External processes are grouped under ground water, weathering, sliding, rivers, glaciers, winds, waves and sedimentation. Forms are classified under those of the sea and of the lands; the latter being plains, escarpments, mountains, valleys, dissected regions (thallandschaften), basins, caverns, and the large forms of the land surface (mountains, plateaus, depressions). The terse style of the book shows that its author expects those who use it to be competent teachers and faithful students. Its readers may be confident of trustworthy statements and explanations; but in the third part, with which these notes are particularly concerned, there is less consideration of the genetic correlation of parts than would be welcomed by many.

THE AGE OF VALLEYS.

THE age of a valley is a measure of its stage of development. It may be steep sided and young; it may half open or mature; it may be wide open or old. At any stage in its development it may be submerged and buried, and thus preserved until some future time when it is again revealed by weathering, like any other fossil. In this sense the valley, whether young or old, may be dated as geologically ancient or modern. Thus there were mature valleys in ancient times among the St. Francis mountains of crystalline rocks in southeastern Missouri. They are still hardly more than mature, for through nearly all Paleozoic, Mesozoic and Cenozoic time they have been buried; they have only in comparatively recent time come to light again, as their relatively weak sedimentary cover has weathered off. But in another sense these mature valleys are modern, for they have been re-excavated in late post-Tertiary time. When the ancient and modern valleys coincide there may be confusion if they are briefly described as 'of very ancient origin,' and this confusion appears to enter in the paragraph given to the deep canyons of Labrador, in Adams' review of Low's report in a recent number of SCIENCE (Nov. 13, 741). The implication here, as in the original report, is that the valleys have been valleys ever since the time of their ancient origin. The probability is very great that during most of the intervening time they have been buried, and that however ancient was their initial excavation their present re-excavation is relatively modern.

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CURRENT NOTES ON ANTHROPOLOGY.

THE QUESTION OF VARIATION.

Two recent essays on variation as applied to man may be mentioned together, although they treat the subject from different points of view. The one is by Professor Virchow, in the Proceedings of the Berlin Academy of Sciences for 1896. He describes the difference between diathesis, *Anlage* and variation, the former being the permanent, the latter the changing factor of the organism. He points out the important fact that progressive variation may arise from pathological inceptions. While his article has the greater bearing on questions of medical science, it has valuable application in anthropology.

The second article is by Professor Mahoudeau in the *Revue* of the Paris School of Anthropology for July of this year. It is taken up principally with pointing out the exact meaning of variation or transformation in organic life as laid down by Lamarck. The quotations show that he distinctly taught the descent of man from lower forms of life. In these respects he is claimed to have anticipated the most modern doctrines in his celebrated work, first published three quarters of a century ago.

THE CITY OF OMITLAN.

A YEAR or so ago the newspapers mentioned the discovery of a ruined city in western Mexico by Mr. William Nivens. Since then collections have been brought to New York City, and ample means thus furnished to judge of its characteristics. In the *Bulletin* of the American Geographical Society for July of this year, Mr. Nivens has a short article on the subject. The ruins are very extensive and indicate a skill in stone work above that of many tribes, but decidedly inferior to that of the best Aztec civilzation. His article speaks of a tablet with hieroglyphic characters, but examples of such are extremely rare, and perhaps of doubtful origin. The stones are, as a rule, not dressed with skill and the structures were not lofty. From all this we may conclude that we have in these extensive remains the relics of an inferior, subordinate culture-center of Aztec civilization; but this, of course, does not in any way diminish the interest which attaches to Mr. Nivens' explorations.

THE CAVE OF LOLTUN.

LOLTUN is the name of a remarkable cavern in Yucatan. The Peabody Museum of Archæology has just published a report of its exploration by Mr. Edward H. Thompson, in 1890–91. It is unfortunate for Mr. Thompson that the Museum waited six years to print his interesting account, as in the meanwhile another expedition, led by Mr. H. C. Mercer, of the University of Pennsylvania, carefully explored and promptly printed a full description of it in 1896. Boards of publication should be aware that the world gives credit not to him who first investigates, but to him whose investigations are first placed for use before students.

The report is well printed with attractive illustrations. The excavations were carefully made and confirm the opinion advanced by the later expedition that those who entered or dwelt in the cave belonged to the same race and people, and possessed the same culture, as those who built the great stone structures on the surface near them. Neither here nor elsewhere in the Yucatan caves did Mr. Thompson discover any signs of a distinctively 'cave people,' or of an earlier, ruder civilzation.

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NOTES ON INORGANIC CHEMISTRY.

To Berthelot's researches we owe very much of our knowledge of the chemistry and technology of the ancients. In the last *Comptes Rendus* he recounts his examination of glass mirrors found near Reims, dating from the third and fourth centuries. The glass was coated with a metal and also a whitish layer. The metal proved to be lead, with no trace of gold, silver, copper, tin, antimony or mercury, nor was there any organic substance present, showing that no extraneous material was used to cement the lead to the glass. The mirrors appeared to have been cut from hollow blown glass globes, and it is probable that, before being cut, the molten lead had been poured into the interior, adhering to the previously warmed glass. The whitish layer consisted of lead carbonate and lead oxid formed by the oxidation of the lead coating, and calcium carbonate, which had been deposited from the water of the vicinity. A similar method of coating glass with lead was known in the thirteenth century. In the same find were fragments of glass showing the lustre of gold and of silver; these metals were not present, but the color was due partly to the lamellation of the glass and partly to a very thin layer of calcium carbonate which had been deposited on them.

IN the *Chemiker Zeitung* Léon Franck describes experiments with the every-day use of spoons, forks and vessels of aluminum.