misery till the time comes for their despatch to meet the requirements of the London season, which coincides with the natural nesting time. The French government for some years prohibited the transit of quails through France in the close season, but as this simply led to their being sent through Germany and Belgium the prohibition has been removed, notwithstanding the protests of the Union des Sociétés des Chasses. Millions of small birds called 'larks,' though they include every variety, and especially robbins, killed largely during the breeding season, are also annually exported to England, and it is feared that they will be entirely exterminated in Italy.

UNIVERSITY AND EDUCATIONAL NEWS.

A LARGE majority of the professors of Brown University have signed an open letter addressing to the corporation a protest against attempting to curtail the freedom of speech of the President. The letter gives a straightforward expression to the views which university professors should unite in maintaining and removes from Brown University the stigma put by the corporation in claiming that they can control the freedom of speech of its faculty. President Andrews, however, in accepting the presidency of a magazine 'university' confuses the friends of academic freedom.

THE London University Commission bill has been postponed by the government until next year.

IT is reported in the daily papers that Mr. Washington Corrington, of Peoria, Ill., now eighty-five years old, has appointed trustees to have control of his property, to be used after his death to found a university at Peoria. His property is estimated at over $1,000,000.

THE Bradley Polytechnic Institute, of Peoria, will be dedicated on October 8th, the principal address being made by the Secretary of the Treasury, Hon. Lyman J. Gage.

THE trustees of the University of Illinois have decided to admit women to the College of Physicians, Chicago.

AT a recent meeting of the Council of the University of Paris it was resolved that, as soon as financial resources permitted, the following courses should be added: Experimental physiology, objective psychology and astronomical physics, and additional courses in paleontology and histology.

IT is intended that the name of Croom Robertson, late Grote professor in University College, London, to whom psychology in England is greatly indebted, shall be connected in some way with the new psychological laboratory established at University College. The principal contributors to the fund are Mr. Haldane, Q. C., Mr. A. J. Balfour, Professor H. Sidgwick, Mr. F. Galton, Dr. Savage, Sir John Lubbock and Mr. Shadworth Hodgson.

THE London *Times* reports that at Dewsbury, after the funeral of Dr. Hinchliffe, it was announced that the deceased, after providing for his housekeeper and servants, had bequeathed property and shares, with about £50,000, toward higher education, but the purposes of the bequest are not stated.

DR. H. V. NEAL, Harvard University, has been elected professor of biology at Knox College, Galesburg, Ill.

M. IZOULET has been appointed to the newly established professorship of social philosophy in the Collège de France.

MR. W. W. WATTS, Assistant Geologist at the British Geological Survey, has been appointed assistant professor of geology at Mason College, Birmingham.

DR. HERMANN THOMES, docent in pharmaceutical chemistry in the University of Berlin, has been promoted to a professorship. Professor George Ruge, of Amsterdam, has been appointed professor of anatomy and director of the Anatomical Institute at Zurich. Dr. Ossan, associate professor of mineralogy at Heidelberg, has been called to a chair in the School of Chemistry at Mühlhausen.

DISCUSSION AND CORRESPONDENCE.

THE ANTECEDENT COLORADO.

TO THE EDITOR OF SCIENCE: In addition to the doubts brought forward by Davis (SCIENCE,

April 23, 1897) and Emmons (SCIENCE, July 2d), as to the antecedent origin of the Green river in its passage through the Uinta mountains, I would suggest an independent and confirmatory argument for the consequent origin of the Green-Colorado in its passage across the plateaus of the Grand Canyon region, where it has been regarded as antecedent by Powell and Dutton. My argument is based on the curvature of the river and especially on its meanders. The meanders are surprising in themselves from the steepness of the river and their deep incision; yet more surprising is the location of strong meander reaches just up stream from structural displacements. It is the latter relation that I wish to point out.

In general, a river meanders when its declivity is low. The Mississippi below Memphis falls less than five inches to the mile and has a typical meandering course (See Table of Meanders). Yet the Colorado, falling more than seven feet per mile in the Canyon region, has stretches of even greater sinuosity and the distribution of these winding reaches suggests that the river is not antecedent, but dependent on the dislocations for its path.

The following table shows the rate of meander for measured stretches of the river, the rate being expressed in miles of actual stream to 100 miles along a mean course traced evenly through the meanders, without departing more than a mile from the water at any point. In the first column is the name given by Powell to the stretches of river, in the second the miles of mean course, in the third the actual course, while the fourth contains the rate of meander:

1	2	3	4
Desolation and Gray Canyons—			
Uinta R. to Book Cliffs, ...	76	113	149
Gunnison's Valley—to San Rafael R	30	35	117
Labyrinth Canyon—to Grand R . .	51	93	182
Cataract Canyon — to N 37°37′, W 110°38′	77	81	105
Glen Canyon and above—to Paria R	88	139	158
Marble and Grand Canyons — to Grand Wash	259½	280	108
Thence to California boundary. . .	139	145	104
Mississippi — Memphis to Baton Rouge			155

The 139 miles of strong meander above the Paria River bring the Colorado down to the East Kaibab monocline, where the course turns to the south to avoid the uplifted Kaibab plateau, just as the Green turns east on reaching the Uintas. This is best seen on the United States Relief Map, where the darker color is within the river's elbow at the Uinta and against the Kaibab.

At the monocline the river is deviated. In Glen Canyon above the monocline the meandering is greater than the Mississippi's. Below the meandering is reduced to a minimum.

The conclusion is irresistible that the Kaibab uplift introduced a local baselevel (Powell's phrase) that compelled the river to meander on a flat open course until the obstacle gave passage to one side.

Less than a hundred miles further north in the Cataract Canyon, near the junction of the Green and Grand, the river's course is straight (meander rate, 105). Next above this is the very sinuous Labyrinth Canyon (rate, 182). The geological map here shows a dome with Permian and Carboniferous brought to the surface, a part probably of the San Rafael disturbance. Through the dome the course is in the straight Cataract Canyon; the Labyrinth Canyon is the northern approach.

Is the analogy here to the Kaibab and Glen Canyon casual?

Gunnison's valley is instructive. It has little meander and no uplift. Dutton reports it to be the only open valley on the river besides Brown's Park, and attributes this character to the softness of strata that weather back too rapidly to stand in canyon walls. In this case surface meanders would be lost here, as the the valley would straighten as it widened under erosion.

To the north the meandering is again great. At the time the river took to meandering it may well have had such a course from the Uintas to the dome, preserved to us where the rocks were hard and the river now runs in canyons, but lost in the softer strata. North of the Uintas I have no map, but this stretch of Gunnison's suggests that meanders would not be preserved in the soft rocks of the Bad Lands.

In this connection I would call attention to a striking feature of the Grand Canyon faults, as described by Dutton in his monograph. He says the ends of the down-thrown strata are commonly turned *down* in this region, the beds on the other side coming undisturbed to the fault. This is specifically described for the West Kaibab and Hurricane faults, both with up-throw to east.

The phenomenon of the down-turned edges is puzzling, but it might result from the following history. All the steps assumed to follow in succession are found in the region to-day:

1. Western beds flexed up, giving a western high level passing through a monocline to an eastern low level.

2. Flexure becomes a fault at the foot (east end) of the monocline, giving western high level passing down a monocline to an east-facing fault cliff, below which lie the horizontal beds of the undisturbed side.

3. Reversal of fault, giving upthrow on east and the structure existing to-day—low level on west passing to a west-facing fault cliff by a down-turn (monocline perhaps partly obliterated by friction during the reversal).

In confirmation is the fact that both faults are greatest in the north and steadily diminish southward, the Hurricane having at the river less than a sixth of its northern value, while the West Kaibab disappears just where it crosses the chasm. Dutton thinks it reappears to the south of the canyon, but *reversed*, giving an east-facing cliff. So if the observation of Dutton is good, reversal of fault has occurred in one case and there is a suggestion of it in the other. Now the significance of this fault history is that the river seems conscious of something of the sort. It turns south on the second V of the Grand Canyon at the Hurricane fault, as if to avoid the early western uplift, now recorded only in the down-turned strata-ends; while at the Kaibal the reversal-point has been selected by the river to return northward from the deviation about the uplift here. The peculiar grouping of meanders is readily seen on the map, as also the relation of bends in the river to the displacements at the Uinta, junction of Grand and Green, Kaibab (East and West), and Hurricane.

In explaining these latter events as represented in effect on the present river, I have founded my suggestion on that simple and diagrammatic character that Powell and Dutton have described in this region.

Are not these additional grounds for questioning the Colorado's antecedence?

MARK S. W. JEFFERSON.

GILMANTON, N. H.

AMPHIBIA OR BATRACHIA.

TO THE EDITOR OF SCIENCE: As a teacher of zoology, but without claim to expert authority upon taxonomic points, I read the article of Dr. Baur under the above title (SCIENCE, July 30, 1897, 170–174), with the hope and expectation of being able to decide which name to employ hereafter. I regret to confess myself still unconvinced. Dr. Baur shows that the French word *Batraciens* was applied to the frogs, toads and salamanders by Brogniart in 1799, and that the Latin forms *Batrachii* and *Batrachia* were not introduced until 1804 and 1807, by Latreille and Gravenhorst respectively. But does not Dr. Baur lay undue stress upon the distinction between the French and the Latin form. *Batraciens* is not (like *crapaud*, etc.) a vernacular word; it is the French form, or Galloparonym, of the Latin *Batrachia*, and the employment of the former would seem to constructively sanction the use of the latter. In anatomy the employment of either of the national forms, *hippocamp*, *Hippokamp*, *hippocampe*, or *hippocampo*, would be tantamount to the introduction of the international form, *hippocampus*. The principle involved in both cases has been formulated by me in two passages in my 'Neural Terms, International and National (*Jour. Comp. Neurology*, VI., 274, 329), as follows: "The introduction of any derivative, oblique case, or national paronym, practically renders the introducer responsible for the actual or potential Latin antecedent of such words, in accordance with the usual rules of derivation and paronymy." I trust the discussion may continue until all doubts are removed. The case is the more urgent in view of the confusion of students in finding not merely that *Amphibia* and *Batrachia* are synonyms for the entire class,