the Bachelor of Arts in medicine, preparatory to two years of strictly professional work with the degree of Doctor of Medicine.

When such training as this is demanded of all aspirants to professional practice we shall have uniformly well educated men in the professions, and not until then.

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Current Notes on Physiography.

The Region about Lakes Tanganyika and Nyassa.

The origin by down-faulting of the linear depression holding Lake Tanganyika has been advocated by Suess in 'Das Antlitz der Erde,' and popularized by Gregory in his book on the 'Great Rift Valley.' An article by J. E. S. Moore on the Physiographical Features of the Nyasa and Tanganyika Districts (London Geogr. Journ., X., 1897, 289–300) gives additional notes of value. The south end of Tanganyika is enclosed on the west by a 2,000-foot sandstone escarpment, whence the plateau country slopes gradually westward to the shallow basin of Lake Bangweolo, whose waters are only ten or twelve feet deep; the plateau being broken by mountains of granite and gneiss which rise like islands above a sea. East of southern Tanganyika the country rises gradually; hence this part of the lake basin seems to lie in the depression between two tilted fault blocks, rather than in a *graben*. Passing southeast, the north end of Nyasa is found to lie between sandstone escarpments on either side, the enclosing uplands consisting of an uneven crystalline foundation whose depressions are occupied by sandstones and conglomerates like those around Tanganyika; this part of Nyassa is, therefore, regarded as a down-faulted rift. But going on to the south end of the lake and to its extension in Lake Shirwa, Moore finds nothing suggestive of great faults or rift valleys. Lofty granitic masses, with axes about north and south, enclose wide areas of waste slopes and alluvial flats, whose central depressions are occupied by malarial swamps and shallow lakes. The outflow by Shire river descends to lower plains through the Murchison cataracts.

It does not seem to be fully proved that the depressions between the granitic ranges were not produced by dislocations, although it is true that, in the absence of the heavy sandstones, faulting is not easily demonstrated. It may also be questioned whether the existence of the depressions 'now more or less completely filled up with decomposed granite and gneiss annually swept down into them from the hills by the prolonged tropical rain' prove that they 'have undoubtedly at one time been covered by water.' It may be added that the rains are not, properly speaking, 'tropical;' Dove having advisedly limited that term to the rains produced where the trade winds ascend mountainous slopes; the rains here are subequatorial, dependent not on the trade winds, but on the annual migration of the meteorological equator from the geographical equator.

Brückner's Erdrinde und ihre Formen.

The fifth edition of the standard Allgemeine Erdkunde, originally by Hann, Hochstetter and Pokorny, has for its second part a volume of 368 large pages on 'Die feste Erdrinde und ihre Formen,' by Professor E. Brückner, of Berne. It is a thorough and comprehensive work, but in its inclusion of Geology it illustrates how far Erdkunde departs from its supposed English equivalent, Geography. A quarter of the book is given to geology, including petrography, structure and stratigraphy half of the pages treat of the processes that determine surface form, and the remainder are devoted to the forms themselves. Internal processes produce volcanoes, earthquakes, shore changes and deformations.

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.