

THE
GEOLOGICAL MAGAZINE.

NEW SERIES. DECADE IV. VOL. VI.

No. V.—MAY, 1899.

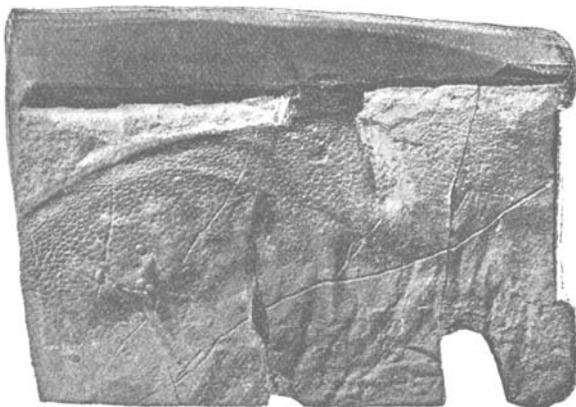
ORIGINAL ARTICLES.

I.—NOTE ON A NEW AUSTRALIAN *PTERYGOTUS*.

By Professor Sir FREDERICK MCCOY, K.C.M.G., M.A., D.Sc. (Cantab), F.R.S.

I AM greatly indebted to Mr. F. Spry for bringing to my knowledge some extremely interesting Upper Silurian fossils collected by him with great care and diligence from the tunnels excavated through the rocks underlying Melbourne during the progress of the new great drainage works for the city, carried out by the Metropolitan Board of Works. The age of the strata containing these fossils was originally determined by me for Selwyn's Geological Survey Maps of Victoria.

Four of these fossils belong to genera hitherto unknown in the Victorian rocks, and belong to groups of special interest. I subjoin preliminary descriptions of one of these, that credit may be secured to Mr. Spry for his scientific zeal in doing such good service to geology while carrying out his professional duties.



Pterygotus Australis (McCoy). Upper Silurian : Melbourne.

This is represented by about half of a somatic segment of a species most nearly resembling the *Pterygotus bilobus* (Salter) of the black flaggy uppermost Silurian rock of Lesmahago, which the matrix of this specimen, from the main sewer tunnel in Domain Road, South Yarra, almost exactly resembles. The anterior margin is slightly

convex to the front (as usual), slightly thickened, and the anterior covered border smooth and concave (preserved for about three lines in antero-posterior length). The dorsal surface, from the anterior margin to about ten lines back, is covered with the characteristic scale-like markings of the genus, composed as usual of semi-oval, narrow, prominent ridges, the wide open part of the curve directed forwards and the convexity backwards, averaging about ten in longitudinal and about seven in transverse direction in six lines, and rather more regularly equal than in *P. bilobus*. The entire antero-posterior length of the segment is 2 inches 5 lines, the posterior portion, of about 1 inch 9 lines, as usual in the genus, being free of scale-like sculpturing. The entire breadth of segment I estimate would have been about $6\frac{1}{2}$ inches.

None of the Merostomatous Crustacea have been found before in this country, and Mr. Spry has presented the type-specimen to the National Museum.

II. — ON THE OCCURRENCE OF ALLANITE IN THE HORNBLENDE-GRANITE OF LAIRG, SUTHERLANDSHIRE.

By Lieut.-General C. A. McMAHON, F.R.S.

IN the September number of the GEOLOGICAL MAGAZINE for 1898, Mr. J. S. Plett, B.Sc., describes, at p. 388, the occurrence of Allanite in the granite of Fell Hill, Cree Town, Kirkcudbrightshire, and in a biotite gneiss in Sunday, one of the Orkney Islands.

I have recently been re-examining a slice taken from a sample of Heddle's 'Syenite' collected by me at Lairg, Sutherlandshire, some years ago, and I find it contains a very good crystal of allanite.

The rock is a hornblende-granite, and the slice, when examined under the microscope, is found to contain the following minerals; namely, orthoclase, plagioclase, quartz, biotite, hornblende, sphene, apatite, zircon, chlorite, and allanite.

The sphene is rather abundant and is idiomorphic in characteristic forms. The chlorite is the product of the alteration of biotite.

The allanite is in a lath-shaped, badly terminated, crystal, which extinguishes, and has the major (+) axis, at 36° to the line of elongation. The slice is therefore one parallel to the clinopinacoid. It is of pale orange-yellow colour in transmitted light (my slice is a very thin one), and is distinctly but feebly pleochroic. When revolved between crossed nicols it shows, prior to extinction, a decided zonal structure, which cannot be seen in ordinary transmitted light. The crystal is traversed by irregular cracks, more or less transverse to the direction of elongation; but no regular cleavage is to be seen.

Good-sized crystals of allanite appear to be rare; but crystals and grains of microscopic size are numerous in the rock, and I succeeded in isolating many of them. The mineral in the Lairg granite is brown-red in reflected light, and when the rock is pounded up its peculiar colour marks it off from the other minerals and enables the petrologist to pick it out from them with the aid of



J. C. Marsh