

logical Departments, etc. In some states where these institutions have merged into or connected themselves with State Universities, many more departments are present. The institutions there have a larger significance, and instead of terming the various lines of work as departments, they are designated as Colleges. Cornell University, for example, is made up of the Colleges of Agriculture, Law, Medicine, Engineering, etc. Each college goes to make up the university and each department goes to make up a college.

There seems to have been a tendency in the evolution of the Colleges of Law, Medicine, Engineering, etc., to recognize the fact that to have just one chair, designated as that of law, medicine or engineering, was to all purposes of reasoning ambiguous. The titles of professor of law, professor of medicine or professor of engineering therefore are not commonly used. In most cases the title designates explicitly the particular department, as, in law, professor of equity jurisprudence and law of real property, professor of commercial law, etc., in medicine, professor of clinical medicine, professor of dermatology, etc., in engineering, professor of mechanical, electrical, civil, marine, mining, etc., engineering.

The School or College of Agriculture seems to be alone in not having abandoned a custom long since recognized by others as obsolete. The title of 'professor of agriculture' is not explicit enough. Where in years past one man taught everything of economic importance in regard to plants and animals, to-day there are a number of well-defined departments. Instead of the professor of agriculture, we have the professor of agronomy, soil physics, animal industry, horticulture, forestry, etc.

In the modern institution, as in the University of Illinois, we find no professor of agriculture and it is readily seen that there is little need for such. It is believed that, in the future, when the fact of its misapplication is thoroughly understood, this custom, now so common, will go out of use.

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THE NEW HAMPSHIRE COLLEGE,
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THE WASHINGTON MEMORIAL INSTITUTION AND
A NATIONAL UNIVERSITY.

THE article by the Hon. John W. Hoyt, chairman of the National University Committee, published in the issue of SCIENCE for last week, may properly be the subject of a few words of comment from one who would welcome the establishment of a University of the United States and who at the same time regards the Washington Memorial Institution as the most important movement in this direction that is feasible at the present time. I am the more inclined to make these comments because Dr. Hoyt quotes from an article written by me four or five years ago without, as it seems to me, giving its full intention. I am quoted, for example, as remarking that 'all the arguments which have been urged against the establishment of a national university turn out to be in its favor.' The passage from which these words are taken reads as follows :

From a theoretical point of view it would seem that all the arguments which have been urged against the establishment of a national university turn out to be in its favor. The cost, the incompetence of government and the claim that existing universities suffice are, however, practical difficulties which we do not underestimate. Indeed, these are so evident that we should regard it as useless to advocate the immediate establishment of a great national university. We rather hope for a gradual growth from the national institutions already existing at Washington. We have there great libraries, museums and laboratories, able investigators engaged in advancing pure and applied science, and younger men learning from them the methods of research. These are the essentials of a university.

The establishment of the Washington Memorial Institution seems to be a most happy compromise between those who oppose and those who advocate the immediate establishment of a national university. Dr. Hoyt in criticising this institution probably does not represent the majority of the committee of which he is chairman. President Harper was chairman of the committee of the National Council of Education which endorsed the institution, and he doubtless regards it as the beginning of a national university. Other members of the committee may wish to confine the functions of the institution to those at present outlined, but time and the course of events will, in my opinion, prove irresistible forces. The best and

most stable results are usually secured through gradual evolution, and the Washington Memorial Institution can grow as rapidly as circumstances permit. Should there be a congressional cataclysm in favor of a national university, a foundation will be at hand which will obviate the necessity of erecting castles in the air.

The action of the National Council of Education in somewhat brusquely setting aside the report of its committee, and that of the National Educational Association in affirming its position in favor of a national university, certainly represent a strong trend of opinion. More especially are the representatives of the great State universities in favor of a national university, and these universities are the allies of the future. We are in the midst of conditions that have not existed elsewhere or heretofore. Our privately endowed colleges and universities originated largely in sectarian enthusiasm, and are still in large measure supported by adherents of special religious denominations. The unexampled gifts of rich men for public education have undoubtedly tended to maintain the stability of society and have bridged over the interval required for the people to learn the importance of higher education for the common good. But we shall not always depend on the charity of the rich, nor will our universities always be administered by business men. Pennsylvania, Johns Hopkins and Cornell are turning to the State for help; Harvard, Yale and Columbia must do the same if their prestige is to be maintained.

The obvious outcome of democratic institutions is the support of education by the people. We have district schools, city colleges and state universities. We shall have a University of the United States. It may come suddenly, but it is far more likely to result from the gradual development of the Washington Memorial Institution.

J. McKEEN CATTELL.

SHORTER ARTICLES.

SOME OBSERVATIONS BEARING ON THE PROBABLE SUBSIDENCE DURING RECENT GEOLOGICAL TIMES OF THE ISLAND OF SANTA CATALINA OFF THE COAST OF SOUTHERN CALIFORNIA.

IN the course of the dredging operations carried on along the coast of southern California

by the Zoological Department of the University of California, during the past summer, observations were made incidentally of such obvious geological interest that I feel justified in going outside my own province to record them.

While dredging in forty-five fathoms about three-quarters of a mile off Long Point, on the north side of Santa Catalina Island, the dredge brought up large numbers of cobble stones varying in size from a sparrow's egg to a man's head. Most of them were very smooth and round, though they were covered by a thick coating of encrusting bryozoa, worm tubes, ascidians, chitens, sponges, etc., showing them to have remained undisturbed for a long period.

They were entirely similar in material and shape and size to the cobbles composing the shingle of many of the little beaches on different parts of the island, *e. g.*, that at Avalon near by.

That they came from a submerged beach was a suggestion so obvious as not to escape any of those on board the launch, in spite of the fact that there was not a geologist among us, and hence no one greatly familiar with the geological history of the region, and consequently prepared to put such an interpretation on what we saw.

When, however, we came to consider the matter in the light of facts of a wholly different character well known to geologists, and understood by them to testify that the island has been sinking beneath the waters of the Pacific in recent geological time, there would seem to be little doubt that at no very remote date in the past, geologically speaking, the *shore line of the island at the point from which these stones were taken was from three-quarters of a mile to a mile out to sea from its present position.*

The subject is so interesting as to make it worth while to present in outline the evidence from other sources tending to show that a subsidence of the island *has* taken place even if it is not still in progress.

It is now generally admitted among geologists, I believe, that San Pedro Hill on the mainland has emerged from the sea and been elevated to its present height, 1475 feet, since Post-Pliocene times. The hill, particularly on its seaward slope, is laid off into a succession