# SCIENCE.

FRIDAY, OCTOBER 31, 1884.

## *COMMENT AND CRITICISM.*

THERE is probably nothing which we can recognize as so entirely characteristic of our own epoch of history as co-operation, — the union of a number of men for a common purpose. Co-operation is very old; but its present frequency, and often also its form, are new, and therefore it has a significance for us, the extent of which is great, but still unmeasured. It is, indeed, the very essence of democracy. But we have not to do with the general aspects of this great subject: we wish only to refer to its increasing development in scientific research; and even of that development we intend to direct attention only to the prevalent tendency towards systematic and organized co-operation.

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In our recent numbers we have had occasion to report the progress of several noteworthy scientific undertakings which are strictly co-operative. We need only remind our readers of the new standard time, the electrical and meridian conferences, and the reports of the investigating committees of the British association, as illustrations of the accomplished good which science owes to co-operation. Our experience of the benefits to be had through the efforts of competent men, united in conferences, committees, and congresses, to settle some scientific problem, is rapidly changing what was formerly a sporadic effort into a confirmed habit of the civilized world. The same proclivity has another manifestation in the still more novel custom of what we venture to designate as co-operative observation. A central bureau, a society or committee, receives and collates the data obtained by scattered observers. The earliest instances we recall of this method of centralized collation is of meteorological observations, in this country conducted for many years by the Smithsonian institution. Such, too, is the method adopted by the English society for psychical research, by the American ornithological union for tracing the migrations of birds, by Mr. Galton in his remarkable studies, by the English committee for the collective investigation of disease; and so on through a long list. Again, through the energy of the Harvard observatory, there is an extensive system of co-operation among astronomers, and the British association is endeavoring to systematize the work of the numerous local societies in Great Britain.

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One naturally stops to ask, What is to be the future? Will the co-operative tendency, which is already so strong, go on increasing? We think the answer must be in the affirmative; because the more systematized scientific research becomes, just so much surer and steadier will discoveries ensue. At present individual tastes have far too large a share in deciding what is investigated, and hence follows the deplorable consequence that many an important subject is neglected because no one happens to be interested in it. Moreover, there is much work to be done which can be accomplished only by scattered observers who obey a pre-arranged system. May we not, therefore, reasonably expect a great deal for science in the future from systematized co-operation?

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THE medical journals are just now giving an interesting illustration of the ease with which the members of a busy profession may overlook their own past, and occupy themselves with experiments and investigations, only to find that the same results and disappointments had been reached and fully recorded long before. Not many months ago a French physician, at the suggestion of another from Copenhagen, tried etherization by the rectum, and in a report of

cases called attention to it as a 'new method' for the administration of this anaesthetic. His work made an impression in his own country and on this side of the ocean. Others took up the method; and the journals had much to say about the promise which this improvement held out of being very useful, not merely in some special operations, but also in general. Then came reports of unpleasant complications and unexpected effects more or less beyond the control of the operator.

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While this experience was growing, and practical rules were slowly getting formulated, some of the older doctors, and some of the more 'literary fellers' of the craft, bethought themselves, and remembered that this 'new method' was, after all, nearly as old as ether anaesthesia itself. It seems that in 1847 Pirogoff recommended this application of ether-vapor, others having tried a similar use of the liquid alone or in a mixture with water. Pirogoff and the few others who gave the really new method a trial were not altogether satisfied, and seem to have abandoned it in a short time, except to meet a few very special conditions. Twenty-one years ago (1863) all this was fully described, and the dangers of such administration pointed out, by Perrin and Lallemand in their work on surgical anaesthesia; and as late as 1875 Claude Bernard mentioned it as an 'historically curious' method of considerable uncertainty and little practical value.

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There would seem to be no easy way of avoiding such repetitions, unless, perhaps, to have some member on the editorial staff of every medical journal learn a few of the larger indexes by heart, and stand ready to nip all 'new' methods and schemes in the bud. In general, however, a certain amount of repetition, even in practical matters, is not always objectionable; and, in scientific research in competent hands, it is even less so. The corroboration which may thus be obtained has frequently considerable value. Then, too, it must not be forgotten, that a fresh investigator who takes up an old problem apparently solved, perhaps is likely to approach it from another point of view, and with different traditions and equipment from his predecessors. Thus it is possible, that what at first appears to be needless repetition may lead to important results. It is a common experience, too, that few sets of old observations are really complete or useful, save for the particular and limited objects which interested the investigator.

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THE use of the word 'scientific' at the present time, illustrates how custom overrides etymology, giving sanction to an application of a word quite inconsistent with its derivation. 'Scientific' means, strictly, 'knowledge-making;' but it is employed to signify 'relating to, or in accordance with, science.' Last week we reviewed a work on 'scientific butter-making.' Now, if we could, by any process of manufacturing butter, produce science at the same time, every one would agree that it was an eminently practical and economical invention; but, alas! the true Anglo-Saxon defies etymology; and nobody will misunderstand the customary meaning of 'scientific' in adjectival association with butter-making, or when used to qualify much else which never makes knowledge. The word is a curious example of error becoming correct through usage. If we could only add the word 'sciential' to the language, usage might then conform to etymology in regard to 'scientific' by transferring half its duties to the new adjective.

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## *LETTERS TO THE EDITOR.*

*** *Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

### Iroquois grammar.

THE lively letter of your esteemed correspondent, Mrs. E. A. Smith, is satisfactory in one respect; as it explains clearly her views on the subject discussed by her at the late Montreal meeting, and now more briefly in your columns. Her remarks lead to inferences for which she is probably unprepared, and which she will be inclined to regret and disown; for she doubtless, like all who know the French missionaries among the Iroquois, has a high opinion of their learning and worth. Yet her suggestions necessarily imply that these worthy men are sadly incompetent