

urged the need of an Institute of Technical Optics, where students of optics will be trained in optics by men whose work is optics. The need grows year by year. Deputations from the trade have waited on the London County Council, and questions have been asked in Parliament, yet in vain. It has been suggested that two separate schools are needed—one for optical workmen, the other for optical calculators, the latter to be a mere small department in one of the universities or colleges. Such a divorce of practice and theory would be futile. What is wanted is an establishment where the whole atmosphere is one of optical interest, where theory and practice go hand in hand, where the mathematician will himself grind lenses and measure their performance on the test bench, where brain-craft will be married to hand-craft, where precision, whether in computation or workmanship, will be a dominating ambition.

As yet the only attempt made towards this ideal is the optical department of the Northampton Polytechnic in Clerkenwell, where a handful of students are housed in wholly inadequate surroundings. In the future institute the teaching must be thorough and independent, and free from all ulterior domination of examinations. The examination blight, which has cramped education in so many ways, has brought us to this pass, that outside the centre just named there is not a college student in Great Britain who is being trained in *optics for its own sake*. The moral is obvious. The future optical institute must be properly housed and equipped as a self-contained monotechic, concentrating all its energies on the one aim. On no consideration whatever ought it to be under the baneful influence of a university, where its students would be diverted from whole-hearted devotion to progress by the temptation of degree-hunting. Would that this convention might make it clear to those in authority that the optical industry is in deadly earnest in demanding the establishment of such a centre of optical training.

BIRD NOTES.

IN the May number of *The Zoologist* Mr. J. M. Dewar discusses the evolutions performed by flocks of certain kinds of wading birds of the family Charadriidae. These evolutions, which are based on a simple type common to the whole family, but frequently comprise specialised additions, are believed by the author to be of a defensive and protective nature, the essential form of movement being an imitation of the sea-spray. "When the flock is large the movements are often sectional, and what seems to be a succession of waves passing through an extended flock is in many cases an extremely quick repetition of the simpler form of the evolutions by sections. The 'sheet-movements' which provide much of the spectacular display are rendered possible by the same circumstance, and generally grow out of the simpler form. . . . In other words, one may say the simpler evolutions are imitative in character and protective in purpose; in the complex evolutions the simpler imitative movements are partially hidden by the development of a wealth of movement which is still protective in purpose, but which, as regards character, is incapable at present of a simple and comprehensive explanation."

Despite the fact that the work of the two sexes can be easily distinguished, it appears from a note in the May number of *Witherby's British Birds* that there is a dearth of trustworthy observations in England to show whether male or female woodpeckers excavate the nesting-hole, or whether both

combine in the task. Continental observers are, however, generally agreed that the cock is the worker, and if this be so the same thing doubtless obtains in Britain, despite certain statements as to both sexes of the green woodpecker having been seen at work together.

In completing his notes on the bush-birds of New Zealand in the April issue of *The Emu*, Mr. J. C. M'Lean observes that, inclusive of the bush-hawk and the morepork, twenty-one species of North Island birds may be classed as arboreal, and of these sixteen have been identified in the Maunga-Haumia bush. Possibly two others should be added to the list; but it is probable that the huia—now very scarce everywhere—never extended so far north. The stitch-bird seems to have been exterminated in the district, if not also on the mainland.

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COMPARATIVE STUDIES IN MELANESIA.¹

IN the interests of his topographical work the author of the memoir under consideration was obliged to be almost constantly on the move; though this rendered any intensive study of a special people impossible, yet it afforded him opportunities for personal comparison of various peoples and cultures over a wide area. He has worked up the older sources with great care, and in many instances extends his comparisons to America, as he is anxious to see a full treatment of Malayo-Polynesian affinities with South American cultures worked out; the cursory treatment of this vast theme in Graebner's "Bogenkultur" he regards as quite inadequate and faulty in method.

The ethnological section of the memoir (pp. 28-167) deals primarily with western New Britain, of which our knowledge has been hitherto slight, also with the other German possessions in Melanesia, and comparative data from Indonesia and America are added. The physical anthropology is very incomplete, partly through the author's misfortune in losing his apparatus when his boat overturned; head-indices should have been worked out in addition to giving lists of head-lengths and -breadths. As regards material culture, Dr. Friederici has been careful to ascertain the distribution of different objects and customs wherever possible, and he gives a useful account of the various forms of houses observed, and the association of divergent types, with a number of diagrams of dwellings and plans of certain villages. Considerable cultural complexity and wide variation physically are of course to be anticipated in an area situated like the Bismarck Archipelago on the great highway of migration; in fact the author states (p. 316) that a considerable proportion of the natives are directly traceable to the "Alfurus" of eastern Indonesia, whose modified descendants are a relatively recent element in the Bismarck Archipelago and other Melanesian areas.

In the discussion of affinities the author emphasises the importance of linguistic evidence, and the present volume contains a sketch of the grammar of the Barriai language of the northern coast of western New Britain. He makes it a practice to give the native names of cultural objects described, and is a strong advocate of the retention of native place-names, which are already familiar to traders in the locality, and to which after all belongs the priority.

¹ "Wissenschaftliche Ergebnisse einer amtlichen Forschungsreise nach dem Bismarck-Archip-1 im Jahre 1908." II. "Beiträge zur Völker- und Sprachenkunde von Deutsch-Neuguinea." By Dr. Georg Friederici. Pp. vi+324+iv plates+map. (Mitt. aus den Deutschen Schutzgebieten, Ergänzungsheft Nr. 5.) (Berlin: Ernst Siegfried Mittler & Sohn, 1912.) Price, separately, 3.60 marks.