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CONSTITUENTS OF RAUWOLFIA VOMITORIA FROM EAST PAKISTAN

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ROOF SLABS IN LOW-COST HOUSES

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This paper describes the design and testing of a roof in which the flexural strength of the concrete has been used to minimize the use of steel (from 170 lb. to 34 lb. for a room of 10' \times 11' inside dimensions). This reduces the cost considerably without affecting the comfort in the house. The high test load indicates that such roof can also be used for more than one storey buildings.

UTILISATION OF 'BALCRETE' FOAMING AGENT

Part I.—Production of Cellular Concrete (with Neat Cement)

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This paper deals with the preparation and physical properties of moist cured cellular concrete based on neat cement. Methods of production based on high speed stirrers and ordinary non-tilting drum concrete mixer using 'Balcrete' foaming agent have been successfully developed. The ratio of rate of production to mixer capacity is 2.6-2.8 which is very satisfactory since the highest reported ratio using assembly line techniques is 3.0. Compressive and flexural strengths as well as thermal conductivity values have been determined for cellular concrete of varying densities. The ratio of flexural to compressive strength varies from 0.12 to 0.20, the ratio increasing with increase in density. This is in contrast to the results given in the literature for autoclaved cellular concrete in which case the ratio decreases with increase in density.

The cellular concrete has adequate strength for structural use at densities above 60 lbs. per cu. ft., for partition walls at densities between 40-60 lbs. per cu. ft., and for thermal insulation at densities below 30 lbs. per cu. ft.

A GRAVITY SURVEY OF QUETTA AND MASTUNG VALLEYS*

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The gravity survey started by Moiduddin and Thirlaway in Khad Kucha, south of Mastung, has been extended into the Mastung and Quetta valleys. It is thought that large scale faulting was a primary factor in the origin of the valleys and this is supported by the gravity data. Of particular interest are cross faults which must have modified the early drainage and have been a major factor controlling the character of ground-water aquifers.

There is some confirmation for Moiduddin and Thirlaway's hypothesis that the observed differences in ground water resources within the alluvial materials may depend on the materials having accumulated in either a lake or in a river system. Most of the material filling the valleys is probably of Siwalik age.

**PRELIMINARY SURVEY AND CHEMICAL INVESTIGATIONS ON IRON ORES OF
KHYBER AGENCY**

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The authors have surveyed and chemically investigated the iron ores of Khyber Agency. Ore from Lashoora, a place eight miles from Jamrud, was found to be relatively rich in iron content but had a large percentage of silica (22.9% free and 8.5% combined) which makes it difficult to reduce. Attempts were made to reduce the silica content by washing, and gravity separation. The results are not very encouraging. The use of a magnet for concentrating the iron oxide particles has also failed. It is suggested that ore from greater depth be studied and the possibility of the production of ferrosilica examined.

A STUDY OF MULTANI MITTI *

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No work has yet been done for the identification of the Khairpur clay, better known as Multani mitti, which is believed to be fuller's earth. The author has investigated the mineralogical composition and tried to estimate the different components in order to facilitate scientific utilisation. The investigations show that Multani Mitti agrees well with Attapulgite Palygorskite, a clay mineral found in fuller's earth from Attapalgus, Georgia etc. The relative percentages of different components have not been determined precisely, but free silica was found to be 2.75% (\pm 0.25%).

AN INVESTIGATION OF THE INFLUENCE OF HUMIDITY AND WATER CONTENT ON THE ELECTRICAL PROPERTIES OF COTTONSEED CAKE

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In the course of investigations on the development of a rapid non-destructive electrical method for the estimation of oil content of a single cottonseed, the dielectric constant of cottonseed cake was found to rise about 50-fold when the dry cake absorbed water up to its saturation value 12-16%. The present communication deals with a detailed investigation of the nature of this variation of the dielectric constant and also the specific conductance of variously formed discs of cottonseed cake, using several different relative humidities.

The measured values of both the dielectric constant K and the specific conductance γ under various humid conditions are found to increase exponentially with the percentage water constant W of the cake and can be represented by the following equations $K = 4 \exp(26 \times w/100)$, $\gamma = 0.2 \exp(56 \times w/100)$. Further work is in hand for the elucidation of this type of variation, particularly with reference to other hydrated solids.

**CHEMICAL STUDIES IN RELATION TO THE BIOSYNTHESIS OF SOME NATURAL
BENZOFURANS AND RELATED COMPOUNDS. PART II***

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(Received December 2, 1959)

4'-Methoxybenzylidene-coumaran-3-one (VI) on treatment with alcoholic alkali gave anisaldehyde. The other products obtained were the flavone (VIII) and a diketone (IX). Reduction of (VI) gave 2(4'-methoxy-benzyl)-3-hydroxy-**dihydrobenzofuran**. These reactions provide some chemical basis for the hypothesis that benzalcoumaranones probably derived by the condensations of benzaldehydes and coumaranones are involved in the biosynthesis of flavones and related substances.

ATTEMPTED SYNTHESIS OF EVODONE*

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α -Bromoacetal and α -bromopropionacetal were condensed with 1,3-dimethoxy-2,5-dihydrobenzene, and its toluene homologue and the resulting products cyclised.

The product obtained by condensation of dihydroorcinol dimethyl ether with α -bromopropionacetal on cyclisation gave evodone possibly mixed with the cyclic half acetal.

STANDARDIZATION OF SOME LOCAL AROMATIC HERBS. PART I

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Special Article

**SUMMARIZED REPORT ON THE PROCEEDINGS OF THE 4TH CONGRESS OF THE
PAN INDIAN OCEAN SCIENCE ASSOCIATION AND THE RECOMMENDATIONS
OF ITS COUNCIL**

M. QUDRAT-I-KHUDA, A. H. CHOTANI AND MAZHAR M. QURASHI

Pakistan Council of Scientific and Industrial Research, Karachi

(Received January 15, 1961)

SHORT COMMUNICATION

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OBSERVATION ON THE VOLTAGE DEPENDENCE OF THE INSULATION
RESISTANCE OF SOME INSULATING MATERIALS

S. NURUL AHMAD AND MAZHAR M. QURASHI

*Physical Research Division, Central Laboratories, Pakistan Council of Scientific and
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(Received December 2, 1960)

A NOTE ON THE OCCURRENCE OF PULLET DISEASE: AVIAN MONOCYTOSIS
IN EAST PAKISTAN

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