cal text-book and note page after page of problems, all of which are to be worked out by a common formula; why not introduce a lot of simple problems to be found in both the biological and the physical sciences for a practical application as one drills in the mathematical technique?

In an article "Science is Mobilised for War," Sir William Bragg[4] says, "The rate at which some scientific war problems are being solved is almost incredible; more advance is being made in a year than in ten years of peace, I suppose because everybody is keyed up and throwing all his energy into the job in hand. One can not help thinking, 'Why not do the same in peace time?' If the same team work could be put into tackling disease, smoky and ugly cities, better use of the land, improvement of our industries, and so on, there is no doubt that problems which have been bogeys for generations would disappear in a few years."

This seems to the writer to be a clear statement that science progresses most rapidly when it is put to practical and definite ends. Unfortunate it is that science must be put to practical uses of war, for Sir William closes with this high aspiration; "Scientists are doing their best to help the country in wartime. You may imagine with what enthusiasm they would join in a similar nationwide effort in times of peace, and how much more congenial to them their share in it would be."

Long ago Bacon wrote, "We advise all men to think of the true ends of knowledge, and that they endeavor not after it for curiosity, contention, or the sake of despising others, nor yet for reputation or power or any other such inferior consideration, but solely for the occasion and uses of life." Can any one imagine any other basis upon which the study of physics can be justified than for the occasions and uses of life?

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PETROGLYPHS AS CRITERIA FOR SLOPE STABILITY

NEAR the western end of the Finlay Mountains, in Hudspeth County, Texas, is a large Indian campsite remarkable for its petroglyphs. This site extends for 850 feet along the scarp-slope and base of a cuesta made of strata belonging to the Cox (Cretaceous) formation.

The slope on which the site is situated has an average inclination of 20°. It is developed across layers of shale and thin-bedded limestone. At the top is a cliff 30 feet high upheld by a massive stratum of sandstone. Joint blocks fallen from the cliff bestrew the slope below, covering perhaps 80 per cent. of its surface. The slope distance from the base of the cliff to the base of the slope is 450 feet.

Many of the joint blocks on the slope exceed 20 feet in length and 10 feet in width. They lie at all angles, forming natural shelters under their projecting margins. It is evident that retreat of the cliff has proceeded largely by the detachment of sandstone joint blocks, which have slid or rolled down the slope below. Looking at the boulder-covered slope, one gets the impression that this retreat must be proceeding rapidly at the present. That this is not true is indicated by the archeology of the site.

Petroglyphs are pecked into the face of the sandstone cliff, and, judging by the continuity of pictures, no part of the cliff has broken away since the drawings were made. Petroglyphs also occur on approximately 60 of the joint blocks on the slope. Many of the pictures on the joint blocks are of animals. These remain in upright positions to-day, showing that none of the blocks on which they occur has toppled or rotated perceptibly since the petroglyphs were made. Middens are found in shelters on the down-slope sides of many blocks bearing petroglyphs. Nowhere was a block found resting on top of one of these deposits; evidently the blocks have not shifted downslope by a measurable quantity since the middens were formed.

Pottery collected from middens adjacent to petroglyph-bearing blocks has been identified as El Paso Polychrome, Chupadero Black-on-white and Three Rivers Red-on-terracotta, a ceramic complex which is typical for the Pueblo sites in the area. The time range of these three wares has been determined on the basis of their presence as intrusives in Pueblo sites of northern New Mexico that have been dated by dendrochronology. The pottery complex at this site has been dated at 1200 to 1300 A.D. by H. P. Mera,[1] of the Laboratory of Anthropology, Santa Fe. The pottery and petroglyphs seem, for the most part, to be contemporaneous; the same types of pottery are associated with similar petroglyphs elsewhere in the area. This indicates that the joint blocks in the cliff and at least 60 large blocks on the twenty-degree slope have been in essentially their present positions for the past 600 or 700 years.

Study of petroglyphs in situations similar to those here described may lead to quantitative data on the stability of cliffs and boulder-protected slopes.

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[4] Sir William Bragg, *Overseas Journal of the B. B. C.*, No. 67, January 12–18, 1941.

[1] H. P. Mera, letter to T. N. Campbell, September 3, 1940.