from reasoning, a separation which ought not to be made, because analysis of the former proceeding shows, to contain the same elements as the latter. His attaching a very high importance to definition is more in accordance with the tendencies of natural science than it is with the doctrines of that nominalistic school of metaphysics with which Mr. Bain is affiliated. He rightly insists that the characters of the object which are enumerated in the definition should be such as are important, but his analysis (usually weak) fails to detect in what the importance of a character consists. A sentence which he has quoted from Sir George Cornewall Lewis might have furnished him with a hint. "By including in monarchies," says that writer, "and excluding from republics, every government of which a king is the head, we make every true general proposition respecting monarchies and republics impossible." An important character is obviously one upon which others depend, that is, one the inclusion of which in a definition renders true general propositions concerning the object defined possible; and the more such propositions a character renders possible, the more important it is. In the same way, a natural class is one which can be so defined that something can be predicated of it which cannot be predicated of the genera included in its definition. Mr. Bain endeavors to make the logical definition identical with the scientific definition—a most worthy aim; but we fancy that zoologists and botanists are already so much advanced in the knowledge of classification beyond the mere logicians, that Mr. Bain's maxims will have little weight with them.

In treating of causation, Mr. Bain includes in the pure logical principle the law of the conservation of force, which according to him, in opposition to the physicists, refers not to *vix viva* but to *momentum*. He gives a long account of the systems of De Morgan and Boole, but not such a one as they would approve, and he makes some serious mistakes.

As a school-book the work has some advantages, but even where the author's thought is perhaps not itself vague, his manner of expressing it is not calculated to inculcate precision in the mind of the pupil.

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1871

12 (13 April 1871) 258

NOTES

This obituary notice is mentioned in the note that immediately follows—12 (29 April 1871) 276—which Fisch attributes to Peirce. Therefore, the foregoing notice is included here in order to complement comments in the next item. This piece is unsigned in Haskell's *Index to the Nation*, vol. 1.

—A scarcely less voluminous writer was Professor De Morgan, who was born at Madura, in Southern India, in June, 1806, of a family distinguished in the military service. His mother's grandfather, however, was a mathematical teacher of some eminence, may be supposed to have predetermined his career. In 1827, he gained at Cambridge the first place in the mathematical tripods of that year, but declined to subscribe to the religious tests necessary to obtain either the degree of M.A., or a college fellowship. In 1828, he accepted the professorship of mathematics in the London University, the principles on which that institution was founded being in accord with his religious independence; and he abandoned this position in 1866 when, as he thought, in violation of those principles, James Martineau was refused a professorship on account of his theological opinions. In the service of the London insurance companies, "he raised the actuary's vocation to the dignity of a profession," and was almost to his last day the confidential adviser of several associations. His "Essay on Probabilities," "Elements of Algebra," "Formal Logic, or the Calculus of Inference Necessary and Probable," and the "Differential and Integral Calculus," are among the works which made him distinguished, but which show but a small part of his intellectual activity. He was a constant contributor to various periodicals, to the *Athenaeum* from 1840; and by no means on mathematical subjects alone. "His contributions to Knight's * Penny Cyclopaedia* are a considerable proportion of the entire work. He passed for diversion's sake from one arduous study to another," but found time to acquire a good degree of proficiency as an instrumental performer, and was a habitual and eager reader of novels, especially of humorous novels. As a mathematician he had the rare merit of not overestimating his favorite science, though he proved by his "Formal Logic" that it was not incompatible for a mathematician to be also a逻辑ian; and he was accordingly one of the weightiest adherents that Spiritualism has ever won over. A treatise of his of these manifestations, entitled "From Matter to Spirit," was written in 1863. As a writer and a teacher, he was one of the clearest minds that ever gave instruction, while his genial and hearty manners in private and in the school-room strongly attached to him all who came in contact with him. He was a man of full habit, much given to sniff-taking; and those who have seen him at the blackboard, mingling snuff and chalk in equal proportions, will not soon forget the singular appearance he often presented.
12 (20 April 1871) 276
NOTES

Attributed to Peirce by Fisch in *First Supplement* (internal evidence). This notice is
unassigned in Haskell's *Index to The Nation*, vol. 1. Peirce met De Morgan in 1870.

We need not apologize for adding to the sketch we gave last week of the late Professor De Morgan a few remarks of a more critical nature. Among mathe-
maticians he was distinguished more for the completeness of his logic than for
analytical facility. His pupils speak of him with warm admiration, but it may
be presumed that they gained from him even more of general skill in accurate
reasoning than of specific mathematical power. His elementary books, which are
not enough known, are excellent, especially for students who have no natural
turn for mathematics; and his work on the calculus is unusually complete, and
its demonstrations particularly instructive. Of his researches, one of the most no-
ticeable is his paper on triple algebra, which traces out the consequences of cer-
tain definitions of symbols in a manner much like that of his formal logic; but
for this difficult subject De Morgan's analysis was not sufficiently subtle and
he can only be said to have started the enquiry without having arrived at any
valuable results. His best contributions were to mathematical logic. In his con-
troversy with Sir William Hamilton, in 1847, both disputants fought in the dark,
because Hamilton's system had never been published, and Hamilton had never
patiently examined De Morgan's. All the points of Hamilton's attack were, how-
ever, completely disproved. Upon the publication of Hamilton's works,
De Morgan renewed the controversy with Mr. Spencer Baynes, who, after an
unconditional pledge to produce proof of his position, was compelled to abandon
the field. Since that time Hamilton's once celebrated system has fallen into ne-
glig, while De Morgan's commands more and more respect. In point of fact,
Hamilton's system, like De Morgan's, is mathematical, but is the work of a mind
devoid of mathematical training. It would be premature to try to say what the
final judgment of De Morgan's system will be, but it may at least be confidently
predicted that the logic of relatives, which he was the first to investigate ex-
tensively, will eventually be recognized as a part of logic. The best statement of
De Morgan's system is contained in his "Syllabus of a Proposed System of
Logic," but his fourth and fifth papers on the syllogism are of later date.
De Morgan was a deep student of the history of the sciences to which he was
devoted. He wrote many biographical notices of mathematicians in the "Penny
Cyclopaedia," and the "English Cyclopaedia," as well as a bibliography of arith-
metric. Indeed, the amount of his writing upon various subjects in the two cyclo-
pedias, in the *Athenaeum*, in the *Companion to the British Almanac*, in seventeen
or more separate books, and in various scientific periodicals, including the *Jour-
nal of the Philological Society*, is enormous, and it is all very pleasant reading for
its perspicacity, vigor of thought, wit, and a certain peculiar flavor of style. The
last qualities are well seen in his "Budget of Paradoxes," published in the
*Athenaeum*.

13 (2 November 1871) 294
NOTES

This is probably by Chauncey Wright, if, as much as the comments on Peirce's review of
Fraser's *Berkeley*—see 13 (30 November 1871) 355-356—are by Wright, according to
Haskell, *Index to The Nation*.

There are six critical notices this month, and they compare favorably for weight and learning, with the rest of the number, which, taken altogether, is a
very good one, with nothing bad in it, and much that is very good, and having,
indeed, no fault except the good-sized fault, that it is deficient, almost to destitu-
tion, in purely literary matter, and that, for a "Review," it notices not many
books. Those which it does notice, however, it treats with all the customary care.
They are these: Delbrück's "Uses of the Conjunctive and Optative in Sanskrit and
Greek"; Dr. J. F. Clarke's "Ten Great Religions of the World"; the sixth edition
of Professor Max Müller's "Lectures on the Science of Language"; the second
and third volumes of Greene's "Life of Major-General Nathanael Greene"; Pro-


13 (30 November 1871) 355-356
NOTES

Chauncey Wright, identification: Haskell, *Index to The Nation*, vol. 2.
Chauncey Wright (1830-1875) was graduated from Harvard College in 1852. He was
known primarily as a philosopher, having contributed several important essays to that
subject to the *North American Review*. In addition to working in philosophy, he made con-
tributions to mathematics and biology, his essays in defense of the evolution of species being
reprinted in England at Darwin's insistence. He became a regular member of the Harvard
faculty in 1874, where he taught for one year until his untimely death.

—Mr. Charles S. Peirce, in his review of Berkeley in the last *North American*,
to which we promised to return, takes the occasion to trace out in the history of
philosophical thought in Great Britain the sources of Berkeley's doctrines and of
later developments in English philosophy. These he traces back to the famous dis-
putes of the later schoolmen on the question of realism and nominalism—that
question on which each new-fledged masculine intellect likes to try its powers of
disputation. But the motive of the schoolmen who started this question or gave it
prominence, was not in any sense egotistical, however pugilistic it may have been,
but was profoundly religious—more religious, in fact, than anything modern, and, perhaps, more fitly to be compared to the devotion that produced
the Gothic architecture than to anything else. The most remarkable thing in the
event is Mr. Peirce's interpretation of the actual question so earnestly agitated.