

cells. Potassium oxalate as a hypotonic media has given reproducible results. The results indicate that like any other hypotonic media potassium oxalate can also provide good chromosome preparations.

The authors wish to express their grateful thanks to Dr. S. H. Zaidi for his interest and encouragement. They also thank Mr. M. Ahmed for photomicrography.

Industrial Toxicology

T. S. S. DIKSHITH.

Research Centre,

K. K. DATTA.

Lucknow (India), October 30, 1972.

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SHORT SCIENTIFIC NOTES

Botanical Identity of Carbonized Cereal Grains from Nagara

In the excavation at Nagara, Cambay, Gujarat State (Western India) conducted in the year 1965, the archaeologists of the Maharaja Sayajirao University of Baroda unearthed from two different layers No. 8 (2.08 m depth) and 22 (6.05 m depth) Gramineae material. The period assignable to these deposits falls in the time bracket of circa 2nd/3rd cent. B.C. to about 4th/5th cent. A.D.

The Gramineae collection was examined and it was observed that the grains represent *Oryza* spec. (Fig. 1). This may contribute to the present

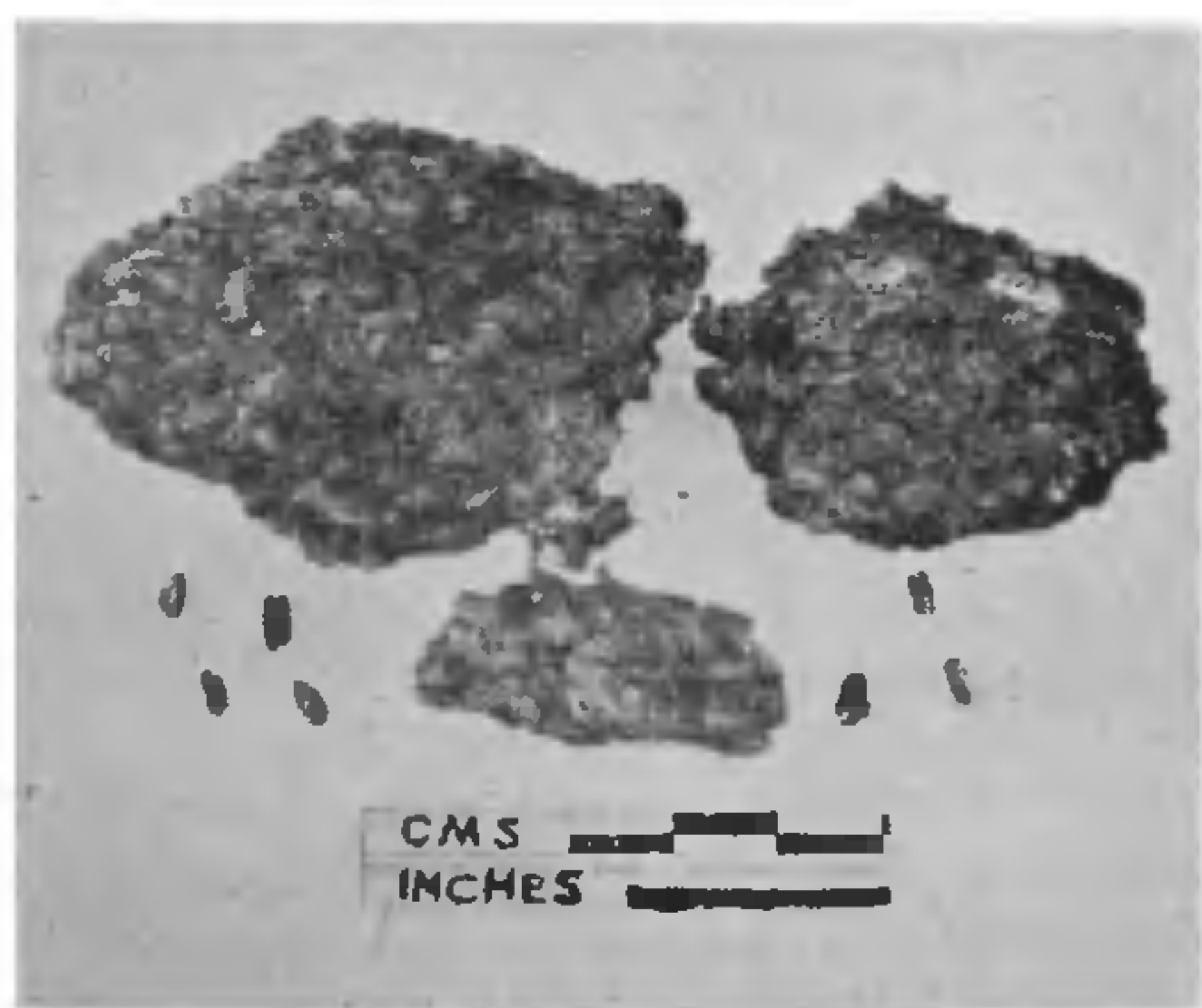


FIG. 1. Carbonized cereal grains (*Oryza* spec.) from Nagara.

understanding of the past and present distribution of the Gramineae (wild and cultivated) as also about its taxonomic status and nomenclatural relations,

The authors are indebted to Professor J. Heslop-Harrison, Director, Royal Botanic Gardens, Kew, for helping with the determination of the archaeological material from Nagara.

Department of Archaeology and
Ancient History,

R. N. MEHTA.
G. M. OZA.

Faculty of Arts, and
General Education Centre,
M.S. University of Baroda,
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Occurrence of *Tenuipalpus punicae* Pritchard and Baker (*Tenuipalpidae* : *Acarina*) on Pomegranate in India

Tenuipalpus punicae first described by Pritchard and Baker (1958) was found seriously infesting pomegranate (*Punica granatum*) at Ludhiana during July-August, 1972. Earlier *Tenuipalpus* sp. has been reported on crabapple by Sapro (1940) and on pear by Gupta *et al.* (1971).

T. punicae was found in large numbers both on lower and upper surface of pomegranate leaves, also on the twigs, inflorescence and fruits. Population of active stages of this mite on one leaf varied from 75 to 552. Cylindrical, reddish eggs

were laid mostly in clusters and rarely singly. Size of one cluster of eggs varied from 15 to 45 and 35-197 eggs were observed per leaf. The reddish mites suck the sap of the leaves which change their colour to yellowish and ultimately fall off. Infested leaves and twigs can easily be recognised from their reddish appearance caused by the presence of different stages of mite. This reddish appearance is more clear on the lower side of the leaves along the midribs.

Binapacryl (Morocide 40 EC) 0.025% was sprayed on infested plants. Mortality of mites after 2, 7 and 14 days after spraying was 96.5, 92.3 and 85.1% respectively. Afterwards, the mite population started building up fast and after 21 days of spray, the mite population almost reached the pre-spray level. The eggs were noted at every observation and it was found that their hatching was not interrupted at all by the acaricide. The acaricide used had quick knock-down effect and showed short residual and no ovicidal effect.

Authors are thankful to Dr. O. S. Bindra for providing necessary facilities and to Messrs. Ajit Singh and Kabal Singh for their help.

Dept. of Entomology, M. S. DHOORIA.
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Additional Cambro-Ordovician Fossils from the Baramula District, Kashmir, India

The object of this communication is to place on record the occurrence of a few trilobites, brachiopods and crinoid stems from the argillaceous and arenaceous beds ranging in age from Cambrian to Ordovician and exposed in the Hundwara basin of north-western Kashmir. These are in addition to the forms already recorded from this part of the valley¹⁻⁷.

The following is the check list of the fauna:

Cambrian

Hundwarella sp., *Conocoryphe* spp., *Anomocarella* sp., *Iranoleesia* spp., *Kochaspis* cf. *K. eiffelensis* Rasetti, *Elrathina*? sp., *Ptychoparella* sp., *Clavagnostus*? sp., *Lingulepis* spp., *Lingulella* spp., *Obolus* sp., *Paterina*? sp., *Micromitra*? sp.

Ordovician

Rafinesquina cf. *R. lineatissima* (Satter), *R. cf. R. alternata* (Conrad), *Orthis* spp., *Nicolella* sp., *Platystrophia*? sp., *Resserella* sp., *Leptaena* spp., *Orthacean* gen. et sp. indet., *Tentaculites* spp.

Department of Anthropology, I. J. SUNEJA.
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A New Leaf-Spot Disease of *Commelina*

Commelina benghalensis L. (F. *Commelinaceae*) is a common and obnoxious weed, preferably growing in damp and marshy places. During a recent disease survey, several plants were found to be infected with an unusual leaf-spot disease at Sinhagad Fort, near Poona, incited by a hyphomycetous fungus which was identified as: *Drechslera hawaiiensis* Ellis. The infection spots were sub-circular to irregular, scattered and ashy grey in colour. The fungus was repeatedly isolated on P.D.A. and made excellent growth with ashy-white to smoky-grey, sub-aerial colony sporulating profusely at room temperature (25-28°C). The pathogenicity of the fungus was successfully tested on leaves of *Commelina benghalensis* under artificial culture inoculation experiments. The conidiphores of the fungus are simple, erect, thick-walled, septate (2-8), solitary, geniculate, olivaceous-brown, $30.4-152 \times 1.9-3.8 \mu$. Conidia light-brown, usually symmetrical in shape, cylindrical with rounded ends, distinctly scarred at the base, borne in whorls of 6-15 or even more, 2-5 septate (aveg. 3), measuring $3.8-38 \times 3.8-7.6 \mu$. Conidia germinated in distilled water after about 2 hours at room temperature with 100% R.H., in both uni- and bipolar fashion putting forth germ tubes.

The material is deposited in the M.A.C.S., Poona, under No. 1656 and a culture at C.M.I., Kew, Surrey, England, under No. IMI 164636.

M.A.C.S. Research Institute, D. V. NARENDRA.
Poona-4 (India), V. G. RAO.
February 2, 1973.

Insect and Dodder Transmission of Tea Rose Yellow Mosaic Virus

A graft transmissible yellow mosaic disease in the tea rose (*Camellia japonica* L.) was reported by Sharma and Raychaudhuri (1972). Surveys during 1972 for yellow mosaic incidence in tea (*C. sinensis* O. Ktze.) to several tea estates in Darjeeling hills indicated the presence of the disease in traces. The maximum incidence upto 2% was recorded in some tea gardens located at Kurseong (Darjeeling). Eight tea rose plants carrying yellow mosaic infection were also collected from some nurseries at Kalimpong. Since no graft practices are involved with tea cultivation, studies were, therefore, undertaken on the possible modes of disease spread.

Insect transmission: Aphid *Toxoptera aurantii* B.D.F. has been established the vector for tea rose yellow mosaic virus. Insect colonies were removed from cultures maintained in insectory. These insects were given a fasting for 2 hours, an acquisition feeding of 5 minutes and a test feeding for 24 hours. In the preliminary trials 20 tea and 10 tea rose plants (one year old) were inoculated using 10 insects per plant. Typical yellow mosaic symptoms were developed in the leaves of 4 tea and 3 tea rose plants in 50 and 80 days, respectively. The virus from such infected plants was recovered back on to healthy tea plants by grafting as well as through insects. The experiment was repeated three times with a suitable control in each case.

Dodder transmission: A trial attempt was made to see if the locally prevalent strain of dodder (*Cuscuta reflexa* Roxb.) could act as a means of affecting transfer of TRYMV from infected tea rose to other theaceous and nontheaceous plants. The dodder was raised from seeds in petri-dishes and was maintained on healthy tea seedlings under

insect proof conditions. This dodder was used as a source during the experiments. It was found that the dodder, in question, transmitted the disease from infected tea rose to healthy tea rose, tea and duranta (*Duranta plumieri* Jacq.) plants. Characteristic symptoms were developed in tea and tea rose in 50 and 75 days, respectively, whereas in duranta the symptoms were characterized with yellow of white mottling of the foliage appeared within 30 days. From such infected plants the virus could be recovered back on to healthy tea and duranta plants by grafting as well as by dodder. No symptoms were observed in control plants.

Since the disease has been found to have two vectors (*T. aurantii* and *C. reflexa*) and two hosts (tea rose and duranta) other than tea, the likelihood of tea infection by TRYMV has undoubtedly been increased. The vector *T. aurantii* can easily multiply on tea and tea rose. Therefore, it seems possible that tea plantations in Darjeeling hills are likely to get infected with this virus either from already infected tea bushes or by infected tea rose through its aphid vector. At present, the roll of wildy distributed duranta and the vector *C. reflexa* which is a common parasite on it cannot be predicted due to the absence of naturally infected duranta plants. The results indicate the maximum infection in tea. Therefore, the virus seems to be perhaps originally related to tea, and tea rose and duranta are its additional hosts.

Plant. Virus Research Station,
Kalimpong, Darjeeling,
P.V.R.S., Kalimpong,
February 12, 1973.

Y. S. AHLAWAT.
K. K. SARDAR.

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REVIEWS AND NOTICES OF BOOKS

The Ecology of Insect Populations in Theory and Practice. By L. R. Clark, P. W. Geier, R. D. Hughes and R. F. Morris. (Methuen and Co., 11, New Fetter Lane, London E.C. 4), 1972, Pp. xiii + 232. Price £0.75.

This is a book of the English Language Book Society (ELBS) and that itself speaks for the importance of the book. The aim of ELBS is to make available to developing countries in Africa and Asia important text-books at greatly reduced prices. The original hardback edition priced at

£3.00 is now made available as paperbound at £0.75 only for the benefit of students teachers and researchers of ecology in these countries.

In recent years the scientific study of the ecology of insect population has received new impetus on the practical side, what with the "population explosion" foreboding the gram possibility of a Mathusian law forcing itself into operation; the much talked of "green revolution" which after all may prove as not so green if pests and insects have their own way; the use pesticides which may