

the end of three-quarters of an hour the man, and at the end of each hour the graybeard. Death then follows with a measured stroke to tell the hour, and at the same moment a carved cupid projects from either side, with wings to indicate that time flies. At the same time a large music box, manufactured at Geneva expressly for this clock, begins to play, and a surprising scene is enacted upon the platform beneath the canopy: Washington slowly rises from the chair to his feet, extending his right hand, presenting the Declaration of Independence. The door on the left is opened by the servant, admitting all the Presidents from Washington's time, including President Hayes. Each President is dressed in the costume of his time. The likenesses are very good. Passing in file before Washington, they face, and raise their hands as they approach him, and, walking naturally across the platform, disappear through the opposite door, which is promptly closed behind them by the second servant. Washington retires into his chair, and all is quiet save the measured tick of the huge pendulum and the ringing of the quarter hours, until another hour has passed.—*Scientific American*.

THE FLOODING OF THE DESERT OF SAHARAH.

We have on former occasions discussed the plan of flooding the Desert of Sahara, of which a large portion is lower than the surface of the ocean. The execution of this plan would open the African continent to European commerce, by admitting the waters of the Atlantic through an artificial channel into a vast depressed area of arid desert, which has for ages been the impossible barrier that has isolated the dwellers of the rich and fertile countries lying to the south from contact with civilization, and the subject has just received fresh impulse by its presentation in popular form in the pages of *Scribner's Monthly*.

The project of Mr. Mackenzie is older than that of M. Roudaire for creating an African inland sea, though by no means so well known as the latter; and if the engineering features of the scheme have been correctly stated and observed, the Mackenzie project could be made to accomplish vastly more important results, at a cost not greater, and probably considerably less, than that of Roudaire. What is known as the Basin of El Joof is a great depression, 200 feet below the ocean level, in the western portion of the Desert of Sahara, covering an area of 60,000 square miles, and was at one time an arm of the Atlantic ocean, the channel of which was placed not far from Cape Juby, opposite the Canary Islands. The mouth of this ancient channel, which is still discernible, is 2½ miles wide, and is blocked by a sand bar about 300 yards across, and elevated from 10 to 13 feet above sea level. Assuming these statements of the topography of the region to be accurate, as Mr. Mackenzie, after several explorations, affirms unequivocally, all that would be required to convert the arid basin of El Joof into a vast inland sea of 60,000 square miles in area, would be to pierce this ancient channel with a canal, 300 yards in length and a little over 30 feet deep. A small ditch only would be required for this purpose, Mr. Mackenzie claims, since, when communication was once established, the waters of the ocean would pour into the depressed basin and scour out the channel for itself.

The feasibility of this project on the score of engineering difficulties, says the *Engineering and Mining Journal*, does not appear ever to have been called into serious question; and of the two projects—Mackenzie's and that of Roudaire—for flooding the Algerian *chott*s, the former is not only vastly the greater in the possible geographical and climatic changes it would bring about, but in its commercial aspects also, since it would bring Timbuctoo, the great negro metropolis, within 2,000 miles of England, making it practically a seaport, and the whole of North Central Africa would be brought within easy reach of the harbors of Europe. Mr. Mackenzie has championed this scheme zealously and indefatigably for a number of years, and though he has suffered many checks and disappointments, his faith in its ultimate success appears to be unshaken.

We cannot forego repeating our former objection, that in that arid and excessively dry climate, where the evaporation must always largely exceed the rainfall, the evaporation of the water in the large inland sea would lower its level, and as there are no fresh rivers to supply the deficiency, it is to be supplied exclusively through the artificial channel with sea water, and this being salt, while the evaporation, carrying off only fresh water, the water must become more and more salt, and finally saturated. But it will not stop here: the salt will crystallize, and more salt water will enter, so that in the course of years the whole basin must necessarily become a gigantic salt deposit, as bad, and perhaps worse, than the present sand desert. In fact, it cannot

well be otherwise, as the execution of the plan would be equivalent to the formation of huge salt works, operated by solar heat.

Our Salt Lake and the Dead Sea are two nearly saturated inland lakes, which have a constant supply of fresh water; it is the same with the ocean. But this inland sea of Sahara would have a salt water supply, and the results mentioned we believe would be unavoidable.

It is an interesting geological question, whether some of the large salt deposits, such as are found in England, Poland, and other countries, have not been formed in a similar way, by the existence of basins which were continually supplied with salt water, and heated by the solar radiation, or perhaps by the interior high temperature of the earth, or by both agencies, producing an evaporation more rapid than the rain-fall, and ending, of course, in a total elimination of the water, and the formation of a bed of rock salt.—*Manufacturer and Builder*.

A NEW THEORY OF SEA SICKNESS

The singular benefit derived by the use of amyl nitrite in sea sickness has suggested a new theory of the cause of that distressing malady, namely, that it is due to cerebral anæmia. The proposer, Henry Naylor, L.R.C.P., L.R.C.S., Edinburgh, says:

"The rapid swinging of the vessel and the body with it irritates the eyes and vision, and this by reflex action produces a spasm of the cerebral capillaries; this explains the feeling of faintness and giddiness that comes on suddenly, just as the vessel gives a big swing. The sudden emptying of the cerebral vessels causes the stomach to sympathize, resulting in efforts of vomiting, whether the stomach be full or empty. These symptoms are most distressing when the subject is in a standing or sitting position, with the eyes open. If he lies down the change of position relieves the anæmia, the faintness and giddiness pass off, and the sickness ceases. But occasionally even the recumbent position does not give relief if the eyes are kept open. When they are shut the symptoms are not felt in the least. I have known this to be the case with several ladies who were never comfortable while at sea unless they were lying down with their eyes closed. They were able to eat meals and retain them if they lay down and closed their eyes immediately afterwards. In fact, I have been obliged to keep some constantly in bed to prevent their dying of starvation. A fact that helps to show the feasibility of the æmic theory is that brandy and other stimulants give considerable relief for a time, which would not be the case if cerebral congestion had to do with sea sickness. The explanation of how sea sickness continues so persistently in some, is that the sickness weakens the heart's action, and this keeps up the cerebral anæmia, and that in turn again produces the sickness; so that prolonged sea sickness is due to a circuit of causes, the one producing the other—the visceral irritation, cerebral anæmia, sickness, weak heart's action."

Mr. Naylor adds that amyl nitrite usually does good in sea sickness, if used at once, because, being an anti-spasmodic, it relieves the spasm of the cerebral vessels, and thus the brain is refilled with blood. But if it fails, then the persistent sickness, by its effect on the contractions of the heart, prevents the brain from getting a sufficient supply of blood, and thus the brain becomes anæmic, not from a spasm of the capillaries, but from an insufficient power of the heart. It is at this stage that alcoholic stimulants in small doses, frequently repeated, give great relief.

THE ROYAL COMMISSION ON AGRICULTURE

At length the names of the noblemen and gentlemen who form the Royal Commission on Agriculture are communicated to the public. It is, apparently, the intention to make the inquiry a thorough one, and to extend it laterally as well as directly into all that concerns the occupation and cultivation of land. Tenure of land, rents and profits, the suitability of soils in relation to crops, the mode of tillage, live stock and produce, machinery and manures, transportation and markets—all these will be within the scope of the Commission, and as in all probability every part of the country will be visited, there will be opportunity to collect an exact knowledge of our agricultural position, very valuable for our future guidance, and not inconsequential as a factor in dealing with any alteration of the land laws. But the farmer and the landlord are also to have the benefit of some reliable knowledge of the exact conditions of foreign competition. As this is one of the proximate causes of the inquiry, considerable interest will centre in the result. It is the intention of the