V.—RELATIVITY: A NEW YEAR TALE.

By Sir JOSEPH LARMOR.

There was a race of men who were born blind. As their intelligence improved and their experience developed, they began to acquire notions of before and after, perhaps the only relations about which they could in any case be precise. But on this subject they came to hopeless perplexity. For one man said that event A was before B, because the noise of it reached him sooner, whereas another man, who was elsewhere at the time, maintained, when they came to compare notes, that it was directly the opposite, for he heard B before A. They were almost ready to prepare to examine the problem, Does knowledge exist? But some of the race, by an effort of abstract thought, found a way through. They taught that all events are conditioned by one absolute rate of delay, or slowness of transfer, innate in the frame of reality, and that, by abstract construction on this basis, every man, without caring where he was, yet feeling his own isolation, could form a scheme of things for himself that satisfied his inquiring spirit. The scheme was brilliant, fertile, concise, and coherent, within its original scope. It lay exactly along the lines of evolution of the formal mathematics of the period; so that it had been said that the abstract mathematicians might have thought of it for themselves ages before, if they had chanced to look up from their work. But these blind men also felt the glow of heat, which changed very definitely, somehow as if it operated by rays, as they moved from place to place and from time to time, and which they had not thought of specially when their scheme of reconciliation was made. The new phenomena had to be incorporated in the scheme. Of course, no question could arise as to explaining them; but the scheme had to be modified in order to include them. This, too, was achieved by an effort of abstract thought; but the scheme,

though brilliantly successful, had now become so complex that only a very few of the deepest spirits could grasp it. In the course of time one of the race gained the sense of sight. Assisted by his mental scheme, with which he was familiar—but which had been attained by so much effort amid the complex inter-relations of time and space, as they had previously been revealed to him—he now took in a wider world at a glance, and enjoyed the explorer's reward. Ultimately he told his brethren that he was cognizant of their schemes of space and time, as well as his own.

In time they all gained the power of sight, and then they all visualized for themselves, in a more extensive and more intimately coherent reality. But in the course of ages, as their faculties became sharpened, they detected the slowness of light itself; and, encouraged by certain indications of experiment, which, however, did not necessarily point that way, they came to be bothered by the same distress with regard to sight that had troubled their ancestors with regard to hearing. Only in a sense their troubles were now inverted. For it must be related that certain of their wise men, aided in their experiments by god-like intuition, had actually divined the nature of what it was by which they saw remote objects. These men imagined a quivery permanent object pervading their universe, and it was its tremblings that travelled to them with the message of sight. They even, some of them, afterwards abstracted the knowledge thus gained from the quivery permanent object that had helped their powers of association and co-ordination, but could be kicked away like a ladder after they had mounted to their summit of contemplation. Yet, whatever they did, they were bothered by two slownesses, necessitated by the very nature of this synthesis, with which the two geometrically different kinds of trembling would travel; and the only satisfactory way they could find as regards their immediate problem of light was to assume that one of these slownesses was so slight compared with the other,

and its control therefore so stiff, that such messages as could be locally excited for it to transmit would be too latent to be noticeable. In time some of these philosophers had their own qualms. They said, as has been related already, that there was no evidence for a quivery permanent substance, which was merely a crude mode of expression. Later some of them said that there was as little warrant for the abstract relations filling their universe, by which that substance had been replaced. They said that there were just tiny objects projected across—no further inference was allowable—and that they could have but one slowness. Thus they reached again the problems of their remote ancestors, and the same solutions were soon found to be consistent with their new and extensive progress.

Some then fixed attention on a great discovery of the race—perhaps the greatest and most conspicuous of all as regards its consequences—that every pair of objects were continually and inevitably drawing toward each other. Nobody had any certain knowledge of the slowness of travel of this influence, but it had generally been surmised that it was almost negligible compared with the now obvious slowness of light ; and some bold spirits even hazarded the guess that it might be the other slowness that in a previous stage of their investigations had stood in the way, and had to be obliterated so far as might be. Anyhow, on the view as finally purified, these attractions between bodies had all to be embraced in the contracted scheme, and to operate in terms of the one absolute slowness that alone was innate. And, strange to say, this again seems ultimately to have been accomplished by means of a great expansion and complication of that scheme, whereby it remained a consistent artistic whole still capable of being grasped piecemeal by a few of the wisest heads ; and in these developments ever more new matters arose for future investigation and expansion, so that the subject is not yet in danger of being stored away as completed dead knowledge.

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