

By Rail to Hudson Bay.

The project of building a railroad from Winnipeg to Hudson Bay, with a view to connecting the road with a line of steamers, the whole forming a new grain route to Europe by way of Hudson's Straits, has long been familiar. But while that scheme is still under consideration, a rival enterprise has lately appeared in the proposed extension of the Quebec and Lake St. John Railway from its present terminus to James Bay, which forms the southernmost part of Hudson Bay.

This project, of course, has no new grain route in view, but a plea of special interest just now is made for it as a possible route from Eastern Canada to the Yukon gold fields, says the New York Sun. For this purpose there would be water travel by Chesterfield Inlet and English River as well as by Hudson Bay. In addition, it is hoped that the fisheries, the timber and the minerals of the Hudson Bay region may furnish support for the proposed new road.

The existing railway, it appears, is 190 miles long, extending to Roberval, on Lake St. John, while the distance thence to James Bay would be nearly twice as great, a considerable part of it through a hilly region, but the beginning and nearly or quite all of the northern half lying in comparatively level territory. To the cost of construction would be added that of aiding people to settle on the line of the road, and also of shipping outfits for carrying on the fisheries in Hudson Bay. But these expenditures would bring returns in traffic, and if the great inland sea could be reached in a couple of days and nights from Quebec, there might be some tourist travel, prompted by the facilities for going without discomfort so far north.

On the other hand, a glance at the map suggests that the route to the Yukon by way of Hudson Bay must be tedious and precarious. When, by rail across the continent and by steamer thence to Dyea, people from Eastern Canada can arrive so near the Klondike region, the effort to cross the enormous untraveled area between Hudson Bay and the Klondike could hardly be tempting. Yet there is no saying how much of the continent to the north of us may yet be redeemed and this Hudson Bay project, like the one which seeks a new highway for the wheat of the Saskatchewan region, may some day be carried out.

The Deep Cypress Swamps.

These swamps, lying along the streams in Missouri, are, writes Mr. W. Trelase, director of the Missouri Botanic Garden, in Garden and Forest, most remarkable in their interest.

Except in seasons of great flood, the water of these sunken lands varies little in its general level, and the cypress knees correspond approximately in height with this level for many miles, rising so close together between the trees that only a native can find passageway between them for a dugout canoe. In such a canoe, with an experienced guide, barring the discomfort of the tailor's seat which must often be effected, one can pass with pleasure for hours silently between the trees, now startling a great turtle into a quick plunge from its sunning place on an emergent log, or in turn be startled by the quick call and splashing flight of a pair of mallards, and again recoiling as one's elbow almost brushes against a large water snake—a water moccasin, as it is here called—lying afloat on a snag; drinkable the water scarcely is, but it lacks the turbidity of the larger streams, and, stellate with Cabomba and Jussiaea, and often for miles carpeted with a dense layer of beautiful Azolla with intermingled Lemna, Spirodela, Wolfia, and Wolffella, it presents a delightful appearance not soon to be forgotten. But the novice who dips into it, or the botanist whose zeal leads him to gather its choice surface coating with incautious hand, is quite likely to learn that in the latter are certain small hemiptera, whose pungent thrust is no less painful than the sting of a hornet, though happily not so serious or lasting in its effects. Here the Nelumbium is at home, and in season its great dew-studded leaves, with the curious bronzed lens of their lower surface conspicuous in the slanting light, and charming creamy flowers, form an almost impenetrable jungle in the waterway. But most marvelous of all are the masses of Polygonum, which, rooted perhaps ten or fifteen feet below the surface, finally emerge, making a tangle on which, in hip boots, one may wade with as great security as on the more solid land. The trees of the deeper water are chiefly cypress (Taxodium) and tupelo (Nyssa aquatica), the greatly dilated bases of which rival anything of the kind that I have ever seen. Not infrequently within the hollow trunk of some old tree may be seen a perfect forest of young knees from its younger neighbors, or even from its own roots, providing the aeration which these would otherwise never get in this region of perpetual water. Now and then old cypress stubs, with gray bark and large branches emerging from the giant trunks close to the water level, stand in marked contrast with the tall, clean stems of a later generation, suggesting the doubtful hypothesis that the strip of land on which they grew has sunken locally below the general level of the stream.

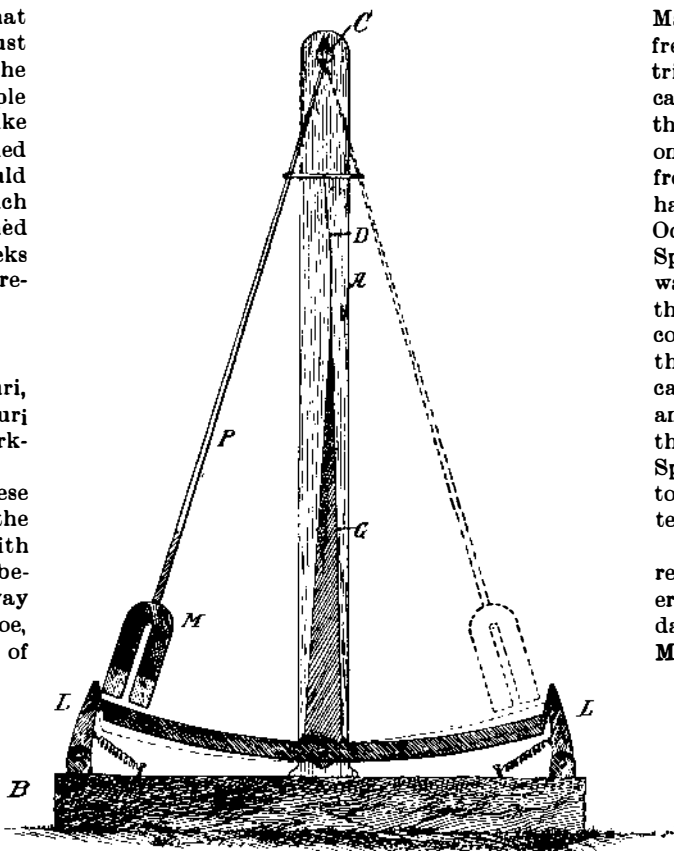
Correspondence.

"Perpetual Motion" Again.

To the Editor of the SCIENTIFIC AMERICAN :

I send you the following, which may be something new on the subject of "Perpetual Motion" so called. If you think it would interest your readers, you are at liberty to publish it. It is with a great deal of interest that I have read your articles on perpetual motion in THE SUPPLEMENT, the earnest search and labor to attain the object thus far being futile. It occurred to me a good many years ago (this being the first time I have offered it for publication, however) that the only way out of the difficulty would be to enlist the aid of the two well known laws, namely, gravitation and magnetic attraction. I put my brains to work and evolved the machine that I submit to you a sketch of, which I hope to make plain enough to be understood. Before going further, would say that I am not sure that it is a failure, as I never gave it more than a crude trial, but I believe that, like all others when tested, it will lack that requisite that all others have lacked—self motion.

My plan consists of a base, B, in the center of which is placed a brass or other non-magnetic material post, A A, near the top of which projects a pin, C, which serves as a support for the pendulum, P, having a permanent magnet, M, attached, which serves a dual need, namely, weight and attraction. Pivoted on the post, A, near the bottom, is a soft iron strip bent to conform to the arc which the pendulum describes in its



A "PERPETUAL MOTION" MACHINE.

motion back and forth. The pendulum is supposed to be started by giving it a full swing, it striking the latch, L, releases the iron strip, so that the magnet can attract it to itself, which it does, and the motion is transmitted to near the upper end, to pendulum, which gives it an impulse to other side, where the operation is repeated. The upper end of rod, G, is made flexible, so that when the latch on left is released, the iron strip attracted upward, it is latched down at the right, thus applying the force to the pendulum gradually, through spring, D; the magnet having the iron in its field of attraction at all times, it is thought, would not interfere with its motion, but let it swing freely under a tension all the time, due to magnetic attraction and gravitation. Whether it would lose its motion by gradually leaving the iron as it passes from side to side is a question I will let some one else solve, if they wish.

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Efflorescences in Bricks and Sandstones.

Efflorescences from the materials of our buildings are not ornamental, nor do they render the stones more durable, says The Trade Journals Review. About their causes and prevention we are pretty much at sea. Contractors are occasionally required to use stones free of niter; nitrates have, in reality, little to do with the matter, and it is generally sulphates which cause the trouble. Some years ago, the Association of German Architects invited memoirs on the question. The general conclusion seemed to be that prevention was very difficult, and that time would bring its cure. A dissertation by Hans Günther, communicated in abstract in Dingler's Polytechnisches Journal, is not quite so resigned. Günther has evidently made a very careful

and painstaking study of this uninteresting subject. The trouble may come from the clay, the water employed during the various stages, the ashes and pyrites of the coal, and from the mortar. The pyrites of the coal may certainly cause mischief, especially because modern practice is in favor of continuous ring kilns, which work with plenty of oxygen; while in the old periodical kilns the atmosphere was frequently reducing, so that little sulphuric acid was formed from the SO₂. The presence of sulphuric acid, we learn incidentally, favors the production of red colored bricks, for it decomposes the yellow iron-lime silicate. But the author attaches more importance to the pyrites in the clay, and to chemical interaction between brick and mortar. He has very fully gone into this inquiry. He found, e. g., that certain bricks remained quite smooth when piled up, and became soon covered with efflorescences when used with a mortar which proved perfectly harmless to other bricks. Almost all clays contain pyrites, which, in the presence of magnesia, give rise to immediate efflorescences; in the presence of lime, only after decomposition with the alkalies of the mortar. That the sulphates are the chief culprits he established beyond doubt. We may mention that the case is different in lavatories where ammonia is constantly liberated and slowly converted into nitrates. As a remedy, Günther suggests to admix baryta, as carbonate or chloride, which would bind the sulphuric acid. The sandstone blocks of the handsome new Town Hall at Hamburg suffer from this trouble.

The Migration of Things and of Memories.

In the minds of some students, says Prof. O. T. Mason, in Science, the question of migration of forms is frequently confounded with that of the migration of tribes. It must not be forgotten by those who are carefully studying the origin of industrial forms on the western world that there were daily mails delivered on the American shore from the eastern continent from the remotest antiquity. The United States navy have been dropping bottles overboard in the Atlantic Ocean, at the Azores, in deep water along the coast of Spain and from the Madeira and the Canaries southward along the coast of Africa. All of these bottles that have been recovered have been found on the coast of South America, on the Antilles, and some of them as far west as the mouth of the Rio Grande. It can be inferred from this, therefore, that every buoyant object which has been dropped into the ocean during the present geological epoch by prehistoric or historic Spaniards, Portuguese, or Africans has found its way to America and been stranded somewhere between the tenth parallel south and the thirtieth parallel north.

In the northern part of the Atlantic Ocean the currents run the other way, and the mails have been delivered from America to Europe. In the Pacific Ocean the daily mails delivered on the west coast of America from Mount Saint Elias southward have proceeded from about the twentieth parallel north, in the vicinity of the Malay Peninsula and Archipelago, thence have traveled through the China Sea and the Japanese Sea to pick up objects designed for the western hemisphere. In the southern hemisphere the mails travel the other way, and materials consigned to the ocean current company were taken from Chile and Peru to be delivered upon the Easter Island and the various groups of Polynesia, some of them reaching as far as Melanesia.

In addition to these great mail services of the Pacific, there was a narrow strip of service called the "counter-current," between the equator and the tenth parallel north, the articles consigned to it being delivered on the west coast of Central America.

In the Arctic Ocean the mails proceeded from west to east, passing up through Bering Strait, across the pole, and finding their way first to East Greenland and then around Cape Farewell to the southwestern shores of that great island. The Arctic current from Baffin Land and northward brought the mails from the Eskimo area southward even as far as Charleston, South Carolina. The consequence of such uninterrupted communication cannot be overestimated. All who have studied the arts of primitive races know how quickly their plastic minds respond to a congenial suggestion. It would not even be necessary for a Chinese or Japanese vessel to bring a single living teacher to take part in the pedagogic work of instructing the west coast tribes in eastern Asiatic arts.

The recent example of throwing a stick which drifted from Port Clarence, south of Bering Strait, and was picked up on the shores of West Greenland by Dr. Rink, is one of an interrupted series of communications between one of those great mailing stations and another. A second element in technical pedagogy has not been emphasized by any modern writer, and yet it cannot be overlooked; and that is the survival of industrial processes and productions in the myths and traditions of wandering tribes; so that one of them, having passed over a long area where a certain kind of activity was not demanded, and coming again to a place where the conditions are favorable to its revival, changed a song or an ancient tribal memory into an actual fact again.