

PASSAGES FOR DICTATION.

(a.) At the rate of 80 words per minute. Takes 10 minutes

What strikes us most forcibly upon a general survey of the progress made since the Queen ascended the throne is, perhaps, the interdependence of different lines of inquiry and of practical effort. Not only do the abstract investigators borrow help from one another, but while placing new and pregnant observations at the disposal of applied science they also depend upon its advance for the means of arriving at new discoveries. Any man who strikes out ideas too much in advance of his time usually fails of his due effect. It is left for the historian to call attention to his remarkable but stillborn efforts. So it is difficult for any science to proceed very far upon its own lines unless progress is concurrently made in other departments which may at first sight seem somewhat remote. Take, for example, the enormous strides made in electrical science, both pure and applied, during the last sixty years. We bridge the whole distance from a rudely-made induction coil in the hands of a Faraday to the modern dynamos turning out currents measured by hundreds of horse-power. That immense development has become possible only through the conjunction of the chemist, the metallurgist, and the engineer with the electrician. A thousand details involving the specialised skill of many workers and discoverers in very different fields of study go to insure the high degree of efficiency to which the electrician has attained. With the steam engines of the early Victorian age the electrical output of the present day would be impossible. Had not chemical science and metallurgical skill made great advances the electrician and the engineer together would be baffled by the imperfections of their materials. Pure research in the laboratory of the Royal Institution gave the root ideas, and pure research has ever since been contributing new ideas at every stage. But research has depended upon the utilisation of what it gave for the means of enabling it to discover more. Application to practical uses of what we already know is the indispensable condition of further progress, even on the lines of abstract investigation. The practical applications of electrical science have paid back their debt to the student, both by placing at his disposal instruments of previously unattainable delicacy and by indefinitely enlarging the chemist's command over matter through the powerful agency of the electric arc. By the development of the germs of sixty years ago we have bound the Empire together, enlarged and facilitated the operations of commerce, broken down the barriers of mutual ignorance, wrested from nature her most jealously guarded secrets, and in some degree approached to her secular processes of synthesis. But the advance has been upon a wide front. The chemist, the physicist, the mathematician, the engineer, and the electrician have combined to produce results which the most daring thinker would hardly have ventured to predict when Her Majesty ascended the throne.

The very large part played by Englishmen in this advance may well consolidate our faith in the intellectual and practical ability of our race. There has been a gradual improvement in scientific education during the last sixty years, but by far the greater part of our magnificent results has been won in spite of grave difficulties. If our manufacturers have missed great chances and allowed important industries to pass into the hands of foreigners, we may at least remember that few of them had any systematic training to fit them to appreciate and utilise the work of the laboratory. It is due to rough natural sagacity and keen business faculty that so much has been done to turn to account the discoveries of original genius, not to any systematic and conscious provision of appropriate instruction. But we cannot afford any longer to trust to this haphazard management. We have lost the long start we once had, and our rivals are running us neck-and-neck. Undisciplined initiative can perform wonders, but if forces are at all evenly balanced it cannot make head against a method which co-ordinates all available resources and gives unity of direction to national effort. We have played for a considerable time with the problem of providing systematic instruction in pure and applied science, and we are still heedlessly drifting into wasteful and ineffectual makeshifts which will constitute so many obstacles in the way of thorough reform. Unless we are willing to allow the end of the Victorian age to mark a retrograde movement as distinct as the forward movement that is the glory of its prime we must bestir ourselves to place the technical education of the country on a sound basis. There is no more important problem before the nation at this moment, nor any that is more urgent. The vested interests hostile to real reforms are already powerful and are growing.

(b.) At the rate of 120 words per minute. Takes 10 minutes.

I can add little to the eloquent terms in which the leader of the House has introduced this motion, which I beg to second: "That a humble address be presented to Her Majesty congratulating Her Majesty on the auspicious completion of the sixtieth year of her happy reign, and to assure Her Majesty that this House profoundly shares the great joys with which her people celebrate the longest, the most prosperous, and the most illustrious reign in any country, joining with them in praying earnestly for the continuance during many years of Her Majesty's life and health." I have qualifications which he does not possess, and which he will not envy me—that I can recall, as if it were yesterday, the booming of the guns which announced the accession of the Queen. It is right and fitting that an address of congratulation should be presented to the Sovereign from this House of Commons, which has the highest claim to represent the sentiment of the nation. Since the accession of the Queen, this Parliament has been placed upon a wider basis of representation. The reign of the Queen opened with a new political epoch; it began at a period when the real enfranchisement of the people had only recently commenced—in the era of reform, social, political, financial, and commercial; and there was great need in those days of such reforms. It is only those who personally recollect what was the condition of the people of this country sixty years ago who can realise the enormous