

by contiguous portions of the two rectangles. The excess, if any, of lime over available alumina has the silica necessary to form wollastonite, and the excess, if any, of iron oxide over available soda and the magnesia have the silica required to form orthosilicates. The remaining silica space is then divided up to show the additional silica required or available for the felspars, feldspathoids, and ægirine, and that available to convert the orthosilicates of iron and magnesium into metasilicates. The remainder represents free silica or quartz.

Dr. G. F. Herbert Smith: "On the use of the Gnomonic Projection in the calculation of Crystals." If projected on to a plane at right angles to the edge of the zone containing the poles from which biangular measurements were made, the diagram takes the form of a net, the nodes of which represent the principal poles. The unit lengths of the net are easily calculated from the data, and once the rectangular co-ordinates of any node with respect to axes on the diagram have been determined those of the remainder follow by simple addition or subtraction; the corresponding spherical angles are deduced by a simple calculation. The accuracy of the calculations may be checked from the diagram at every step. To keep the projection corresponding to any crystal within reasonable dimensions it is sometimes convenient to project on to the faces of a cube. The direction of a zone when crossing from one face to another is very simply found from the diagram.

OBITUARY.

WILLIAM ALBERT PARKER, F.G.S.

BORN 1855.

DIED JANUARY 14, 1918.

WE deeply regret to record the death of Mr. W. A. Parker, of Rochdale, which took place on January 14 at the age of 63. For many years he was a highly esteemed schoolmaster in Rochdale. Here he indulged his taste for scientific research, especially geology, and became associated in friendship with a small but enthusiastic body of geologists, including, amongst others, Walter Baldwin, the late W. H. Sutcliffe, Dr. March, James Horsfall, Robert Law, and S. S. Platt. Assisted by other members of this band Mr. Parker specially devoted himself to the task of working out the beds of shale, with ironstone nodules containing fossils, of Middle Coal-measure age at Sparth, Rochdale. This led to the discovery of a numerous and rich series of fossils, including rare Orthopterous insects, Arachnida, and Crustacea, many of which have been figured and described in the *GEOLOGICAL MAGAZINE* (see volumes for 1907, pp. 400-7, 539-49; 1911, pp. 361-6; 1913, pp. 352, 356). A new Crustacean, *Rochdaleia Parkeri*, was named after our friend. Many of these valuable specimens are now preserved in the Manchester Museum and in the British Museum (Natural History). His loss will be keenly felt by a large circle of geological friends in the Midlands.

H. W.