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THE ROAD TO SUCCESS.

What shall I do to advance myself; is a question asked by many young men when first entering upon their business career. Too many are apt to answer it by supposing that some brilliant masterstroke is the talisman that is to open the pathway of success before them. Brilliant masterstrokes, however, always carry with them great risks, and, as a rule, the advancement made by persistent effort is the safest, surest, and most easy of attainment. In choosing a profession or a trade, it is of the utmost importance to select one that is congenial to the taste; and having chosen one to stick to it, for there is a wonderful element of success in the stamina that enables men to stick. How many of our most successful men have clung to the pathway marked out, at times when fainter hearts would have abandoned the task and sought refuge in some less difficult occupation! Is this a good trade; is that a good profession; are questions that may be at all times answered by "Yes, for those with the ability necessary for their pursuit and who possess the perseverance which success at all times demands."

It is folly to expect to start out upon any career with the pathway of progress as plainly mapped out as if laid down upon a chart. For all these things regulate themselves; and while a pursuit which promises all things may prove entirely unsuccessful, one apparently very uninviting may lead to rapid progress. All occupations have their periods of activity and of dulness; the brisk business of to-day may be the dull one of to-morrow. The rapid rise of others in any particular pursuit is no criterion, because business is something like poetry, it is not so much the subject as the manner in which it is treated that determines its quality. Be especially careful not to over-estimate your own abilities. It is very natural to feel quite convinced of your personal ability, and to be aggrieved that your efforts are not more specially recognized by employers, but rest assured that in the end employers will recognize any capability you may possess at its proper value, and are at all times eager to avail themselves of any elements you may possess that are advantageous to the pursuit of their business. If, on the other hand, your ability is recognized, bear in mind that you are fairly established upon the right path, and be careful not to succumb to the inducements offered elsewhere by a slight advance of remuneration. This is, indeed, the rock upon which the hopes of thousands of young men have foundered. In a position held by dint of appreciated labor there are a great many advantages that are not visible upon the surface, and which can scarcely exist in a new position. First of all is the consideration that you are making progress, so that, be the obstacles what they may, you are surmounting them. This is a great point, because in a new position you do not know and cannot foresee what elements of opposition may exist or arise. Next bear in mind that the length of time you have been in one employ is a valuable element; you are becoming identified with the business; you are getting more familiar with it, as well as more capable of transacting your part; and above all you are making a reputation in it. You are also forming around you a number of business acquaintances who are to be useful to you for all the rest of their lives, some of whom are in the future to become employers, others prominent employees, and so on, and all of whom will be morally sure to form a tolerably accurate estimate of your stability, as well as your business capacity. How often do we hear the remark, "Oh, so-and-so rose because he had a friend who could push him ahead." As a rule, however, the disposition to advance another does not arise from friendship, but rather from a full confidence in his ability; men possessing the elements which raise them in business are usually too just, too keen-sighted, and too careful of their own reputations to risk the same by recommending others out of pure friendship. Indeed, such a course would be anything but an act of friendship, because, as compared to getting a good appointment, keeping it is ten times more difficult.

The road to success is not a royal road, but it is a tolerably straight and sure one. Anxiety and watchfulness for success, avidity to seize every promising opening, readiness to relinquish what is already gained for something apparently more inviting, is more often a by-way than the highway. The energy expended in this manner will pay a man a hundredfold more interest if directed to becoming proficient in his daily duties, in mastering the difficulties of his calling, in learning the science of his occupation, and studying its necessities. He should study not only in, but out of, working hours, when the pen, the tool, or the instrument is laid down, and his daily duties are ended. It is this which will enable future days' duties, to be performed more easily and more efficiently. In fact every jot of knowledge gained after the hours of daily labor is capital which will bear ample interest in the way of advancement; and so sure is this that, if such studies are diligently and intelligently pursued, the present will be the all-absorbing topic and the future may be left out of mind with almost perfect assurance that it will be well able to take care of itself. There are sometimes circumstances which may interrupt a successful and worthy career, but in such a case it is only necessary to begin over again, undiscouraged and with increased determination to succeed.

One of the greatest causes of failure to progress in business is a dislike to strenuous exertion, especially when manual labor is entailed. Too many young men get the idea that because they are *smart* they ought to be able to live by their wits, and they shift about from pillar to post in any occupation that does not impose what is commonly termed manual labor. This indeed is a sad mistake: desultory or itinerant occupations are laborious to the body, and from their vicissitudes and uncertainty very exhausting to the mind. All men cannot, in the very nature of things, learn or follow a trade, but those who are adapted to do so will find the pursuit less onerous and more remunerative than that of entering some other pursuit because of a dislike to manual labor. If an operative becomes a skillful workman, he is a success even though he does not attain riches; and if he permits this latter fact to make him discontented, it is not an evidence that his career has not been a success, but rather that he permits a morbid feeling on that point to overshadow his success as a workman. It seems to be a human proclivity to wish that one's occupation had been something else, almost anything indeed but that which it actually is, and we often hear it said: "If I had my life to pass over again I would be a so-and-so."

We heard it remarked a few days ago: "If my father had educated me until I was 18 years old I should not have required to toil at the bench." The reply to this was so well chosen that we give it in full as follows: "That is a mistaken idea. When a young man, of 18 or 20 years old and with a good education, sets out to earn his own living he is to be pitied. What is he fit for? He knows nothing of any man's business, he has no experience of either business or the world; he can perform clerical work, but so can the office boy who went into the office at 14 years old and had a year at a night school. He can probably do the same work as the boy, but he cannot work for the boy's pay; he cannot afford to start at the beginning, but tries to jump into a middle position which he is not capable of holding. The boy is his superior, inasmuch as he has learned something of the routine and of the particular requirements of that particular business. He is also growing up with the firm, and will in time understand the duties required in every employee's station, from the office boy up to whatever position he may himself occupy. A good common school education, with the assistance of a night school, will fit a boy for any ordinary occupation."

THE MECHANICAL THEORY OF FORGETFULNESS.

It is one of the most curious phenomena of the memory that knowledge acquired for purposes of special future use may be remembered clearly and well up to the time when it is used; but when it is no longer required it rapidly fades away. Actors, for example, who are obliged to study new parts frequently, and commit long speeches to memory in very short periods of time, apparently have the power of cleansing the memory and rendering it blank and receptive to new tasks. Nor does the number of times a part has been played successively seem to affect this capability, for actors have informed us that, after even taking part in a performance which has been repeated night after night for months, the reproduction of the same play, after the lapse of a year or so, finds them almost ignorant of the text, and necessitates complete re-study. The same is true of pupils in school, and there are doubtless few teachers who have not remarked the dismay which a sudden turning back to review previous tasks excites among a class of apparently bright scholars, or who has not discovered that a perfect recitation is no proof that the substance of the knowledge will be found in the pupil's memory a week afterwards. Although this capability of freeing the mind is rather a drawback to education, it is of inestimable value in the affairs of daily life. It enables the business man to throw off the cares of the office when he crosses its threshold at night, the lawyer to keep his mind clear of the discords of his clients and to avoid continuing the anxieties of one case into the details of the other, the physician to keep separate the ailments and idiosyncracies of his patients; and thus its application might be traced in every profession and calling.

It has become so much the custom to seek mechanical explanations for circumstances apparently the most unmechanical that it is almost to be expected that, in analyzing this peculiarity of the mind, psychologists will at least borrow mechanical terms. This Mr. Verdon, in his elaborate essay on forgetfulness, published in *Mind*, manifestly does when he regards memory as energy, and absence of forgetfulness a conservation of the same. He points out that practically we sometimes keep a matter in mind, not exactly by attending to it, but by keeping our attention referred to something connected with it from time to time. Now when the use of the record is withdrawn and we think no more about it, we experience a feeling of relief, and we thus may conclude that energy is in some way liberated. After this the record does not seem conserved so well as before, and we have real difficulty in attempting to remember it. It is not rash, he adds, to suppose that this degradation of the record is real, that the record is left to decay, and that the forces which would have tended to preserve it now become useful in some other way.

Mr. Verdon supposes the existence of a "versatile energy," which is locked up in the memory, but which, after it is used to get up facts of one kind, may be employed to acquire facts of another kind, provided the former become reduced to the level of the general stock of the individual's knowledge. A actor, for example, learns a part, plays it, forgets it, and thus liberates versatile energy, which enables him to acquire another, and so on; but on the other hand, if the same person really assimilates knowledge so that it requires no attention to keep it from rapid decay (as in learning to read and write), there is little chance of forgetfulness liberating energy of use for further acquisition. The deduction from this, evidently, is that a person may exhaust his stock of

versatile energy upon a few things, and eventually become incapable of learning others. Probably this accounts for the difficulty which every person late in life encounters in acquiring knowledge which children easily learn.

A good memory is therefore not an unmixed blessing, but, on the contrary, forgetfulness is often to be desired. One may steep his mind in the waters of Lethe, according to one author, by fixing his mind on that part of any experience which has the least permanent interest. The temporary is thus remembered at the expense of the more permanent, and thereafter the latter is forgotten, while the temporary drops out from its own inherent want of interest.

THE PATENT MIDDLINGS PURIFIER CASE.—ANOTHER IMPORTANT DECISION BY THE SUPREME COURT.

A case of considerable importance to the milling fraternity has recently been decided in the Supreme Court of the United States, under the following circumstances:

A suit was brought by the owners of the Cochrane patents against Deener and others, about two years ago, in the District of Columbia, as a test suit under said Cochrane patents, which, after being ably argued, was decided in favor of the defendants. The plaintiffs appealed to the Supreme Court, and the case was heard in the October term of 1876, when the decision of the court below was reversed, and a decree given in favor of the Cochrane patents.

Shortly after that decree was entered a suit was commenced in the Circuit Court for the District of Minnesota against Christian *et al.*, in which the bill of complaint set forth that the validity of the Cochrane patents became *res adjudicata*, by the decision of the Supreme Court. An injunction was granted against the owners of mill, but it was afterwards suspended on the giving of a bond for $250,000.

Other suits were then commenced in the eastern district of Missouri, under the same patent, in which suits a special injunction was asked for. Just before the hearing in that case a letter came to light purporting to come from one of the counsel of the appellees in the case of Cochrane *vs.* Deener, setting forth that the appellees had no substantial interest in the case at the time it was heard, that one of their counsel had written his argument on one point only, that his fees had been very meagre, and that hence he had not discussed any of the other points before the court. Thereupon Mr. Harding, of Philadelphia, on behalf of some of the opponents of the Cochrane patents, made a motion before the Supreme Court to vacate the decree formerly made by that court in favor of those patents, on the ground of collusion between the parties. In consequence of which the court ordered an investigation to be made before a master, which showed that, just before the argument of the case in the Supreme Court, an agreement was entered into between the owners of the Cochrane patents and the defendants in that suit, that if the defendants were defeated they would only be required to pay on each of the two mills used by the defendants (twenty-three run of stone altogether) $250 cash and $250 in a note running for a year, for a full release for all past claims, and that each mill was, without any further consideration, to have a perpetual free licence. This, it was argued by the counsel opposing the Cochrane patents, showed collusion between the parties to the suit, especially when it was considered that the owners of the patents had sued a single mill in Minnesota for $300,000 damages, and hence the decree should be vacated.

In addition to this agreement between the parties, it was shown that the appellees would only pay such small fees to their counsel—about one third what they wanted—that it was likely their efforts corresponded with their pay, and that if better fees had been paid, better argument would perhaps have been made.

The counsel for the Cochrane patents in answer denied the collusion, stating that all the parties to the suit were interested in having the case thoroughly tried; that the suit was instituted as a test case, its principal object being to obtain a decision of the Supreme Court on the validity of the Cochrane patent, upon which, if favorable, it was intended to rely, in asserting their rights against all infringers; that their object in fixing the sum of $1.000 as the amount which they would claim for the past and future use of defendant's machinery if they obtained a reversal of the decree, was solely to expedite matters and prevent any vexatious or unnecessary delays; and that knowing that such decision would be of no value unless made upon a full exhibition of the case, they by suggestion contributed to the introduction into the case of all the defense which they had knowledge of, in order that they might be disposed of in the final decision.

After the arguing of the case the Supreme Court, through Judge Bradley, delivered the following as its opinion:

"After a careful examination of the evidence adduced on the motion to vacate the decree in this case, we see no ground to believe that the appellants are chargeable with any collusion with the appellees in reference to the argument of the appeal. On the contrary, the weight of the evidence is that they repelled any arrangement or proposition which might look to that end. Whilst we would not hesitate to set aside a decree collusively obtained, the proof ought to be very clear to induce us to do this at the instance of strangers to the suit, though incidentally affected by the decision of the questions involved.

"At the same time as the decision in this case is made the basis for applications for injunctions against third parties in the Circuit Courts, it is right that we should say that, in the argument of the appeal before us, the case on the part of the appellees was, as it seemed to us, very imperfectly presented; and the evidence laid before us on this motion demonstrates the fact that the appellees, in consequence of the conditional arrangement with the appellants, which they secured before the argument was had or from some other cause, omitted to prosecute their defense with that degree of zeal and efficiency which the importance of the case would otherwise have demanded. The result was that the labor of the court, and its liability to overlook points of weight and importance, were greatly increased. As the case was presented to us, we see no cause for changing our views. But under the circumstances we think that third parties, who had no opportunity of being heard, and whose interests as opposed to the Cochrane patents are very important, should not be precluded from having a further hearing upon it whenever a future case may be presented for our consideration.

"The motion is denied with costs."

This decision although against the vacating of the decree, will it is thought have the effect desired by the maker of the motion to vacate it, as it throws strong doubt upon the character of the argument presented on the part of the appellees in the former decision, and will probably prevent its being used as a basis for injunctions or bonds in the circuit courts throughout the country. This will be likely ot result in a new test case, brought on under the care of the best obtainable counsel, in which the question as the validity of the Cochrane patents will be thoroughly answered.

CHLOROFORM.

Dr. Julian J. Chisholm, Professor of Eye and Ear Diseases in the University of Maryland, has lately published a pamphlet entitled, "What Anæsthetic Shall We Use?" wherein he takes strong ground in favor of chloroform, and deprecates the disfavor into which that drug seems to have fallen on account of the deaths which have occurred among patients under its influence. The drift of his views is that chloroform accidents are preventible, that deaths occurring, or rather attributed to the drug, are too often due to the shortcomings of those who administer it, and to its administration under improper conditions, when it should not have been given.

One of the most common causes of death is due to the operator failing to push the inhalation to the degree of suspending the functions of such parts of the cerebro-spinal system as preside over the emotional, sensational, motor, and reflex acts; or, in other words, the condition in which peripheral irritation can no longer be transmitted through the cord to the brain, and then back, by the vagus and pneumogastric nerves, to the cardiac ganglia. Any condition short of this stage leaves the heart exposed to those serious inroads from peripheral irritation through which its movements may be suddenly and permanently arrested. In this way can be satisfactorily classified the many deaths under anæsthetics for trivial operations, such as tooth drawing, abscess opening, etc., when only enough of the agent was inhaled in the sitting posture partially to stupefy, but not to protect against reflex accidents from emotional or peripheral excitement. When deaths occur under these circumstances the fatal result is not to be attributed to the anæsthetic, but to the want of it. Another cause of death is over-administration. Chloroform has a toxic action, while besides its dose can be made large enough to kill by enfeebling and finally paralyzing the nerve centers from which the heart and lungs draw their inspiration.

That which Dr. Chisholm calls "the only legitimate of all causes of death from anæsthetics," is that unknown condition called idiosyncracy, in which anæsthetics show themselves poisons of extreme fatality. The patients who carry about with them this innate fatality exhibit it by no recognized signs. When they die from toxic inhalation the autopsy reveals absolutely nothing to indicate the destructive effects of the poison.

Dr. Chisholm adduces a large amount of statistical information to show the infrequency of deaths under chloroform treatment, and shows an array of over 250,000 administrations of chloroform with but 12 deaths, thus affording strong proof of the rarity of the fatal idiosyncracy.

THE TROUVE MULTIPLE TELEPHONE.

M. Trouvé, the well known French electrician, has lately submitted to the French Academy of Sciences, an account of experiments conducted by him upon the Bell telephone, the object being to increase the capabilities of that apparatus and to render it available over any distance, however long. Instead of the single vibrating diaphragm used by Professor Bell, M. Trouvé substitutes a cubical chamber, each face of which (with one exception) is a vibrating membrane. Each of these membranes, being thrown into vibration by the same sound, influences a fixed magnet and electric circuit, the same as in the Bell arrangement. By associating all these currents, a combined current of single intensity proportional to the number of magnets influenced is produced. Instead of the cube, a polyhedron having an indefinite number of vibrating membranes may be used, and thus intensity augmented as desired.

Suppose now a line established on which is disposed a telephone constructed as above described, the membranes and magnets of which are divided into two series, and the circuits so arranged that, by pronouncing a word, currents are produced on the same wire in opposite directions. When a despatch is received to be transmitted further on, the operator talks in the telephone in the usual way; and his speech, by the arrangement of circuits above noted, is heard both at the station to which he is forwarding the message and also at the one from which the message was sent, so that the possibility of error is thus rendered nil. M. Trouvé has adapted this apparatus to his military telegraph.

NOTES OF PATENT DECISIONS.

PATENT OFFICE DECISIONS.

The Commissioner of Patents has decided the interlocutory appeal from the decision of the Principal Examiner in the matter of the application of Temple for letters patent, adversely to the applicant.

The original application was for a process invention. It admitted of illustration by drawing, but no drawing or model was submitted. Subsequently the applicant sought to amend his original application, a drawing being filed and a description inserted relative thereto In the proposed amended specification many elements, which appeared to be essential parts of the invention, were included in the claim. These elements, however, were omitted from the original specification. The case, therefore, came up under Rule 32 of Office Practice, which provides as follows: "All amendments of the model; drawings, or specification, in the case of original applications which are capable of illustration by drawing or model; must conform to at least one of them as they were at the time of the filing of the application; further changes than this can only be made by filing a new application. If the invention does not admit of illustration by drawings amendment of the specification may be made upon proof satisfactory to the Commissioner that the proposed amendment is a part of the original invention."

The Commissioner decides that Temple is not entitled to the proposed amendment. Such amendment he considers "new matter" as it conforms to no part of the case as it existed at the time of its filing. The concluding provision of Rule 32, which permits the admission of an amendment on satisfactory proof that it is part of the original invention, cannot apply to the case under consideration, because in this case the matter is capable of illustration by drawing and model. The object of this prohibition in Rule 32, against the introduction of "new matter," is to limit the power of amendment, so that it is possible to determine when an application is completed.

COURT DECISIONS.

The Supreme Court of the United States, in deciding the appeal in the infringement suit of Romer vs. Simon, lays down the following rules of law:

Where the patent described in the bill of complaint is introduced in evidence, the patentees are presumed to be the original and first inventors of the described improvement; and when they have proved the alleged infringement, the burden of proof is cast upon the defendant to show that the patent is invalid unless the patent is materially defective in form.

Proof of prior use of the alleged invention, in a foreign country, will not supersede a patent granted here, unless the alleged invention was patented in some foreign country. Proof of such foreign manufacture and use, if known to the applicant for a patent, may be evidence tending to show that he is not the inventor of the alleged new improvement, but it is not sufficient to supersede the patent if he did not borrow his supposed invention from that source, unless the foreign inventor obtained a patent for his improvement, or the same was described in some printed publication.

TO OUR SUBSCRIBERS.

In accordance with our usual custom, at the beginning of this new year we turned over a new leaf in our subscription book, placing thereon only the names of those whose subscriptions have been renewed, or that have not expired.

All whose papers have ceased to come may know that their subscriptions have expired; and we hope they will be prompt in sending the money, $3.20, for renewal for one year, or $1.60 for six months. We will supply the back numbers, commencing with the year.

Influence of Organisms on Eggs.

MM. Bechamp and Eustache have determined that eggs may remain for long periods in a medium filled with infusoria, without the latter traversing the shell and penetrating the interior. The shell, however, allows the passage of microscopic mucedinæ, which make their way through the lining membrane and develop very abundantly on its internal face. The membrane surrounding the yolk presents, however, an insurmountable barrier to their further progress, but should their entrance into the yolk be effected an alteration takes place, which is a true fermentation and distinct from putrefaction.

Amyloid Degeneration of the Cornea.

By introducing liquids impregnated with spores into the cornea of rabbits, Dr. A. Frisch has found that the corpuscles of the cornea undergo a metamorphosis of their protoplasm into shapeless brilliant masses. The sheath of the conjunctive tissues of nervous fiber, with or without marrow, remains intact, but becomes filled with flattened masses having an intense refracting power. These and other substances show amyloid reaction on contact with iodine and sulphuric acid, and resist the action of digesting liquid. Examined under polarized light, all the portions affected with amyloid degeneration become bi-refracting.