seen by the eye. It would be better if these were put in as finely as possible, if included at all. The atlas is well up-to-date; and, owing to this fact, will probably be useful to the professional as well as to the amateur. The star places are marked for the epoch 1900, and the Harvard photometry has been taken as the authority for the magnitudes, the positions being derived chiefly from Argelander's Uranometria Nova. For observers possessed of instruments of moderate size, this atlas will probably prove a useful companion.

A Protest against the Modern Development of Unmusical Tone. By Thomas C. Lewis. Pp. 46. (London: Chiswick Press, 1897.)

THE prevalent practice in organ-building of the present day is to use for the middle C a pipe too large in scale, and with mouths cut too high, the result being, according to the author, that the Diapason tone, which rules every other stop in an organ, has deteriorated in quality. A pipe which will give an ideal Diapason tone is specified, and the defects in organs which do not conform to the conditions laid down are criticised. The protest as regards church bells is chiefly directed against excessive thickness. In pianofortes the destruction of pure tone is held to be due "to an increase of heaviness in the hammers for the pounding of the strings, to an excess of rigidity in the framework and setting, counteracting the vibrating motion of the strings—to an excess of scale in the length of strings—to the production of false harmonics, and the absence of due proportion between the ground-tone and the harmonics, and generally to the making of more noise than music in the quality heard." The brochure contains some interesting information on the principles of the construction of organ-pipes, bells, and pianofortes.

Respiratory Proteids, Researches in Biological Chemistry. By A. B. Griffiths, Ph.D. Pp. v + 126. (London: L. Reeve and Co., 1897.)

THE conclusion which the author of this book aims at establishing is that there are several respiratory proteids (both coloured and colourless) in the blood of animals. The introductory chapter, occupying one-third of the pages of the book, brings together some interesting information on the constitution of the blood of echinoderms, annelids, insects, arachnids, crustaceans, molluscs and vertebrates. Following this are chapters on various respiratory pigments found in the blood of certain animals, and on colourless respiratory proteids. Chapters on the nature and functions of chlorophyll and hæmoglobin conclude the text. An appendix is devoted to brief descriptions of the chemical compositions of the chief pigments which occur in the bodies of animals, and the methods by which they may be extracted.

The book should be serviceable in directing attention to the comparatively neglected field of biological chemistry, even if all the views it contains as to biochemical processes are not accepted.

Outlines of Psychology. By Wilhelm Wundt. Translated by C. H. Judd. Pp. xviii + 342. (Leipzig: Wm. Engelmann. London: Williams and Norgate, 1897.)

THIS book differs from the other works of Prof. Wundt in being more purely psychological, the physiological aspect of the subject being kept as much as possible in the background. Like the other works, it is an exposition of the special attitude of the author rather than a critical account of the present state of knowledge on the subject; but this is a feature common to most psychological text-books. For those who wish to learn the views held by the leader of one of the chief schools of modern psychology, the present volume will serve excellently. The translation is good, and Dr. Judd has added a useful glossary giving the German equivalents of the chief psychological terms used.

LETTERS TO THE EDITOR.

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Organised or Sectional Work in Astronomy.

THE remark was recently made by Prof. S. C. Chandler that, notwithstanding there had been no recent systematic arrangement of work in connection with variable stars, the result was most gratifying; for the observations were fairly complete, few interesting objects having been neglected. He says that "this satisfactory result could hardly have been reached so effectively by a formal organisation of work directed from headquarters, prescribing and circumscribing the operations of each participant, and destroying by its benumbing influence the enthusiasm which springs from the individual initiative of the observers themselves."

This statement emanating, as it does, from a thoroughly practical man, and being based on unequivocal facts, must commend itself to the consideration of every one interested or engaged in the sectional work of various societies. It is evidently a point worth inquiry, as to whether Prof. Chandler's remark applies with equal force to other departments of astronomy besides that of variable stars. Having had some little experience in the sectional work of the Liverpool and other astronomical associations, I may perhaps be allowed to express the opinion that, while in some branches there is great utility in co-operation, in others the material advantage is rather questionable. In comet-seeking the division of labour seems eminently desirable, because one observer cannot possibly examine all the available sky at sufficiently short intervals. In meteoric researches, also, concerted effort is most valuable for the purpose of securing duplicate observations. Amateurs, by pre-arranging the hours for simultaneously watching the heavens, and the particular region for each one to observe, are enabled to secure a number of observations of identical objects, and the real paths of these may be derived from the materials gathered in this way. If left to independent effort, the chances of success would be greatly diminished, and the accuracy of the observations impaired; for a person when engaged in special combined work is apt to put forth his best energies, and the appearance of a large meteor is not likely to find him unprepared, unless it comes at a time not included in the prescribed hours of work.

But, in some other departments of observation, there does not appear to exist the same necessity for organised effort. In fact, I think that it can be shown from results—the best of all tests—that it has been a comparative failure as far as it affects the progress of astronomy. Of course a great deal depends upon the director of a section. If he is a man of great resource and skill, he will be pretty sure to have something tangible to show for his work, and that of his colleagues. The worst of it is that, in publishing collective results, the good, bad, and indifferent are indiscriminately presented; and there being, perhaps, no criterion by which to distinguish them, the whole are virtually rendered useless. Taking any band of unselected observers those of moderate or poor capacity will greatly predominate. Even in meteoric astronomy, I would not, for an instant, recommend that the results of several observers should be combined with the idea of accurately determining the positions of radiant points. In such cases the bad or moderate observations swamp the trustworthy ones, and we can get radiants anywhere or nowhere, just as we like to interpret the evidence afforded by the materials before us. It is a most important requirement that really precise observations should be preserved from contact or collaboration with others of inferior character.

A little reflection will prove that all the best work has been accomplished by individual and independent effort. A good man will persevere in his labours, just the same, whether he belongs to any combination or not; and it is really much better for such a person to be isolated, so that he may perform the work of his choice in his own way, and publish it in his own style. If a man has the ability to accomplish useful work, he will know the best form in which it may be presented for the benefit of science. Moreover, he needs no encouragement; he proceeds with his research because he is actuated by the love of it, and sees the beacon of success shining invitingly in the foreground.

Undoubtedly, cases could be cited where combined work has been or will be most efficacious. In an object of exceptional