*Quercits.*' W. G. HANKEL, Abhand. der math-phys. Classes der K. Sächs. Gesell. der Wissen. Bd. XXIV. Pp. 471–496.

In this, the twenty-first paper by Professor Hankel describing his electrical investigations of crystals, the object, as before, is to determine the character and relative intensities of the electric charges developed at different parts of the crystals under the influence of temperature change or of pressure. From this distribution of the positive and negative charges conclusions can be drawn as to the true structural symmetry of the crystals. The methods were presumably those followed in previous investigations, as they are not described.

A. J. M.

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## *SCIENTIFIC JOURNALS AND ARTICLES.*

THE *Physical Review* for August contains the following articles:

'The Specific Heat of Solutions which are not Electrolytes,' by William Francis Magie.

'An Interferometer Study of Radiations in a Magnetic Field,' II., by John C. Shedd.

'The Effect of Magnetization upon the Elasticity of Rods,' by J. S. Stevens and H. G. Dorsey.

'On Freezing and Boiling Water Simultaneously,' by R. W. Quick.

*Bird Lore* for August opens with an article by R. Kearton, one of the most successful of the many photographers of wild animals, on 'Photographing Shy Wild Birds and Beasts at Home,' in which are explained some of the devices used by the Kearton Brothers. 'Two Nova Scotia Photographs,' by C. Will. Beebe, show in a very beautifully surrounded nest of Junco and a sleeping nighthawk. 'In the Spartina with the Swallows,' by O. Widmann, treats of a vast Western swallow roost in this writer's usual charming style and is accompanied by some interesting views. Bradford Torrey tells of 'Watching the Bittern Pump' and the various 'departments' are well filled, among the articles being a 'Round Robin' signed by well-known ornithologists, entitled 'Hints to Young Students' and justly deprecating the wholesale slaughter of birds and collecting of eggs under the impression that this alone is ornithology.

## *DISCUSSION AND CORRESPONDENCE.*

### ON GRADUATE STUDY.

IN the article, in SCIENCE for August 4th, 'Doctorates Conferred by American Universities,' in which you speak of the comparatively small number of university doctorates in the humanities, is found the following statement: "Our educational system is largely based on the study of language, and in view of the great number of teachers required it appears that they are satisfied with a less adequate education than is the case in the sciences." Every suggestion that looks toward improvement in the preparation of teachers, especially of the teachers in secondary schools, who seem most vulnerable in qualification in languages, should be warmly welcomed, but I am sure, however, that not all university teachers will agree with the conclusion quoted above.

It is certainly true, as your comparative table shows, that in American universities more candidates seek the degree of Doctor of Philosophy in the sciences than in the humanities, but it does not, therefore, necessarily follow that the persons who are engaged in teaching the humanities in our better colleges and universities 'are satisfied with a less adequate education' than is the case with their colleagues in the sciences, nor should a teacher's qualifications be measured by the number of degrees he possesses. As is well understood, language teachers often feel that they can do graduate work to better advantage in Europe, where they are constantly surrounded, as it were, by the very things they are studying; in fact, some American institutions decline to consider the applications of candidates for positions in French and German who have not studied abroad. These facts, and the additional fact that we now have better scientific laboratories in this country than was formerly the case, would perhaps partly explain the inequality in the number of doctorates conferred by American universities in the humanities and in the sciences. In this connection it is interesting to note that of the American students engaged in the study of these subjects at the University of Berlin during the summer semester of 1897 (I have no later statistics at hand) nearly twice as many were study-