the magnificence and grandeur of our country. We are told, for example, that Texas is larger than the whole of Europe, not including Russia, yet if Texas were concentrated to a square rood it would not contain as much art, science or music as may be found in many of the hundred smaller towns of Germany. We are told that the two Dakotas are as large as Greece. This comparison is as ludicrous as to say that Daniel Lambert was six times as large a man as Raphael. A bound volume of the Bloody Gulch *News* might exceed in weight and size the first folio of Shakespeare, a crematory for garbage might have a chimney exceeding in height Bunker Hill Monument. These are the kinds of figures we are told our boys and girls should know. Our people need to be taught the true value of comparison. They will be none the less patriotic, but they will be the more eager to establish and sustain with generous hand those kinds of institutions which make Europe so attractive to every intelligent American. Precisely how this work is to be accomplished I do not know, but it would seem that scientific societies, by the appointment of committees, should embody the principles of science so that the young mind may gradually grow to a comprehension of the right way of living and thinking. There is a scientific way of dealing with crime and vagabondage; there is a scientific way of administering charities, there may be a way of showing the survival in the human mind of belief in omens and dreams; and the child should be taught to appreciate the condition of a man, otherwise intelligent, in whose brain there survive a few molecules that lead him to believe in hallucinations. Even at the present time we see surviving in a few brains the ancient and almost universal belief that the world is flat.

This work should be international. We have so many international agreements, such as signals at sea, longitude and latitude and an international postal union; let us have international text-books to make the twentieth century leave its fetiches, its idiocies, its enslavements to the vagaries belonging to the imagination, and realize, in the words of Huxley, that 'Science is teaching the world that the ultimate court of appeal is observation and experiment and not authority, she is teaching it to estimate the value of evidence, she is creating a firm and living faith in the existence of immutable moral and physical laws, perfect obedience to which is the highest possible aim of an intelligent being.'

Edward S. Morse.

SCIENTIFIC BOOKS.

Inductive Sociology, a Syllabus of Methods, Analyses and Classifications, and Provisionally Formulated Laws. By Franklin Henry Giddings, Ph.D., LL.D., Professor in Columbia University. New York, The Macmillan Co. Pp. xviii + 302.

A new book by Professor Giddings is an event of first-rate importance among the sociologists. The present volume is notable not merely because anything produced by its author is bound to attract attention. It is in many respects the maturest and most important of his publications. One fact among others will be better appreciated within the craft than among other specialists. Professor Giddings has very pronounced peculiarities of view with respect to both material and method of sociology. In the present volume those peculiarities stand out more distinctly than ever. Their reception by the sociologists is likely to be much more tolerant, and even sympathetic, than could have been the case ten years ago. This indicates not so much that Professor Giddings' views will be accepted, as that differences which seemed essential ten years ago have come to be regarded as variations of points of view, and of emphasis; while other differences concern matters of method which are not mutually exclusive, but which are largely questions of very complex relativity. Sociologists will find very much to

applaud in this book, even though it diverges farther from the trunk-line of sociology, as some of them see it, than his earlier works.

The contents of the book are likely to be summarily and seriously misjudged by scholars in other sciences who merely give it casual notice. It seems to propose quantitative measurement of phenomena which obviously cannot be controlled, and to do the measuring by means of units which are both vague and variable. For instance, four types of individual character are posited: The forceful, the convivial, the austere, and the rationally conscientious. In an appendix the geographical distribution of these types in the United States is shown by an outline map shaded to correspond with the supposed predominance of the types respectively. The resident of Illinois, who finds himself in the 'austere' belt is provoked to inquire whether his previous impressions of miscellaneousness among his neighbors are utterly at fault. If he happens to live in Chicago, which, like other large towns, is classed as 'rationally conscientious,' he may turn to the text for the formula of himself and his fellow-townsmen. It runs in this fashion (p. 83): "This type is the product of a reaction against and progress beyond the austere character. It is usually developed out of the austere type. Like the austere, it is strongly conscientious, but it is less narrow in its interpretations of what constitutes harmful self-indulgence, and is more solicitous to attain complete development of all powers of body and mind. It enters all respectable vocations, but is much occupied also with liberal avocations, including literature, art, science and citizenship. Its pleasures are of all kinds, athletic, convivial and intellectual, including enjoyment of the arts; but all pleasures are enjoyed temperately." If one were disposed to be facetious, here is abundant occasion. But this is merely a sample of many features in the book which equally stimulate the sense of humor. Sceptics about sociology, who on general principles come to the book to scoff, will hardly remain to pray. They will pronounce the whole affair absurd. But his colleagues know that Professor Giddings is not a man given to absurdities, and the very boldness of his drafts on their attention forbids snap-judgments. The clue in all these cases is to be sought in the difference between illustration and demonstration, and in the probability that Professor Giddings points out to his students, as scrupulously as any of his critics would, the approximate nature of such characterizations at best, and the limitations that must govern their application to masses.

But the sceptic will insist: 'What scientific value can there be in a method that deals with terms so inexact?' As will appear presently, my estimate of the relative importance of Professor Giddings' method for sociology is almost the inverse of his, yet whatever be the true ratio, sociologists ought to unite in testimony that they understand Professor Giddings, and that his program deserves scientific consideration.

The volume is divided into two books, entitled: I., 'The Elements of Social Theory'; II., 'The Elements and Structure of Society.' Book I. treats of the logical and methodological correlations of sociology with other divisions of knowledge. Though the author's individuality appears in these chapters at many points, the crux of the book is not in the prolegomena.

Book II. is divided into four parts, each containing four chapters. The titles are: Part I., 'The Social Population'; Part II., 'The Social Mind'; Part III., 'Social Organization'; Part IV., 'The Social Welfare.'

A disciple of the school of Schaeffle may be permitted to remark that, in spite of endless differences of detail, the outline which Professor Giddings draws from these points of departure connotes essentially the same fundamental ideas which 'Bau und Leben' developed. After all the contempt which has been heaped upon that work by men of other schools, such an independent and virile thinker as Professor Giddings is merely prospecting along the lines of Schaeffle's survey. This does not mean that Professor Giddings is either a conscious or an unconscious imitator. His originality is beyond question. It means that, up to a certain point, Schaeffle described the essential facts of society so truly that nobody

who studies society objectively can avoid representing the facts, provisionally at least, in forms which vary from his only in detail. Each new examination of the facts leads up to or builds upon an analysis substantially equivalent to his. Professor Giddings' conception of the things involved in general sociology is simply a variation of the 'General Theory of Forms and Functions (Social Morphology, Social Physiology, and Social Psychology),' contained in 'Bau und Leben,' Part I. The biological figures which Schaeffle uses so liberally are a mere accident. The relations which he formulates are the same reactions of persons upon persons which all sociologists must sooner or later take account of in substantially the same manner. Professor Giddings' hint (Preface, p. x), that while the present volume deals with 'only one-half of the field of general sociology' the other half, as he views it, consists of social genesis, corresponds with Schaeffle's second division, 'The General Theory of Evolution.' The teleological thread running through Professor Giddings' Part IV. is quite in the spirit of the telic theory that pervades Schaeffle's treatment. These facts are worth noting, as a commentary on the prevailing impression that sociology is merely a group-name for a litter of unrelated opinions. The sociologists have given occasion for this idea by magnifying the minutiæ of their differences. All the while a consensus has been forming, which will presently justify itself as the framework within which our whole conception of life must be arranged. Distinct as are the individual elements in Professor Giddings' work, it should be said that they are incidents in the development of a common body of sociological doctrine, and that their value is in proportion to their compatibility with that containing whole.

Of the four parts of Book II., the first traverses well-worn ground of anthropology and ethnology, though not in the beaten tracks. The chapters are entitled: I., 'Situation'; II., 'Aggregation'; III., 'Demotic Composition'; IV., 'Demotic Unity.' In each of these chapters the author has made important suggestions as to the technique of the subject. For reasons that will appear later, however, we may neglect details at this point, and speak more particularly of Part II. Though this portion occupies but 125 of the 302 pages in the whole work, it contains the most original features of the argument. The arrangement is as follows: I., 'Like Response to Stimulus'; II., 'Mental and Practical Resemblance'; III., 'The Consciousness of Kind'; IV., 'Concerted Volition.' While, for reasons to be stated in a moment, I do not believe that these chapters are properly sociology at all, and while I do not believe that they indicate the most advantageous passage out of psychology into sociology, they are brilliant and inspiring in almost every line. The psychologist, however, rather than the sociologist, is the competent judge of their contents. These reservations do not apply to the chapter on concerted volition. Its value, both as a stimulus of sociological research and as an indication of sociological and social demands upon psychology, would justify very emphatic praise.

Instead of entering upon microscopic examination, it seems better worth while to offer two cardinal criticisms of the book. It should be said in advance that, from the sociologists' point of view, the propositions to be urged against Professor Giddings charge sins of omission, not of commission. They recognize the positive service which his work has rendered, but they aim to fix its relation to the development of sociology in general. The first proposition accordingly attempts to place Professor Giddings' work more definitely than its author does, in correlation with other work. The second points out one of its limitations.

First then, as was hinted above, the work is primarily and predominantly not sociology, but ego-ology. Its vanishing point is not society, but the individual. As we have seen, Part I. of the argument proper (Book II.) is anthropology and ethnology. Three quarters of Part II. must be classed as psychology without benefit of society. To the layman this may appear a petty matter. What difference does it make whether the work bears the label of one shop or another, so long as it is good work? It really makes a great deal of difference. There either is or is not a need

of several kinds of shop. So long as the work is done indiscriminately in one, the same processes with the same tools being performed by different men; or so long as processes which require the technique of the shop are abridged by a right which assumption of a distinctive name is presumed to confer upon some outside workers, there is danger both that the work of the shop will be inferior, and that there will be costly delay about differentiating the shops. There are tremendous problems for workers in the sociological shop. They will not get their eyes fairly trained on those problems till they are willing to depend upon the workers in the psychological shop to mind their own business.

In the last analysis, Professor Giddings' view of the relations of anthropology and psychology to sociology probably do not essentially differ from those which prompt this criticism. The former sciences are absolutely necessary foundation-layers and tests of all sociological conclusions. The sociological interest is not however the anthropological or the psychological interest. Professor Giddings has nevertheless illustrated a very prevalent tendency among the sociologists to suffer seduction from their proper problems by interest in problems already claimed by other divisions of labor.

Professor Giddings devotes himself to making out, by a large number of differentia, the distinguishable physiological, intellectual, emotional and moral types of individual. Now I have not a word to say against the value of this work, nor do I question its ultimate bearing upon sociology. What I do urge, however, is that this is business for the anthropologist and the psychologist, while the sociologist would do better to make requisitions upon these specialists for information within their own field, and devote himself to statement and study of problems which, from his point of attention, are social first and individual second. It is certain that individual types of the sort which Professor Giddings suggests will never be made out with sufficient accuracy to have any scientific use, unless they are determined by the measurements of the appropriate laboratories. Sociologists would promote science very much faster if they would devote the same amount of strength which they now expend in labors outside of their own field to creation of an effective demand for the labors of the proper specialists.

The point may be illustrated if I suppose myself an imitator of Mr. Howells' visitor from Altruria. Suppose I am an investigator from Utopia, where we will assume intercourse between persons is all purely spiritual, with no material aims or media. My astral body hovers over New York harbor, and my purpose is to find out as much as possible about the means and ends of what I hear the New Yorkers calling 'business.' I note certain differences in the craft plying in all directions. Suppose that, like Adam, I am inspired to apply fit names to the creatures; thus, canal-boat, ferry-boat, lighter, tug, dredge, excursion-steamer, tramp, liner, pilot-boat, coaster, fishing-smack, battle-ship, etc. Now suppose I make up my mind to enlarge my ideas of 'business' by taking these different craft as my clues, and that I proceed to hunt down the part which each type plays in 'business.' The present argument is that it would be more to the purpose for me to attempt this by starting with the registration and clearance papers of these craft, and by following them as they go about their several kinds of work, taking all preliminaries for granted, than it would be for me to probe back in the other direction, through the architectural construction of the craft, down to the chemical and physical properties of the materials so assembled. That is, if my immediate interest is traffic, it is poor economy for me to specialize on questions of marine architecture, and chemistry and physics. This is not to deny the relation of traffic to technical and pure science. Neither the science, on the one hand, nor the commercial knowledge on the other, will be complete till it is a synthesis of both; but it would be just as evident a mistake for me, in pursuit of knowledge of 'business' to concentrate my attention on pure science, as it would, if I were in pursuit of pure science, to concentrate my attention upon business.

Now to go back to Professor Giddings as a type of the sociologists. We shall never completely understand social reactions until we

understand the physiological, psychological, emotional, and moral composition of individuals. On the other hand, we shall never fully understand these elements until we entirely comprehend the social reactions in the course of which these elements are evolved. Meanwhile it is the fond folly of the philosophic temper to invert values, and plan to learn most about the thing that interests us most by neglecting it and studying most the thing that interests us least. It is not less fatuous because, forsooth, there is an ultimate interdependence between these objects of less and greater interest. Such reversal of a practical order amounts to a confession of unfaith in one's own appropriate scientific mission, and in that of others as well. Cannot other scholars be trusted to do their own work better than we can do it for them, and have we nothing to do which others have not fitted themselves to do as well? The strictly sociological questions center around *the fortunes of men in association.* The strictly physiological and psychological questions center around the *make-up of the persons associating.* Either of these groups of problems is a perfectly legitimate sphere of scientific interest. Neither of them is an exclusive sphere. Each runs into the other. It is, however, forsaking specialization for amateurism if the men whose center of interest is in the social sphere give their time to exploiting hypotheses in the individual sphere, and *vice versa.* As Professor Giddings assumes, in abundant and striking examples, in the chapter on concerted volition, the typical sociological questions are: How do men associate? For what purposes do they associate? How do they come to change the types of their associations? What are the reactions of the different types of associations upon the persons associating, and of the persons associating upon the different types of associations? Our answers to these questions will be false if we cut loose from the involved facts centering in the individual; but knowledge of these two phases of the common reality will have to grow through persistent use of the distinct centers of attention, not by abandonment of the one for the other.

For the sociologist to try to be at the same time a successful ethnologist and a laboratory psychologist, in the hope of building up social facts from the elements, is hardly less naïve than the program which has been adopted and abandoned in disgust so many times by overconscientious historians. They have decided to go back and find a point which they might take as absolute beginning of the evolution which they wanted to trace, and they have resolved from that point to clean up everything as they went along, leaving no unfilled gaps, and no unattached material. In practice they have been obliged to choose between forever pushing backward in search for the origin of the origins, or starting somewhere and tracing certain series of apparent evolutions, neglecting many factors that are doubtless concerned in the evolution, in order to be free to consider any series at all.

In actual experience, as contributors to knowledge rather than as middle-men, we must virtually choose in the same way, between physiology and psychology on the one hand and sociology on the other. Neither division of labor is going to succeed in cleaning up everything as it goes. Psychology will at one stage limp because it lacks support in sociology, and again sociology will be top-heavy because its center of gravity is not down close enough to psychology; but science will progress best if the sociologist sticks to sociology, and takes his psychology from the psychologists, instead of trying to be his own psychologist; and *vice versa.*

Professor Giddings is attempting to interpret society in terms of that abstraction which we called 'the individual' before we realized that it was an abstraction. This, I think, accounts for the fact which Professor Ross points out in a highly appreciative review of 'Inductive Sociology' (*Am. Jour. of Sociol.,* January, 1902), viz., that the title of Book II., Part II., Chap. II., 'Mental and Practical Resemblance,' is a misnomer. The chapter is a most sagacious qualitative analysis of individual traits, and a formal determination of types marked by the traits. Apparently, however, Professor Giddings' thought is in this form: "These traits in the individual, A, resemble the traits in the individuals B, C and

D. Therefore these like individuals make the type X." He consequently credits himself with classifying resemblances. If his viewpoint were strictly that of society rather than of the individual, he would see that he thereby checks off but a single step in his process. When he takes the next steps, and determines the types Y, Z and W, he does it by means of their differences from X and from each other. This is the longer and more important step and, as Professor Ross intimates, he should have designated it accordingly. The study of individuals is not sociology, any more than the study of bricks would be architecture. I would not prejudice my case by seeming to say that Professor Giddings has not studied sociology. He has of course for years been among the men who have studied it in all its dimensions. The present thesis is that the individual and the theory of the individual subtend too much of the angle of Professor Giddings' vision. The consequences are, first, that he does not draw a sharp methodological line between the sciences of the individual and the science of society; second, that his own work is, more than he is aware, on the individual side of the point where the division line ought to be; third, that the conclusions which he carries over to the social side of his thinking are arbitrary constructions of artificial individuals into a conventionalized social whole.

The second chief count against the book is that its organizing sociological conceptions belong in a period out of which sociology has definitely passed. As was said above, they are essentially the ideas of Schaeffle. To have thought Schaeffle's thoughts ten, or even five, years ago was a merit. Not to have thought beyond them to-day is a demerit. Professor Giddings' Part III., 'Social Organization,' and Part IV., 'The Social Welfare,' attempt precisely what Schaeffle attempted in the corresponding parts of his work. The results in the later instance do not suffer by comparison with the earlier, but no doubt Professor Giddings will be among the first to realize that a new idea is breathing the breath of life into the dead clay of structural and functional classifications. It should be admitted, in extenuation, that the only safe way to insure against the appearance of lagging behind the progress of sociological theory is to refrain from publishing a book. The movement of thought has been so rapid that an author is fortunate not to have outgrown his plan before his last chapter is in type. The probabilities are that Professor Giddings is no exception to the rule, and that the new impulse has exerted its full force upon him. It would be an injustice to hundreds of contemporaries in many divisions of science to credit this new impulse to any single individual; but Ratzenhofer has given it such detailed expression that it would not be at all strange if the present stage of sociological development were presently reckoned as dating from the appearance of 'Wesen und Zweck,' in 1893.

The center of gravity of the newer sociology is in the *interests* which move the machinery of association. Everything else becomes secondary. Instead of stopping with structural and functional formulas, as the last expressions of the social fact, we realize that societary structures and functions are merely vehicles of the essential content. The central reality in association is the evolution and correlation of interests. This perception produces a new critique of our whole structural and functional tradition. It furnishes a lens through which to see whether our sociological categories are elaborations of sterile technique, merely flattering its inventors, or whether they actually correspond with the interests which produce and operate and reconstruct the social forms.

Professor Simmel has lately remarked (*Inter. Monthly,* February, 1902, p. 183) that the real significance of historical materialism must be found in the fact that it is "the first attempt to explain history by means of a psychological principle. If hunger did not cause pain, if it were not, besides having its physiological function, a spiritual event, then it would never have set free the events that we call history." Anticipating the conclusion that 'historical materialism is altogether too narrow an hypothesis,' he observes two pages earlier: "The general synthesis that shall unite all the currents of existence as known to us

into consistent ideas, that shall convert all external reality into spiritual values, and satisfy all the needs of the spirit with the results of knowledge—this great synthesis we still await." All men who study life, and indeed all who live, will contribute to this synthesis. The sociologists have volunteered for a part of the work which is more general than that attempted by either of the older divisions of labor within the group of the positive sciences. It is nothing less than the frank attempt to achieve this synthesis. The most credible clue which they have discovered as yet is that the key to the interpretation of life is not one interest, but all interests. The immediate quest of the most alert sociology is a conspectus and a calculus and a correlation of the interests which actually impel real men. This quest is completely readjusting the sociological perspective. It is making us feel that we have been dealing with the stage-settings instead of the actors. It does not, and it cannot do away with knowledge of the mechanism of social structure and function, from the bodily tissues and mental traits of the units up to the conventions of world-society. It is beginning to enforce the conviction, however, that these are finally to be understood, not as their own interpreters, but as interpreted by the more vital realities, *i. e.*, the interests that produce and use them.

The change that has come over sociology is not unlike the shifting of attention in botany from the making of herbaria to the study of ecology. The change is taking us out of an atmosphere of isolated cases, on the one hand, and of desiccated metaphysics on the other, into the real life of men. We have to find out what men want, why they want it, in what proportions to other things that themselves and others want, how the wants depend upon each other, how association is related to these wants (the real passage from psychology to sociology), and how to appraise the same in settling upon a theory of the conduct of life. With this perception at the fore, our venerable structural and functional sociology begins to look like a treatise upon the instruments of Sousa's band by a man who had not found out what they are all for.

The conclusion of the whole matter is not that appreciation of Professor Giddings' book was promised at the beginning, only to be withdrawn at the end. The sort of work which the method proposes will have to be carried on by somebody until we have the kind of knowledge that it seeks. It requires the prevision and the courage of the seer to advertise a program which is sure at the outset to impress men in the exact sciences as quixotic. My conviction that analysis of interests and determination of interest-groups is more fundamental and more enlightening than classification of types on any less essential basis, makes me insist that Professor Giddings' program is not the most timely. It points, however, toward something which must sooner or later have its time. It is a powerful argument to the effect that the really fruitful work of psychology is virtually not yet undertaken. It should have the effect of a keen spur in promoting the development of both psychology and sociology. ALBION W. SMALL.

The Microscope and its Revelations. By the late WM. B. CARPENTER. Eighth Edition, edited by W. H. DALLINGER. With 23 plates and nearly nine hundred engravings. Philadelphia, P. Blakiston's Son & Co. 1901. Price, $8.00.

This standard work of reference has undergone another revision to keep it abreast the rapid advance in microscopical optics and construction during recent years. Two years ago with the appearance of the seventh edition the work was entirely rewritten, and while the changes now are less extensive they embrace the complete reconstruction of eight chapters, covering about one half of the 1,100 pages of the book. The portion rewritten treats of the principles of microscopical optics and of vision with the compound microscope, the history and evolution of the instrument and its accessories, the manipulation of apparatus, the preparation of objects and the application of the microscope to geological investigations. In this work the author has had the assistance of such well-known authorities as E. M. Nelson, A. B. Lee, E. Crookshank, T. Bonney, W. J. Pope, A. W.