The diagram enables one to find such products as those involved in equation (4), and so a graphic solution of this equation as it stands can be carried out if desired.

Since the radiating lines cut the lines $x = \pm 1$ and $y = 1$ in scales of tangents and cotangents, such products as cot b tan c, if the factors are not too great, can be obtained by first finding cot b in the upper margin of the diagram and then going downward (keeping at a distance cot b from the central line) until meeting the radiating line numbered c. The distance thence to the initial or base line is cot b tan c. The cosine scale of the diagram enables one to find the angle whose cosine is equivalent to cot b tan c. This is the angle A of a spherical triangle right-angled at B. R. A. HARRIS.

ANALYSIS OF THE MISSISSIPPI RIVER.

A SHORT time ago, in conversation with Dr. E. W. Hilgard, of the University of California, I learned, to my great astonishment, that he had been unable to find in any publication a recent and complete analysis of the Mississippi River. Deeming this a serious oversight on the part of chemists at large, a sample was secured for me through the kindness of Mr. J. L. Porter, chemist for the New Orleans City Sewerage and Water Board, and analyzed by me with the greatest of care. The methods employed in the mineral analysis were very similar to those recommended by Professor Bailey, of the Kansas Geological Survey, while the nitrogen determinations were patterned after those made by the Massachusetts State Board of Health.

The sample was taken by J. L. Porter, chemist of the New Orleans City Sewerage and Water Board about noon of May 23, 1905. Location of the sample was opposite Nine Mile point just above Carrollton, in midstream, and about six feet below the surface. Temperature of the water at the time was 23° C. Turbidity was about twice the average for the year. Oxygen was about one hundred per cent. of saturation and the free carbonic acid about three parts per hundred thousand.

The results of the analysis are as follows:

Results of Analysis Expressed in Parts per 100,000.

Total solids (unfiltered)	106.9
Total solids (filtered)	16.75
Loss on ignition (unfiltered)	7.4
Loss on ignition (filtered)	2.75
Si	0.35
Al	0.009
Mn	0.012
Ca	2.95
Mg	0.68
Fe	0.008
K	0.23
Na	1.00
SO_4	2.87
PO_4	0.04
CO_3	0.00
HCO_3	11.04
Cl	1.61
Nitrogen as free ammonia	0.016
Nitrogen as albumenoid ammonia	0.014
Nitrogen as nitrites	0.000
Nitrogen as nitrates	0.023
Oxygen consumed (unfiltered)	1.42
Oxygen consumed (filtered)	0.33
Hardness	10.92
Turbidity	Heavy.
Sediment	Large.
Odor (cold)	Practically none.

Results of Analysis Calculated as Oxides.

SiO_2	0.74
Al_2O_3	0.017
Fe_2O_3	0.011
Mn_3O_4	0.016
CaO	4.12
MgO	1.13
K_2O	0.28
Na_2O	1.35
SO_3	2.39
CO_2	7.96

The silica was rather higher than I expected, being about the same as that found in the Hot Springs of Arkansas by Mr. Haywood. Still, it is not a quarter of that occurring in many of our western streams. The ratio of lime to magnesia is about normal, as is the ratio of Na_2O to K_2O, but the amount of bicarbonate seems unusually large, indicating a large percentage of drainage from the arid lands to the northwest. Sulphates form a rather large per cent. of the total solids, but this also is to be expected when we consider the drainage area from which the river is fed. The nitrates are a little higher than is usual in May, but the free and albumenoid ammonias compare very well with the results obtained by the New Orleans City Sewerage and Water Board. The silt varies very largely from month to month, hence no reliable conclusion can be drawn from any one analysis. This silt was saved and will be subjected to a plant food analysis at a later date.

In conclusion, let me say that this analysis has, to my mind, demonstrated the desirability of a very complete and detailed chemical study, month by month, of the Mississippi River and its tributaries, and I should have undertaken such a study personally had I not learned that it was already planned for by Mr. M. O. Leighton, in charge of the Division of Hydro-economics, U. S. Geological Survey.

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FUNCTIONS OF A TRANSPLANTED KIDNEY.

THE state of the circulation and of the secretion of a transplanted kidney has been observed on an animal operated on in this laboratory. A careful investigation of the literature has revealed no mention of a similar experiment having been performed hitherto.

The kidney of a small-sized dog was extirpated and transplanted into the neck. The renal artery was united to the carotid artery, the renal vein to the external jugular vein and the ureter to the œsophagus. Three days after the operation the neck and the abdomen were opened, in order to study the functions of the transplanted kidney and to compare them with the functions of the normal kidney. The transplanted kidney was found adherent to the muscles, and dissection was necessary to free it. In size it was larger than the normal kidney. Its hue was darker. To the touch the consistency of its tissue was normal, and the pulsations of its artery were as strong as the pulsations of the artery of the normal kidney.

Here is the summary of this observation: *the circulation in the transplanted kidney* was slightly greater than in the normal kidney, as detected by the touch, copiousness of hemorrhage from incision in cortex, and pulse-tracings.

The secretion of urine by the transplanted kidney was about five times more rapid than by the normal one. The intravenous injection of sodium chloride solution caused no change in the rate of secretion in the normal, but markedly increased the rate of the secretion in the transplanted organ.

The composition of urine secreted by the transplanted kidney differed somewhat from that secreted by the normal one. The constituents were similar, but the chlorides appeared to be more abundant in the urine from the transplanted kidney, while the organic sulphates, pigments and urea were more abundant in the urine from the normal organ.

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THE state legislature of Florida during its recent session, April 4 to June 2 of the present year, enacted a measure, commonly known as the 'Buckman Bill' designed by its originators to consolidate and strengthen, and to economize in the running expenses of the educational system of the state. By the provisions of the bill the entire system of higher education, consisting of a state university, a girls' college, and including the normal school for colored students and the institute for the deaf and blind, is under the management of a single board of control of five members appointed by the governor from five sections of the state. By the terms of the bill existing state schools are abolished as follows: The University of Florida, Lake City; Florida State College, Tallahassee; Normal School, DeFuniac Springs; East Florida Seminary, Gainsville; South Florida College, Bartow; Florida Agricultural Institute, Osceola County; and the Normal and Industrial department maintained by the state in the St. Petersburg Normal and Industrial School. To replace these abolished institutions there is created a University of the State of Florida