the Manchester Literary and Philosophical Society, Oct. 7, 1884, p. 5), and later independently advanced by H. Carvill Lewis, be true, a number of diamonds may have been formed in the Kentucky peridotite; but the general paucity of carbon in the rock adjacent to the peridotite is certainly discouraging to the prospector.

The best time to search for gems in that locality is immediately after a heavy rain, when they are most likely to be well exposed upon the surface. It is proposed to keep up the search economically by those most interested, by furnishing to responsible individuals in the vicinity a number of rough diamonds mounted in rings, for comparison, that they may know what to look for under the most favorable circumstances.

J. S. DILLER.
GEO. F. KUNZ.

New York, Sept. 12.

The Classification of Lakes.

SEVERAL years ago I presented to the Boston Society of Natural History a paper on the classification of lake-basins, in which the many varieties of lakes were grouped under three heads, according as they were made by constructive, destructive, or obstructive processes. The first heading included lakes made by mountain-folding and other displacements; the second consisted chiefly of basins of glacial erosion; the third contained the greatest number of varieties, such as lakes held by lava, ice, and drift barriers, delta and ox-bow lakes, and some others. The classification proved satisfactory, in so far as it suggested a systematic arrangement of all kinds of lakes that have been described; but it now appears unsatisfactory, inasmuch as its arrangement is artificial, without reference to the natural relations of lakes to the development of the drainage systems of which they are a part. A more natural classification is here presented in outline.

When a new land rises from below the sea, or when an old land is seized by active mountain-growth, new rivers establish themselves upon the surface in accordance with the slopes presented, and at once set to work at their long task of carrying away all of the mass that stands above sea-level. At first, before the water-ways are well cut, the drainage is commonly imperfect: lakes stand in the undrained depressions. Such lakes are the manifest signs of immaturity in the life of their drainage system. We see examples of them on new land in southern Florida; and on a region lately and actively disturbed in southern Idaho, among the blocks of faulted country described by Russell. But as time passes, the streams fill up the basins and cut down the barriers, and the lakes disappear. A mature river of uninterrupted development has no such immature features remaining. The life of most rivers is, however, so long, that few, if any, complete their original tasks undisturbed. Later mountain-growth may repeatedly obstruct their flow; lakes appear again, and the river is rejuvenated. Lake Lucerne is thus, as Heim has shown, a sign of local rejuvenation in the generally mature Reuss. The head waters of the Missouri have lately advanced from such rejuvenation; visitors to the National Park may see that the Yellowstone has just regained its former steady flow by cutting down a gate through the mountains above Livingston, and so draining the lake that not long ago stood for a time in Paradise Valley. The absence of lakes in the Alleghany Mountains, that was a matter of surprise to Lyell, does not indicate any peculiarity in the growth of the mountains, but only that they and their drainage system are very old.

The disappearance of original and mountain-made lakes is therefore a sign of advancing development in a river. Conversely, the formation of small shallow lakes of quite another character marks adolescence and middle life. During adolescence, when the head-water streams are increasing in number and size, and making rapid conquest of land-waste, the lower trunk-stream may be overloaded with silt, and build up its flood-plain so fast that its smaller tributaries cannot keep pace with it: so the lakes are formed on either side of the Red River of Louisiana, arranged like leaves on a stem; the lower Danube seems to present a similar case. The flood-plains of well-matured streams have so gentle a slope that their channels meander through great curves. When a meander is abandoned for a cut-off, it remains for a time as a crescentic lake. When rivers get on so far as to form large deltas, lakes often collect in the areas of less sedimentation between the divaricating channels. Deltas that are built on land, where the descent of a stream is suddenly lessened and its enclosing valley-slopes disappear, do not often hold lakes on their own surface; for their slope is, although gentle, rather too steep for that: but they commonly enough form a lake by obstructing the stream in whose valley they are built. Tulare Lake in southern California has been explained by Whitney in this way.

The contest for drainage area that goes on between streams heading on the opposite slopes of a divide sometimes produces little lakes. The victorious stream forces the divide to migrate slowly away from its steeper slope, and the stream that is thus robbed of its head waters may have its diminished volume clogged by the fan-deltas of side-branches farther down its valley. Heim has explained the lakes of the Engadine in this way. The Maira has, like an Italian brigand, plundered the Inn of two or more of its upper streams, and the Inn is consequently ponded back at San Moritz and Silvaplana. On the other hand, the victorious stream may by this sort of conquest so greatly enlarge its volume, and thereby so quickly cut down its upper valley, that its lower course will be flooded with gravel and sand, and its weaker side-streams ponded back. No cases of this kind are described, to my knowledge, but they will very likely be found; or we may at least expect them to appear when the northern branches of the Indus cut their way backwards through the innermost range of the Himalaya, and gain possession of the drainage of the plateaus beyond; for then, as the high-level waters find a steep outlet to a low-level discharge, they will carve out cañons the like of which even Dutton has not seen, and the heavy wash of waste will shut in lakes in lateral ravines at many points along the lower valleys.

In its old age, a river settles down to a quiet, easy, steady-going existence. It has overcome the difficulties of its youth, it has corrected the defects that arose from a period of too rapid growth, it has adjusted the contentions along the boundary-lines of its several members, and has established peaceful relations with its neighbors: its lakes disappear, and it flows along channels that meet no ascending slope on their way to the sea.

Certain accidents to which rivers are subject are responsible for many lakes. Accidents of the hot kind, as they may be called for elementary distinction, are seen in lava-flows, which build great dams across valleys: the marshes around the edge of the Snake River lava-sheets seem to be lakes of this sort, verging on extinction: crater lakes are associated with other forms of eruption. Accidents of the cold kind are the glacial invasions: we are perhaps disposed to overrate the general importance of these in the long history of the world, because the last one was so recent, and has left its numerous traces so near the centres of our civilization; but the temporary importance of the last glacial accident in explaining our home geography and our human history can hardly be exaggerated. During the presence of the ice, especially during its retreat, short-lived lakes were common about its margin. Claypole has just described the extinct 'Lake Cuyahoga' in Ohio as of this kind. We owe many prairies to such lakes. The rivers running from the ice-front, overloaded with sand and silt, filled up their valleys and ponded back their non-glacial side-streams; their shore-lines have been briefly described in Ohio and Wisconsin, but the lakes themselves were drained when their flood-plain barriers were terraced; they form an extinct species, closely allied to the existing Danube and Red River type. As the ice-sheet melts away, it discloses a surface on which the drift has been so irregularly accumulated that the new drainage is everywhere embarrassed, and lakes are for a time very numerous. Moreover, the erosion accomplished by the ice, especially near the centres of glaciation, must be held responsible for many, though by no means for most, of these lakes. Canada is the American type, and Finland the European, of land-surface in this condition. The drainage is seen to be very immature, but the immaturity is not at all of the kind that characterized the first settlement of rivers on these old lands: it is a case, not of rejuvenation, but of regeneration; the icy baptism of the lands has converted their streams to a new spirit of lacustrine hesitation unknown before. We cannot, however, expect the conversion to last very long: there is already apparent a backsliding to the earlier faith of steady flow, to which undisturbed rivers adhere closely throughout their life.

Water-surface is, for the needs of man, so unlike land-surface, that it is natural enough to include all water-basins under the single geographic term, 'lakes.' Wherever they occur, — in narrow mountain-valleys or on broad, level plains; on divides or on deltas; in solid rock or in alluvium, — they are all given one name. But if we in imagination lengthen our life so that we witness the growth of a river-system as we now watch the growth of plants, we must then as readily perceive and as little confuse the several physiographic kinds of lakes as we now distinguish the cotyledons, the leaves, the galls, and the flowers, of a quickly growing annual that produces all these forms in appropriate order and position in the brief course of a single summer. W. M. DAVIS.

Cambridge, Mass., Sept 7.

Corruption of American Geographic Names.

MR. MURDOCK'S friendly criticism and confirmatory note on the pronunciation of 'Arkansas,' in the last *Science*, is gratifying from the fact that it will help disseminate a proper understanding of that word. But 'Arkansas' is only one of hundreds of geographic names which have been corrupted under our very noses, so to speak, and I believe it behooves all educators to assist in their correction. In the West we have many classes of descriptive geographic names, — first, words in the Indian language, which the Spanish, French, or English (and sometimes all) have endeavored to represent phonetically in their own language, such as 'Ouachita,' 'Washita,' 'Wichita,' etc., all derived from the name of a tribe of Indians first noted by La Salle, and which has now been applied in its modifications to six rivers (not including creeks) in Indian Territory, Arkansas, and Texas, two mountain areas, and innumerable political divisions, such as counties, post-offices, etc.; second, descriptive names. To the credit of the Spaniards, it must be said that they seldom adopted Indian names, but gave either descriptive names, such as 'Sabinas,' 'Ulmas,' 'Puercos,' 'Colorado,' often of the forest-growth and character of sediment of rivers; or religious names, such as 'Corpus Christi,' 'Vera Cruz;' or sometimes a combination of both, such as 'Sangre de Cristo' Mountains.

Most of our American names in the West, and especially the South-west, are simply abominable. They are either corruptions of the French, Indian, or Spanish, or indefinite appellatives, often of lewd and repulsive meaning. This is especially true of the names given by my fellow-southerners, as they followed the law of migrations along degrees of latitude. In central and western Texas there is another corruption which is more misleading than that of mispronunciation or misspelling. The generic topographic terms are all erroneously used for the subgeneric, such as 'river' for 'creek' (or what can only be properly expressed by the Spanish *arroyo*), and 'mountain,' 'peak,' etc., for 'knolls,' 'buttes,' or 'mesas.' For instance: while there is not a true mountain in Texas east of the Pecos River, there are no less than a dozen 'Round Mountains,' 'Pilot Peaks,' 'Comanche Peaks,' 'Hog and Packsaddle Mountains,' etc., in central Texas, none of which in any way are entitled to the dignity of the terms, and which can only be described as buttes and mesas of secondary proportions. The creeks and rivers are either 'Hog' creeks, 'Muddy,' 'Snake,' 'Buffalo,' 'Dry,' 'Indian,' or 'Post Oaks.'

Not only have these corruptions been going on in the past, but they are being perpetrated at present, and our government publications are innocently the chief instruments in so doing. A remarkable instance came under my observation two years ago. While sitting upon the stone that marks the north-west corner of the State of Kansas, examining some geological specimens, and conversing with Texan cowboy friends who had 'wintered' near there a year or two, I inquired the nearest post-office. One of them informed me that a [tent] village had just been established a few miles distant, and that its name was 'Bueno.' This word, from my past experience on the Texan frontier, I knew to constitute nine tenths of the cow-boy's knowledge of pigeon Spanish (the other tenth being 'cuss' words), and that it had been imported from the Rio Grande by him into Kansas, and that the 'short-horns' (the cowboys' term of inferiority for the Kansas settler) had been fascinated by it, and applied it to their new town. A capital idea, I thought, until I looked up the name of the town in the latest post-office guide, when, to my horror, I found my pet Spanish word 'bueno' anglicized into 'Wano.' The other instance of governmental perpetration is on the topographic maps of both the Post-Office and War Departments, and Geological and Coast Surveys, where these dry creeks continue to appear as rivers, and buttes as mountains, etc.

Since my arrival in Arkansas, I have been delighted to find numerous minor French geographic names which have not been corrupted, such as 'L'Eau Frais,' 'Terre Noir,' 'Antoine,' and other streams; and from the oldest Anglo-American inhabitants I learn that nearly every geographic feature of southern Arkansas was named, not by French missionaries, but by the trappers and *voyageurs*, who had traded with the Indians for a hundred years or more, and who dominated here almost until the State was admitted to the Union (1836). Many descendants of these old French pioneers inhabit south-eastern Arkansas, and it is a source of gratification that the Anglo-American settlers here, however illiterate, pronounce the names with approximate correctness, even if their attempts at spelling them are oftentimes ridiculous. ROB'T T. HILL.

Ouachita River, Ark., Sept. 8.

Romantic Love and Personal Beauty.

THE latest contribution to the theory of evolution is the attempt of Mr. Finck to show that the phase of human character known as romantic (pre-nuptial) love is strictly modern, having developed within the last 1,000 years. The book in which the argument is set forth, recently reviewed in this magazine, is a remarkable combination, which one hardly knows whether to accept as a joke or in earnest. In this one work we find a scientific discussion of love as found in plants and animals, theories as to its origin and import; we find many surprising statements concerning modern society, such as that there can never be too much of flirtation, since it is one of the most valuable discoveries of the English people; that beauty in children is dependent upon the pre-nuptial love of their parents; we find directions to the maiden how to win her lover, directions to the love-sick swain as to his cure, directions to the lover how to kiss, etc.; the whole making such a curious combination that we hardly know whether to set the book aside with a laugh, or to regard it as an important contribution to knowledge. The latter feeling, however, predominates. The fundamental proposition of the discussion, viz., the strictly modern nature of romantic love, is one of great importance, giving as it does entirely new thoughts upon certain phases of modern life. It certainly merits the discussion given it, as well as the further discussion which is sure to follow the study of Mr. Finck's argument.

One cannot read this discussion of romantic love without acknowledging that Mr. Finck has made out a very strong case. The facts which are brought out plainly show that there has been a gradual but great change in the pre-nuptial relations of the sexes, and as a result a great change in the sentiments which precede marriage. A romantic love, which was curbed and repressed by the customs of ancient nations, has, under the influence of modern society, expanded into a greatly exaggerated form, until now it is the theme of about all novels, plays, and poems, occupies largely the thoughts of all young people, and is perhaps the most powerful lever for influencing the lives of mankind. But while we may go thus far with the theory, and recognize that ancient life and literature had very little of love, though modern life and literature are full of it, and that it is only modern society that recognizes the desirability of love-matches, the interpretations which may be drawn from the facts are varied. Mr. Finck interprets these facts as representing the development of a new factor in man's nature, and one which was not and could not have been present in earlier periods of history. It is at least questionable whether this interpretation be the true one.

The author is doubtless right in pointing out the impossibility of any feeling akin to the higher phases of love in the lower races of men. Romantic love is a feeling of high sensitiveness, and only those with highly developed sensibilities can experience it in its fullest degree. Indeed, the bulk of civilized people to-day are not capable of having very lofty experiences in this line. The love which Mr. Finck is writing about is largely ideal rather than actual. It belongs to emotional poets rather than to the common people.