4. January 25:

Beginning	15 h.	47 m.	00 s.	15 h.	46 m.	45 s.
Beginning principal portion	15	47	15	15	49	14
End principal portion	15	48	15	15	50	45
End	15	54	00	15	53	24
Maximum amplitude	1.0 mm. at 15 h. 47 m. 38 s.			1.5 mm. at 15 h. 49 m. 44 s.		
Average period of waves:						
Beginning	3.2 s.			3.3 s.		
Beg. prin. portion	3.4			8.9		
Maximum	3.2			8.9		

5. January 27:

Beginning	5 h.	19 m.	00 s.	5 h.	19 m.	17 s.
Beginning principal portion	5	21	58	5	21	52
End principal portion	5	27	08	5	29	02
End	5	43	00	5	51	27
Maximum amplitude	1.4 mm. at 5 h. 26 m. 58 s.			2.2 mm. at 5 h. 27 m. 02 s.		
Average period of waves:						
Beginning	25.1 s.			26.0 s.		
Principal portion	19.0			16.2		
Maximum	16.8			17.9		
End	13.6			16.0		

6. January 31:

Beginning	10 h.	43 m.	44 s.	10 h.	43 m.	33 s.
Beginning principal portion	10	50	23	10	49	43
End principal portion	11	16	23	11	17	06
End	14	08	00	14	18	00
Maximum amplitude[2]	77 mm. at 11 h. 02 m. 43 s.			66 mm. at 11 h. 07 m. 46 s.		
Average period of waves:						
Beginning	3.6 s.			2.8 s.		
Principal portion	25.2			18.0		
End	18.5			18.0		

Multiplying ratio of both pointers, 10.

Period of north-south component pendulum about 25 seconds, of east-west component pendulum about 20 seconds.

W. F. WALLIS,
Observer in charge.

ANALYSIS OF MISSISSIPPI RIVER SILT.

ON October 13, 1905, there appeared in SCIENCE a complete analysis of the water of the Mississippi River, and toward the close of it the author made the statement that the silt from the water sample had been saved and would be subjected to a plant-food analysis at a later date. Such an analysis has now been completed and the results are submitted in this article. The methods followed were the ones officially adopted by the Association of Agricultural Chemists, and the results are expressed in percentages of the moisture-free sample. It is to be regretted that the carbonic acid could not be determined, but the lack of material made it impossible:

Insoluble matter	67.71
Sol. Si. O_2	.22
K_2O	1.26
Na_2O	0.13
CaO	1.83
MgO	1.64
MnO	0.18
$Fe_2O_3Al_2O_3$ (mostly Al)	17.90
P_2O_5	0.25
SO_3	0.28
Water and organic matter	7.00
Total nitrogen	0.15

Some facts in connection with this analysis are of peculiar interest. In the first place the per cent. of soluble matter is large and the greater part of it is Al. This gives some insight into the origin of the silt. Another noteworthy feature is the large amount of potash and its ratio to the soda. While in eastern soils it is usual for the potash to be in excess of the soda, the proportion seems larger than customary. In western soils the soda is generally in excess of the potash, and this would indicate that the silt analyzed originally came from a semi-arid or humid region. However, considering the analysis as a whole, there would be no question about pronouncing this silt to be an excellent soil. All this plant food is being removed from the land and carried either to the sea or to the mouth of the river. For the sake of argument let us assume that the above analysis represents the average composition of the silt carried by the Mississippi during the entire year. This is doubtless not quite true, but will serve as a basis for some calculations. One estimate of the total amount of silt carried by the Mississippi during a year places the figures at 443,750,000 tons. Assuming this to be true, the following table gives in tons the amount of various substances removed in this silt during the year:

seventy-fifth meridian mean civil time, counting the hours continuously from midnight to midnight.

[2] The maximum amplitudes of this earthquake were too large to be recorded. The pendulums struck the brushes on both sides. The amplitudes given were measured on the trace and are probably much too small.

Fe_2O_3 Al_2O_3	79,431,250
MnO	798,750
CaO	8,120,625
MgO	7,277,500
Na_2O	576,875
K_2O	5,591,250
P_2O_5	1,109,375
SO_3	1,142,500
Total N	665,625
Water and organic matter	31,062,500

For most of these substances it is impossible to assign any definite commercial value, but for four of them it is possible to compute the actual cost of restoring them to the soil in the form of fertilizer. In the following table such calculation has been made. It has been assumed that the potash would be bought in the form of K_2SO_4, the phosphoric acid as superphosphate and the N as $NaNO_3$. The figures are of course not absolute, but they convey a good idea of the loss which the land has sustained.

Value of plant food removed in silt by the Mississippi River during one year:

CaO	$ 40,603,125
K_2O	559,125,000
P_2O_5	110,937,500
N	222,984,375

These figures are stupendous and worthy of careful consideration, and when we consider that this same process of denudation of the land is being carried on by all the streams of the country, to a greater or less extent, we gather some faint idea of the loss to agricultural interest from this cause. A systematic study of this question would be of great value, and should it ever be made, it is believed that it will lead in some localities at least to the employment of measures to check, in some degree, this vast pecuniary loss to the country.

C. H. STONE.

QUOTATIONS.

THE ROYAL SOCIETY.

THE Royal Society, like every other association of human beings, has from time to time to provide itself with a new chief magistrate. More fortunate than the larger society of which we are all members it does this at fixed periods and with dispassionate gravity and decorum. Yesterday witnessed one of these recurrent changes, when, at the anniversary meeting, Sir William Huggins surrendered the presidency of the society into the capable hands of Lord Rayleigh. The astronomer, whose labors have done so much to give English astronomical science the distinguished place it occupies in the astronomical opinion of the world, is succeeded by a physicist who, by the breadth and variety of his research, the profundity of his knowledge, and the skill with which he has carried on the interrogation of nature, will rank among the greatest of those who have promoted that increase of natural knowledge which is the fundamental object of the Royal Society. It is worth noting—as Sir Henry Roscoe noted last night—that both men belong to a class of scientific investigators which, if not an exclusively English product, has certainly found more numerous representatives in this country than in any other. That is the class of men who live *for* science, not *by* science—men whose means render them independent of exertion, whose position offers many temptations to inaction, and whose abilities, if turned to remunerative pursuits, would ensure rich rewards of the kind that satisfies vulgar ambition. To men of this class—men who, according to one definition of amateurs, would have to be called amateurs, but who lift the word high above all vulgar connotation and restore its etymological significance—English science owes a debt that is simply incalculable. In that class, already sufficiently illustrious, we must include men like Michael Faraday, denied by fortune the power to give of their wealth to the cause of science, but nobly content to live in the utmost simplicity upon a pittance less than the wages of a skilled artisan, while working out discoveries that have changed the face of the world. It would be an evil day for England were the succession of gifted enthusiasts to come to an end, not only because their work is of a higher and more vivifying kind than that of ordinary men, but also because we are, and apparently are likely for some time to remain, very far