed of ten knots loaded. The sand is pumped into hoppers, and operations show that the latter may be filled at the rate of 100 tons per minute.

Some of the characteristics of Italian asbestos have given a decided preference for that article, it seems, over the American, for certain manufacturing purposes. The Italian mineral lies in beds and pockets which are mostly reached by open quarrying dynamite being largely employed in this operation. The lumps, as they are taken from the mine, consist of bundles of hard fibres, lying parallel to one another and strongly bound together; they vary in color from light grey to brown, the general appearance of a fine sample being suggestive of the interior of the riven trunk of a tree. By the exercise of a little care, threads may be separated many feet or even yards in length, the continuity being perfect from end to end, the general appearance and strength being very similar to those of flax; it is this characteristic of length and strength of fibre, and its chemical purity, that are said to distinguish Italian asbestos from all others. Still another peculiarity remains to be mentioned, namely, a certain greasy feeling, resembling that of French chalk or soapstone.

Kept In Cages.

The inhabitants of New Britain have a peculiar custom of confining their girls in cages until they are old enough to be married. The cages are made of the palm tree, and the girls are put into them when two or three years of age. These cages are built inside of the houses, and the girls are never allowed to leave the house under any circumstance. The houses are closely fenced in with a sort of wickerwork made of reeds. Ventilation under the circumstances is rendered difficult. The girls are said to grow up strong and healthful in spite of these disadvantages.

Critical barber (feeling new customer's bristles)—"Where did you get shaved last, sir?" Customer—"On my face."