and 222 Kev gamma-rays and any other weak low energy gamma-ray falling in coincidence with 1222 or 1231 Kev gamma-rays, was subtracted by *peeling off* method. The K X-ray component because of the low energy gamma-rays falling in coincidence with 1222 and 1231 Kev gamma-rays was estimated to be 33%. After making these two corrections and the finite solid angle correction, the measured coefficients come out to be :

$A_2 = 0{\cdot}284 \pm 0{\cdot}008$

$A_4 = 0{\cdot}002 \pm 0{\cdot}010$

These results are in agreement with the theoretical results of 2(Q) 2(D)0 sequence for 68–1222 Kev cascade. Consequently a spin 2 is established for 1289 Kev level.

264–68 Kev Cascade.—The correlation for 264–68 Kev cascade was corrected for the contribution due to the coincidences between 68 Kev gamma-ray and the Compton portion of high energy gamma-rays falling in 264 Kev gate. This component was measured by shifting the 264 Kev channel gate to a higher side by about 150 Kev and was found to be 47%. The measured coefficients after finite solid angle correlation are :

$A_2 = 0{\cdot}073 \pm 0{\cdot}006$

$A_4 = 0{\cdot}001 \pm 0{\cdot}002$

These results are in good agreement with a 4 (Q) 2(D)2 sequence for 264–68 Kev cascade thereby establishing a spin 4 for 1554 Kev level.

222–1231 Kev Cascade.—In this measurement, 264–1222 Kev was the only interfering cascade. Its contribution was subtracted by peeling off method. The measured coefficients after solid angle correction, are :

$A_2 = -0{\cdot}017 \pm 0{\cdot}011$

$A_4 = 0{\cdot}008 \pm 0{\cdot}013$

Taking the spin of 4 for 1554 Kev level as determined from 264–68 Kev cascade and assuming the spin 3 and 2 for 1331 and 100 Kev levels respectively, the theoretical coefficients for 4(D)3(Q)2 sequence come out to be :

$A_2 = -0{\cdot}018$

$A_4 = 0$

These results are in good agreement with the measured values.

If we assume the mixed character $E_2 + M_1$ $(29 \pm 8\%)$ for 1231 Kev gamma-ray, as recently reported by Korkman and Backlin[5] from their internal conversion measurements, then the theoretical values of A_2 and A_4 for 4(D)3(D, Q) 2 sequence are :

$A_2 = -0{\cdot}095$

$A_4 = 0$

This value of A_2 is much higher than the experimental value of A_2. Consequently 29% dipole admixture of 1231 Kev gamma-ray is not favoured by present angular correlation measurements. It can be concluded from the present angular correlation measurements that 1231 Kev gamma-ray is pure quadrupole in character, which is in agreement with the assignment made by Murray *et al.*[3] on the basis of internal conversion coefficient measurements. These results clearly support a spin assignment of 3 units to 1331 Kev level.

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A NEW FOSSIL INSECT FROM THE LOWER GONDWANAS OF KASHMIR*

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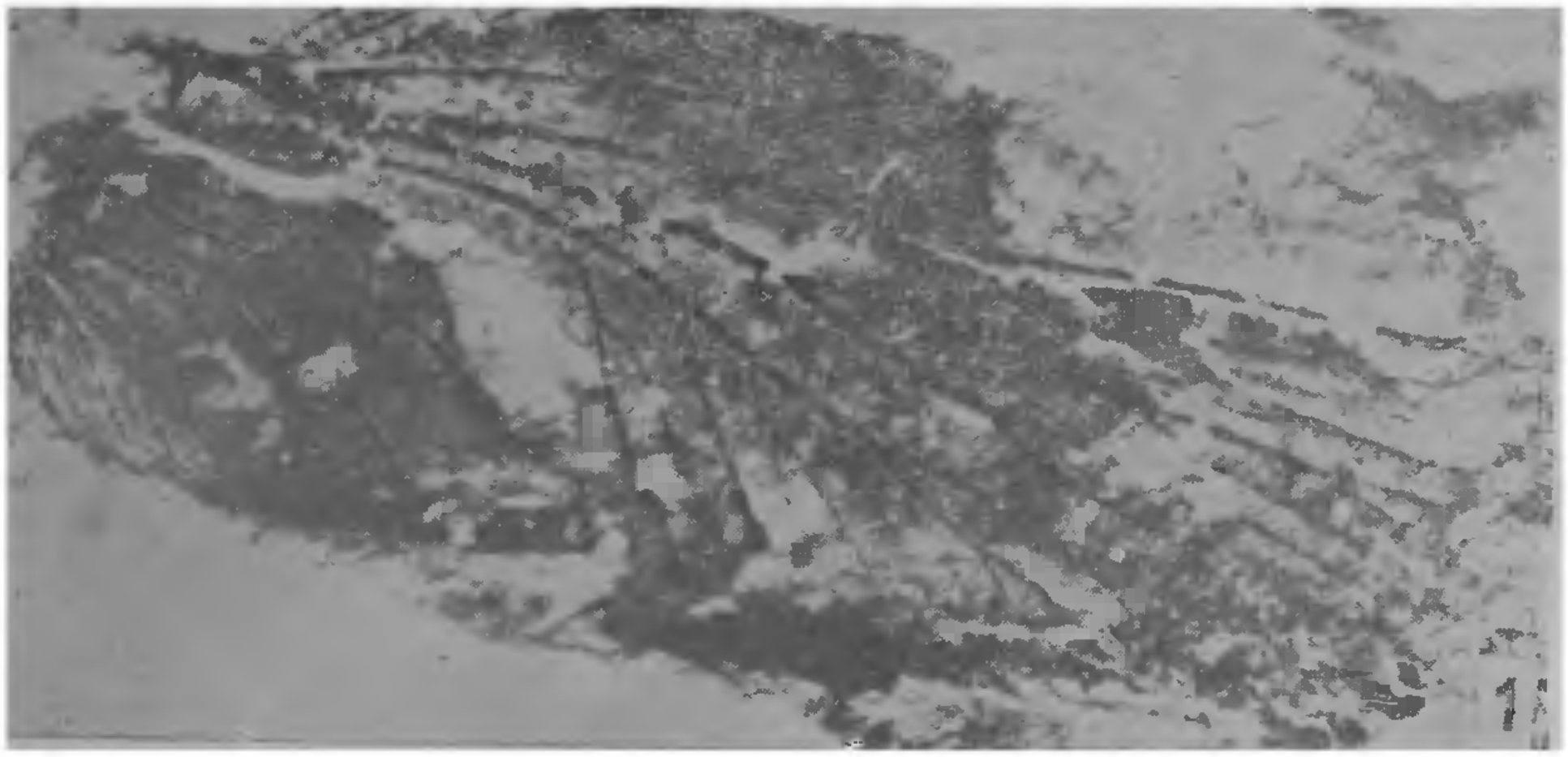
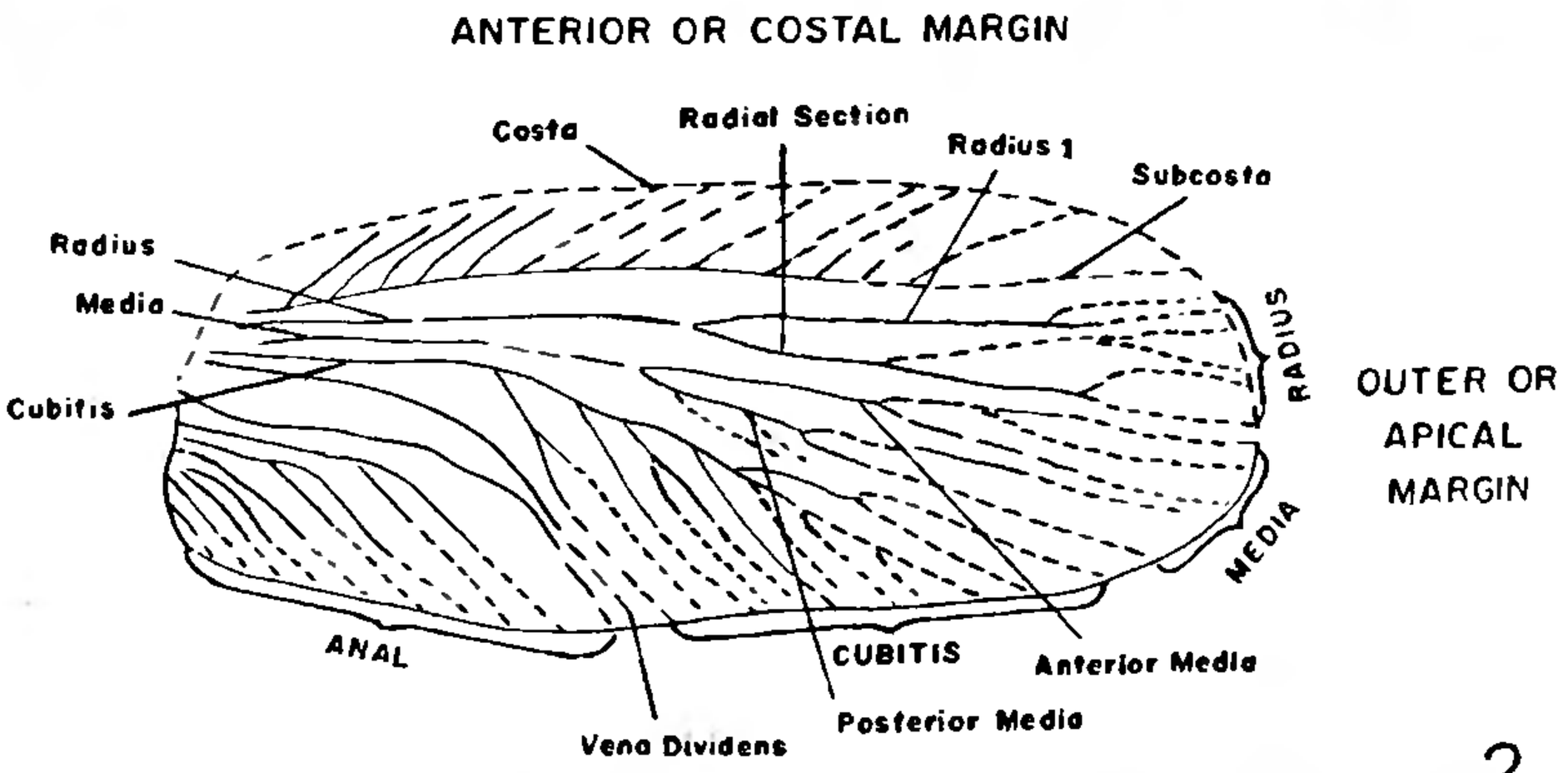
A NEW fossil insect, *Kashmiroblatta marahomensis* Gen. et sp. nov., has been collected by the author from the Gangamopteris Beds exposed at a small spur, locally known as Baliarpatti, near Marahom (Marhama) (33° 50′ : 75° 05′), Anantnag District, Kashmir. The fossil is preserved in the form of an impression of the fore-wing on a slab of grey tuffaceous shale and has been found to be associated with a large number of fossil fishes, *e.g.*, *Amblypteris kashmirensis* Woodward, *Amblypteris symmetricus* Woodward, and fossil plants,



1



2

3

FIGS. 1–3. *Kashmiroblatta marahomensis* Gen. *et* sp. nov. Fore-wing (Holotype) G.S.I. Type No. 18274. Fig. 1, × 3. Fig. 2. Diagram illustrating the detailed morphological features of Holotype-18274, × 2. Fig 3. Counterpart of the Holotype-18274, showing venation, × 3.

e.g., *Gangamopteris kashmirensis* Seward, *Glossopteris* sp., *Sphenopteris polymorpha* Feist., *Psygmophyllum* sp., and a labyrinthodont, *Chelydosaurus marahomensis Verma*.

Fossil insects have been reported by Handlirsch (1906–08) and Bana (1954) from the Gangamopteris Beds of Risin spur near Srinagar, Kashmir, and have been described under *Gondwanablatta reticulata* Handl., and *Prognoblattina columbiana* Schudder, respectively. The present record is first from the Marahom area.

Generic diagnosis.—Fore-wing elliptical, thrice as long as broad ; costal area narrow and band-like ; sub-costa reaching upto the tip of the wing with about 12 simple pectinate branches ; radius and media strongly developed and each dividing into two branches ; cubitis with 6 alternately simple and compound branches covering from the lower end of the apical margin to the almost entire free margin ; posterior cubitis, or *vena dividens,* strongly convex and lying in a deep groove ; anal area one-third the wing length with a large number of anal veins, all reaching the inner margin.

Brief Description of the Genotype (G.S.I. Type No. 18274).—Fore-wing about 42 mm. long with strongly curved anterior margin and a straight anal margin. Radius strongly developed, convex and bifurcating into Radius 1 and Radial Sector, the former less dominant than the latter. Media likewise dividing into convex Anterior Media and concave Posterior Media, which are further branched into three and two respectively, all the branches reaching the apical margin. Cubitis strongly developed, smoothly curved downwards with six branches, which are alternately simple and forked. Anal area with eight simple as well as compound branches, all sloping regularly to the inner margin. The intercalary venation consisting of a close network of narrow, thin and reticulate veins. The genotype possesses distinctive characters and the author cannot recall any form with which it can be compared. The generic name is after the geologically famous area, Kashmir, and the specific name is after the locality of its occurrence, Marahom.

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MUTATIONAL RECTIFICATION OF SPECIFIC DEFECTS IN SOME POTATO VARIETIES

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THOUGH the early attempts to induce mutations in potatoes did not yield fruitful results,[2] recent investigations have shown that striking variations can be induced by treating the tuber eyes or young sproutlings with ionizing radiations or radioisotopes.[1,3–8,12] It has also been demonstrated that specific defects can be rectified in polyploid plants through induced mutagenesis, since such plants permit chromosome aberrations to pass through the somatic and gametic sieves[11] more readily than diploids. Hence, a study on the induction of mutations was undertaken in Kufri Red and Kufri Sindhuri, two commercially important Indian varieties of potato.

Kufri Red, a clonal selection from Darjeeling Red Round, is capable of giving good yields but has red tubers with deep to medium-deep eyes.[9] Kishore *et al.*[9] pointed out that it would be desirable to get in Kufri Red mutants with white tubers having fleet to medium-deep eyes. Similarly, Kufri Sindhuri, an excellent new variety suitable for cultivation both in the plains and the hilly areas of India, has tubers with red skin and deep to medium-deep eyes.[10] *Virus-free stocks of Kufri Red and Kufri*