

Research in Landscape Architecture

Figure 1. This illustrates a pool application in landscape design placed in a desert setting. It takes advantage of the natural desert and scenic view in the background. This is one of Professor Guy Greene's landscape designs. The cover of this issue also shows from the inside the application of landscape architecture with a home. It, too, is a Guy Greene design.

*By A. E. Thompson**

Traditionally Landscape Architecture has been concerned primarily with design and artistic expression. Designers have usually not been trained in experimental methods, and experimental research has been largely neglected. Of all the design professions, Landscape Architecture alone has its roots in the natural sciences and therefore is uniquely concerned with the relationship between man and his natural environment. The primary function of a landscape architect is to apply the basic media of earth, water and plants to the problem of creating an environment in which man can successfully live an enjoyable life upon the earth. His main objec-

tive is to fit people to the land, and land to the people. The scope of design problems confronting the landscape architect range from private gardens to metropolitan regions; urban planning and design; national parks and forests; city, county, and state parks and recreation programs. Clearly, decisions affecting such important facets of our lives should not be based purely on intuition, but should have some basis derived from data obtained through application of the scientific method.

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Since Landscape Architecture is so closely associated with Horticulture at the University of Arizona within the College of Agriculture, the traditional concepts of an integrated program of teaching, research and extension has become a reality in Landscape Architecture. Research has become an important component of Landscape Architecture at Arizona and has taken various forms with special emphasis on an interdisciplinary approach. Most of the programs have involved both undergraduate and graduate students and make a valuable contribution to the learning process.

Very shortly a beautifully illustra-

book written by Rosina Kirby will be published by the University of Arizona Press entitled, "Mexican Landscape Architecture — Viewed from the Street and from Within." This was the outgrowth of her graduate research problem and will be a significant addition to the literature as well as the cultural heritage of the area.

Another book is in preparation and most likely will be published by the University of Arizona Press. This resulted from an undergraduate research

project of Mary Rose Duffield when she was a student in Landscape Architecture. The title is, "Plants for the Semi-Arid Desert Region." It will provide valuable information on 250 to 300 basic landscape plants including trees, shrubs, groundcovers and vines that have proven satisfactory for culture from Phoenix to Nogales.

Figure 2. The design below shows how Professor Warren Jones adapted a pool to an older home in an established neighborhood.

An interesting student research problem in cooperation with the Water Resources Research Center involved a study on urban hydrology in Tucson. Results of the study should be significant in alleviating property loss and other damage from flooding, arising from inadequate storm sewers. Other student class projects are dealing with real problems in and around the Tucson area such as development

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in Avra Valley and the Model Cities program. These require considerable research by the students to arrive at practical solutions. Results of these research studies can be of considerable value to the orderly development of urban as well as rural areas.

A very fruitful cooperative research effort with the Arizona-Sonora Desert Museum has been the collection and evaluation of native plant materials found in the Sonoran Desert Region of Mexico and Arizona. This work conducted under the leadership of Professor Warren D. Jones, has also been supported by the Sunset Magazine. Most of the newly collected materials have been tested and evaluated for their potential as landscape plants at the Sunset Magazine Demonstration Garden at the Desert Museum. The design of this garden was developed and executed by Pro-

Figure 3. The book prepared by a student in Landscape Architecture, Rosina Kirby, is illustrated with design applications of Mexican origin. While the book is fully illustrated one photo which will not appear in the book is shown above. It shows the work of Baragan of Mexico, D.F. when he designed a horse stable. The animals go through the water on their way to the fields. The two watering troughs in foreground are called Los Amantes (the lovers). Photo is by Armando Salas Portugal.

fessor Guy S. Greene. Those plants with merit are being propagated for further testing under urban microclimatic conditions. Plants will be rated according to their ease of propagation, ease of establishment, insect and disease resistance, soil and water quality requirements, tolerance to salts and alkalinity, drought resistance, ability to withstand excessive heat, glare, wind and cold. From the de-

sign standpoint, the plants will be rated according to their landscape value, growth rate, shade production, interesting foliage or branch effects, attractiveness of flowers or foliage, erosion control potential and low maintenance qualities. It is anticipated that a plant breeding and selection program will evolve to develop superior new types and varieties that will provide a greatly extended range of adapted plant materials for use in our landscape industry throughout the arid Southwest.

One of the most exciting current research projects in Landscape Architecture is being conducted by Professor Guy S. Greene in cooperation with Dr. Lawrence Wheeler, Professor of Psychology and Optical Science. Several students have been actively involved in the project. They are attempting to devise methods of testing

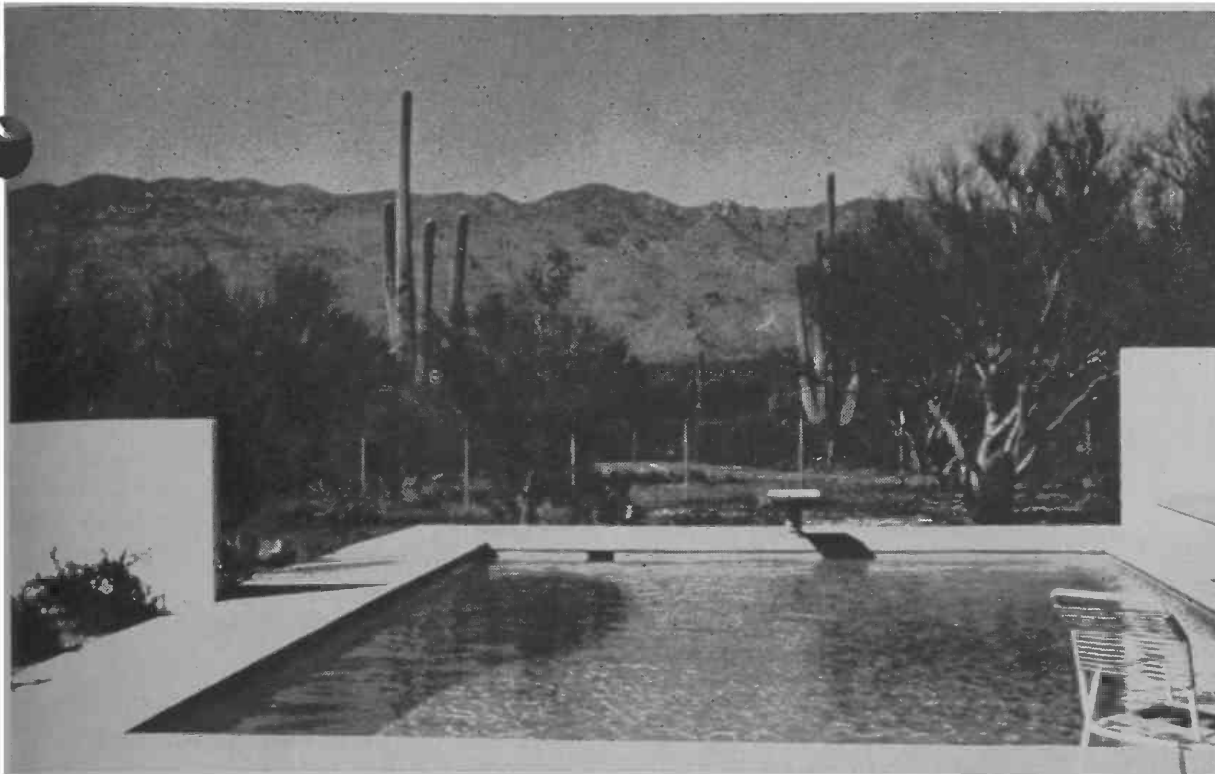
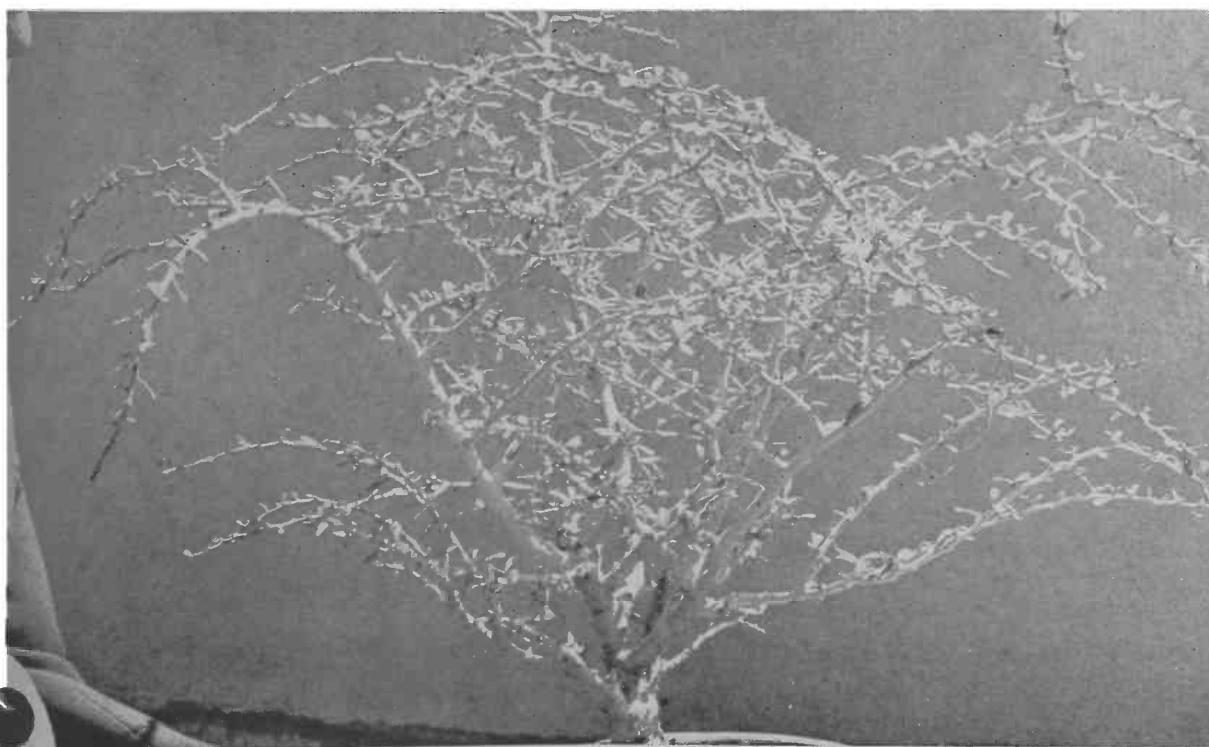


Figure 4. This is another Guy Greene pool application in a desert setting, above. He takes excellent advantage of the desert around and appears to make a melding of Mother Nature and Guy Greene designs.

Figure 5. At right Warren Jones shows two introductions from Mexico's Sonoran Desert. He holds a branch of a desert lantana which he found to have survived the severe frost of the winter of 1970-71. He found it growing wild near Hermosillo. Also showing is a branch of a Mexican Palo Verde, another variety which has a more prominent blue color, and shows great promise as a landscape tree. Professor Jones took an expedition into the Sonoran desert following the severe freeze in search of desert specimens which would survive the frost. Many of the selections he brought back are being tested at the Arizona-Sonora Desert Museum, West of Tucson; and on the campus of the University of Arizona.

Figure 6. Below Jones holds a potted elephant bush which he brought back from Mexico.



people's preferences and responses to various environmental situations, either natural or man made. The U. S. Forest Service is currently financing this research. They are vitally interested in its outcome since they need accurate, unbiased information to make decisions regarding manipulation of vegetation for the purpose of increasing net benefits through multiple use management. The study involves various watershed treatments in the ponderosa and chaparral areas in the Salt-Verde River Basin. Simulations of examples of treated areas were made through the use of 180° panoramic strip color photographs, which are viewed by respondents who are asked to indicate their preference for one of a pair of photographs. Respondents were then interviewed in

regard to their choices. Content analyses of interviews were made to provide a basis for development of questionnaires which can be used on broader samples of persons utilizing forest lands and resources.

Preliminary results clearly indicate that significant differences in preferences exist for various treatment methods. This approach proved to be rather time consuming and somewhat cumbersome. Concurrently, another method has been explored that has given comparable results. It utilizes the theory of signal detection and is much easier to employ. To date signal detection has only been used to determine response of an individual to very simple stimuli. However, behavioral scientists believe that the
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technique can be applied to determine a scaled order of aesthetic responses to various situations such as differentially treated wildland areas and all sorts of landscaped areas such as parks, golf courses and other recreational areas, streets, public buildings and private homes.

Whether an observer likes or dislikes a given situation, finds it satisfying or unsatisfying, beautiful or ugly is often a difficult discrimination to make. Color slides are used as the stimulus complex in this new technique. The signal a respondent is asked to notice is a feeling of liking of, or pleasure in, the content of the projected slide. Dislike, or a lack of aesthetic response, would be a non-signal. The respondent must also evaluate his degree of confidence in his response on a scale of 9 to 0. The program can be administered economically to diverse groups of respondents thus affording the opportunity of obtaining a broad sampling of preference.

It is envisioned that data generated by this and yet to be developed methods will provide a real body of theory and knowledge upon which to base the design process, thus removing it from its total dependence upon the intuitive process. Naturally we do not wish to minimize design quality that achieves the status of a true art form. Unfortunately, designers who can produce such works are rare. Since we now face an almost totally man-made environment from which there is virtually no escape, the way in which design decisions are made will significantly affect every level of our society. Any means of increasing output and productivity as well as quality of design is to be commended.

Research of the Landscape Architect at the University of Arizona is aimed to provide ways and means of enhancing those aspects of the physical environment concerned with beauty, aesthetics and other intangible qualities. Our lives would be much poorer, indeed, if we were forced to do without them.



University of Arizona delegation confer with world renown, Dr. Norman Borlaug, noted Nobel Peace Prize Winner. From left Bwarama Wudiri, a graduate student in Agronomy at the U of A and from Nigeria; Dr. Borlaug who is in charge of the experiment station at Ciudad Obregon, Sonora, Mexico; Ernesto Zamudio a U of A student from Elfrida, Arizona; and Robert E. Dennis, Jr., also a U of A student. The group visited Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT). The visit was to confer with the research and extension workers concerning new developments with triticale, wheat and other agronomic crops with special emphasis, or attention, to the application of these developments for use in Arizona.

Triticale

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better spring wheats in Arizona. However, some Arizona growers have obtained excellent forage yields with triticale.

The future for triticale seems bright but cultivar development will take time. Ultimately cultivars having fertility similar to wheat, plump seed, stiff straw and excellent nutritive value will be developed and released. This new plant type has the potential of becoming an important part of Arizona's small grain arsenal.

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