

less can he be with any propriety wholly a specialist. Much of a specialist he may be, something of a specialist he must be, but entirely a specialist he cannot be. The specialist is apt to be narrow, however deep the currents of his mind may run. He is useful in his sphere; indispensable in the world, a necessary unfortunate in fact. To me the specialist is comparable to the locomotive, grand, mighty, majestic while on the track, yet how little can it render one in reaching any point not directly along the line of travel! But let it not be thought because of such words and comparisons that I deprecate the work of the special investigator. From my heart I say, honor to every such hero. The specialist is the pioneer in progress; the explorer who bids adieu to well known shores, with no compass but that of hope and sincere trust to guide him, and carries his fortunes into the ocean of the undiscovered. The teacher is he who waits anxiously at the port, straining eye and ear to catch the first sign or sound of the returning voyager and who, when he returns, listens to the stirring accounts of discovery, and gives the most desirable parts to his pupils. The teacher occupies a place between the specialist and the people; receiving from the one, and giving to the other. The original investigator is the true miracle worker, under whose priestly touch the little loaves of knowledge expand and increase till from them a multitude may be fed and filled, while thousands more may feast upon the fragments. We as teachers are privileged to be called disciples of this master, appointed to distribute the life giving aliment thus blessed and sanctified to the hungry multitude. It suffices my ambition as one of the humblest workers in this distinguished profession to be such a disciple of such a master.

How is it possible for one to be broadly educated today? There was a time when one human mind could compass all that had been discovered in science. Our title "philosopher"—a lover of wisdom, tells the story of a day when such a one was physicist as far as physics had progressed, astronomer, botanist, physician, astrologer, chemist and mathematician. Now, however, every one of these branches is comparable to a central sum of colossal magnitude, with numerous planets attendant on his course. No man can in any ordinary life time fully master all the discovered truths in chemistry or philosophy alone. The field of knowledge even as far as at present surveyed is practically illimitable. How can one feel himself great when space is infinite? To be anything in the intellectual world, I repeat that a person in general, and a teacher in particular must be something of a specialist, in the sense of having particular lines of work; but to be entirely a specialist is not permissible in a teacher.

The nineteenth century is the carboniferous age of intellectual advancement; the air is heavily laden with the gases and vapors of growth; the earth is reeking with the strength of increase. As under tropical suns plants spring up even among the graveled walks upon which men tread, some of them of new and strange growths, so in the domain of intellectual advancement every highway and byway is giving place to the verdure of increase. Some of these strange plants,—many of them perhaps,

are still classed as *weeds*,—are plants of which we have not yet learned the uses; others are assuredly various. If none were in any manner bad it would seem that to a degree the Almighty's curse had been withdrawn and that in the field of mental activity at least the earth was about to yield of her strength.

Let us consider an instance. The words of a language may be fairly taken as an index to the thought or lack of thought of the people. And under existing conditions, words are increasing at a prodigious rate. By recent announcements we learn something of the progress being made in that stupendous work, the Oxford Dictionary. Already nearly 35 years have been devoted by a large corps of learned men to the preparation of the pages, and they are now laboring in the letter C. One volume has been issued; it comprises over 1200 pages, presenting more than 31,000 words beginning with A and B. One may well wonder when this Herculean task will be accomplished, and what, as an able thinker has inquired, will the supplement be like? The volume or volumes destined to contain the words in each letter that have been brought into existence since the letter in question was finished in the main work. Already it has been found necessary to prepare a glossary of the technical terms employed in the field of electrical science alone; it is a huge tome and annual supplements are being made.

How can one keep up with the times? What is it to be educated under these conditions? It would seem almost impossible even to catalogue the discoveries and invention of the age. Surely the preacher was right when he declared, "to the making of books there is no end."

Yet books are among the chief of the teachers' tools; and tools are to be regarded as aids in the work,—means devised for the accomplishment of a given purpose. That purpose in our profession is the development of the human capacity toward greater perfection; not physical well-being alone, nor moral progress only, nor intellectual excellence by itself, but perfection of the individual, or a condition as nearly approaching perfection as it is possible to attain. The day has passed when the teacher thought his work to consist in pouring knowledge into the pupil's mind; the present aim of the profession is to lead out and thus develop the innate powers, teaching the student to measure his own ability, to feel the strength of his own wings; in short, to use his powers in laudable service, thus making himself a better individual, physically, intellectually and morally.

Referring to the tools of the teacher's work,—it is a matter of general observation that in any art or science the history of its tools would be in fact a true history of the growth of knowledge or skill along that line. Were honor given to whom honor is due, the men who advanced the art of sawing, chipping and polishing marble would share the praises for the Apollo, the Venus, and Angelo's Moses. The discoverers of the arts of preparing and mixing pigments are entitled to a share of praise for the Madonna. We laud Gutenberg and Caxton for their service in the art of printing; and have called them inventors of printing, whereas the men who invented paper have done more toward

advancing printing than those who first used types in the making of books. The fundamental idea of printing,—that of taking impressions from dies, was in service long before the days of Gutenberg, as witness the medals and medallions of far greater antiquity. Printing could advance but slowly until a suitable fabric was prepared for the reception of the impressions. The first uses of parchment, of the papyrus, and of modern paper mark epochs in the history of printing. Mineralogy could scarcely be called an exact science till the goniometer reached a stage of working perfection; the history of modern chemistry dates from the time of Lavoisier's first well directed use of the balance; discoveries in microscopy are largely due to the energies of those who work to perfect the instrument, "students of the brass and glass of microscopy" as they are derisively dubbed.

But the simple possession of good tools does not insure good work. The worker must know his tools. And what astounding skill can be attained in their use! Who has not watched with admiration almost amounting to envy, the ease with which the skillful artisan manipulates his tools; the carpenter his plane and saw, his level and compass and square; the mason his trowel and line, the farmer his shovel and plow; the sculptor his chisel, the artist his brush? These are masters of handcraft, the good old origin for our modern word handicraft; and this arises from proper attention to headcraft. Such skill is only obtainable through strictest attention to the requirements and system in study and practice.

In our work we have to be aided by a system of note taking; not to be employed alone while listening to formal lectures in class, but in the course of our own reading and individual reflection. Every earnest student should keep notes of his work in all branches; and beside the special note-books thus produced he will find use for the scrap-book, in which to preserve for easy reference clippings from periodical literature; also a common-place book,—in which to record thoughts especially worthy of remembrance from whatever source obtained,—from acknowledged instructors, from books, from individual reflection, or from the teachings of the teachers' own pupils, and it may be from the smallest and most inexperienced of these little ones.

Let us guard against desultory reading,—reading that leaves no record in mind or book, except in the weakening of our powers. Time now forbids a fuller consideration of this and more than a mention of other important points in the line of the teacher's labor. Let each one know himself, and prepare himself for greater energy by strict regard to the requirements of his body as to food, recreation, and sleep, as also to the proper hours for study. We cannot afford to waste our energy. Let us guard our thoughts that they be ever pure, elevating and ennobling. Where an unworthy word has injured one, degrading thoughts have ruined a score. We are of necessity often forced to commune with our inmost selves; should we not prepare for ourselves a proper reception? Then will we be comfortable with the entertainment afforded by our own minds; then will we no longer think it always "solitude to be alone." That you may all take com-