

Letters

Barren Desert?

Los Angeles

EDITOR:

The articles on energy in the March-April *Engineering and Science* are most interesting. Congratulations. However, it is not clear what you mean by "low quality land" or "barren desert land" on page 7. The casual reader might get the idea you referred to some of the glorious land which gives meaning to "wide western skies" and where live a profusion of exotic plants, such as cactus, so hard to grow anywhere else.

Some of the world's most skilled inhabitants live there, too—who manage such spectacular feats as never taking a drink, soaring for hours, and so on.

Every passenger on an airplane who looks out the window as well as pinches the stewardesses knows you mean the cities by such phrases as "barren." One

glance shows miles and miles of regions such as roofs, exterior walls, pavements, etc.—all as barren as God and man can make them, and hence about as low quality as is possible to imagine. Putting solar collectors there affects no life style at all. If made strong enough to walk on, they will be an interesting design feature.

PAUL B. JOHNSON, '47

Thank you for your congratulations, and we join you in your admiration for the natural desert. The barren desert land we refer to is that which has been made barren by man—excluding cities. As we also said on page 7, the federal government owns about 100,000 square miles in the Southwest, a significant portion of which has been used for such purposes as gunnery ranges and the testing of nuclear weapons. By contrast, using some of that land for producing solar energy might be almost idyllic.

A Dissenter Dissents

Pasadena

EDITOR:

As one of the two dissenters in the faculty meeting of February 21, I take a special interest in the article on graduate degrees in social sciences in the last issue. I would strongly suggest that a new course on the evaluation of polls be included in the curriculum to avoid conclusions drawn from biased samples—like the faculty meeting of the 21st in which most of the supporters appeared and most of the dissenters remained absent. In any case, a more representative sample, I am sure, would eliminate my feeling of loneliness. If I had realized my picture would be next to the article, I would have changed my facial expression.

H. W. LIEPMANN
Professor of Aeronautics

Research opportunities in highway engineering

The Asphalt Institute suggests projects in five vital areas

Phenomenal advances in roadbuilding techniques during the past decade have made it clear that continued highway research is essential.

Here are five important areas of highway design and construction that America's roadbuilders need to know more about:

1. Rational pavement thickness design and materials evaluation. Research is needed in areas of Asphalt rheology, behavior mechanisms of individual and combined layers of pavement structure, stage construction and pavement strengthening by Asphalt overlays.

Traffic evaluation, essential for thickness design, requires improved procedures for predicting future amounts and loads.

Evaluation of climatic effects on the performance of the pavement structure also is an important area for research.

2. Materials specifications and construction quality-control. Needed are more scientific methods of writing specifications, particularly acceptance and rejection criteria. Additionally, faster methods for quality-control tests at construction sites are needed.

3. Drainage of pavement structures. More should be known about the need for sub-surface drainage of Asphalt pavement structures. Limited information indicates that untreated granular bases often accumulate moisture rather than facilitate drainage. Also, indications are that Full-Depth Asphalt bases resting directly on impermeable subgrades may not require sub-surface drainage.

4. Compaction and thickness measurements of pavements. The recent use of much thicker lifts in Asphalt pavement construction suggests the need for new studies to develop and refine rapid techniques for measuring compaction and layer thickness.

5. Conservation and beneficiation of aggregates. More study is needed on beneficiation of lower-quality base-course aggregates by mixing them with Asphalt.

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