From a hitherto unpublished article which lies before me, and in which I am inclined to place great confidence, I gather as a matter of fact that the time law of enzyme actions differs from the simplest scheme of reaction velocities. This question is, however, not yet ripe for discussion.

The question of the range of substances which can be altered by a given enzyme in a certain manner (for example, hydrolysed) is likewise in the first stage of solution, and there seems to be here similar multiplicity of function to what is found in the case of other catalysts.

The beautiful investigations of E. Fischer have shown that at any rate the very slight differences which nowadays we know in chemistry as stereochemical can bring about alteration in the action of a given enzyme. As to whether this rests on the asymmetric character of the enzyme itself or on other grounds appears to me not to have been decisively ascertained.

I must hasten to a conclusion. I have set myself the task of pointing out the broad provinces of a fertile land, which only here and there shows the first beginning of systematic cultivation, but of which the fruitfulness and importance is beyond all question. Even if the land lies outside the region to which the chemistry of the past was acclimatised, still our restless science has already begun with its new implements to make the new soil fruitful. That it is not only a chemical interest that makes the work grateful I think I have shown you by examples of its physiological application. It is also evident, from the examples which we already have of the application of this auxiliary, that the scientific knowledge and investigation of catalysis must have vast consequences in technical applications. The last great triumph of German technical chemistry, the synthesis of indigo, which will revolutionise the agricultural conditions of whole countries, contains as an essential factor a new catalysis. The oxidation of naphthalene by means of sulphuric acid with speed can only be brought about in the presence of mercury. The sulphuric acid itself, it is hardly necessary to say, is prepared by a catalytic process, whether we use the old or the newer method. When we consider that the acceleration of the reaction by catalysis is achieved without consumption of energy, and so proceeds in this sense *gratis*, and that in chemical industry, as in all other, time is money, we perceive that the systematic utilisation of catalytic appliances is likely to lead to the most thorough-going changes in manufacturing processes.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE Government Education Bill has been the subject of much discussion since Mr. Balfour described its provisions to the House of Commons last week. Public opinion is decidedly in favour of the creation of local educational authorities, but it is felt that unless these new bodies are made responsible for elementary as well as secondary education, the main object of the Bill will be lost. As the president of the National Union of Teachers pointed out at the conference at Bristol, there would still exist in the same district "separate authorities for primary and secondary education, with their useless and unnecessary administrative expenditure, their jealous rivalries and interminable friction." The only way to end this state of things is to make each constituted local authority responsible for the whole of the educational work in its district. There must be no clause making it optional to adopt the elementary part of the measure, for in many cases this would mean that there would still be competing schools and educational agencies instead of an organised system. The members of School Boards who have a real knowledge of education would naturally be absorbed by the local authorities, and those who are more identified with sectarian and political interests would be left to find another platform for their polemics. The views of teachers in primary schools are expressed in the following resolution brought before the Bristol conference by Mr. R. Waddington:—"That conference expresses approval of the main principles of the Education Bill, 1902, under which may be created local authorities controlling and maintaining all forms of education within wide areas, and hereby records its satisfaction with the Government's desire to place our educational system on a sound basis; but is of opinion that the measure cannot become educationally effective unless the permissive clauses of the Bill relating to elementary education be struck out, and it be made compulsory upon the local authorities to take over the control of elementary as well as of higher education." If the Government decide to withdraw the optional clause the measure will meet with general approval from most educationists.

PROF. R. MELDOLA, F.R.S., has been appointed by the President of the Board of Education a member of the Teachers' Registration Council, which has just been created to consider claims to be admitted to the Register of Teachers.

THE Lord Mayor of Liverpool has issued an appeal for funds to establish a Liverpool University upon the University College of the city. To effect this, about 330,000*l.* will be required, of which there has already been promised no less than 145,000*l.* by leading citizens. The present value of possessions of the College itself amount to more than 500,000*l.*; and the additional sum of 330,000*l.* which is asked for is to complete its equipment as a university. The existing resources of the College, the endowment of chairs and lectureships, amount to 186,300*l.*; the sites acquired and buildings erected and in course of erection, 251,550*l.*: fellowships, scholarships and prizes, 32,800*l.*, exclusive of value of fellowships and scholarships established by annual gifts or granted by city and county councils, the Royal Institution, the Ladies' Educational Association, the Tate trustees, and other bodies outside University College; endowments for maintenance, 20,275*l.*; and day training college hostel and endowment, 10,000*l.* The total of 500,925*l.* does not include the value of books in the library and apparatus in laboratories, nor does it take account of sums, amounting to many thousands of pounds, given to the college year by year for immediate expenditure, nor of the annual income of the affiliated schools of architecture and applied art, public health and tropical medicine. The additional lectureships to be endowed include electrotechnics, geology and chemistry, besides others in connection with commerce, engineering and medicine.

SCIENTIFIC SERIAL.

American Journal of Science, March.—The ventral integument of trilobites, by C. E. Beecher. In previous studies of trilobites the author had not thought it worth while to illustrate the character of the ventral integument, but a recent discovery by Jaekel necessitates the separate consideration of this structure. From a study of a specimen of *Ptychoparia striata*, Jaekel has deduced an entire reconstruction of the appendages and anatomy of the trilobite. An examination of well-preserved specimens of Triarthrus, several photographic reproductions of which accompany the paper, leads to the conclusion that the deductions of Jaekel are erroneous.—Igneous rocks from eastern Siberia, by Henry S. Washington. The specimens examined included a foyaite from East Cape, comendite, quartz-porphyry, rhyolite, obsidian and monzonite from Iskagan Bay.—A cosmic cycle, by Frank W. Very.—Studies of Eocene mammalia in the Marsh collection, Peabody Museum, by J. L. Wortman. The present instalment is devoted to a consideration of *Limnocyon verus*, *velox*, *medius* and *dysodus*.—An experimental method in the flow of solids and its application to the compression of a cube of plastic material, by J. R. Benton. Frames of parallel wires were cast into the centre of a cube of Wood's metal. After the cube had been distorted beyond the elastic limits in a testing machine, the fusible metal was melted off and the structure of the framework examined. The condition of the wires after varying treatment is shown in a series of diagrams.—On the occurrence of monazite in iron ore and in graphite, by O. A. Derby.—The molecular weights of some carbon compounds in concentrated solutions with carbon compounds as solvents, by C. L. Speyers.—Clarence King, by S. F. Emmons. An account of the life-work of the late Clarence King.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 6.—"Experimental Researches on Drawn Steel.—Part i. Magnetism and its Changes with Temperature.—Part ii. Resistivity, Elasticity and Density, and the Temperature Coefficients of Resistivity and Elasticity." By J. Reginald Ashworth. Communicated by Prof. Schuster, F.R.S.

When magnets are heated and cooled and the cyclic state is reached, the relation of intensity to temperature is expressed by the equation

$$I_t = I_0 (1 + a t),$$