

business and had served his first apprenticeship on a blast furnace. Once the furnace was tight and was not running well, so that all hands were on duty thirty-six hours at a stretch. The general manager of the company, who knew him well, came around and said to him, "Well, Jack, I guess this is something different from your old college days." "My dear sir!" said Jack, "this is child's play compared to what I have been through in the engineering school." He was right. When examinations in subjects involving applied mathematics, or in branches of science calling for exact knowledge, or the preparation of graduating these, geological reports, and experiments with pumps and dynamos roll upon us, we are being prepared to find the demands of later work seem comparatively simple.

No one who knows our engineering schools can have any doubt whatever that our courses in applied science are preparing for later life hard-working, earnest men who simply cannot be discouraged and who stand up to the calls made upon them like good soldiers. I doubt very much if, on the whole, you will find later work as difficult as many situations in the professional school.

But in some ways conditions are different in actual practice. In the professional school it is a fair field and no favor. A very just set of judges on the whole give the faculty's decisions. But in actual practice self-interest counts for more; family influence, the influence of property, and the various other factors enter. Questions of right and wrong are less prominent than in college life. Conditions are more selfish, and often bring disappointment and injustice.

But you must be strong enough not to be soured by such experiences when they come. You must be big enough not to mind them, but to keep your own attitude toward life as much as possible a generous and helpful one. One summer I was called to Nova Scotia and I sailed across from Boston to Yarmouth at the southern end of the peninsula, and rode on the train through what the railroad folder called the land of Evangeline. My neighbor in the seat and I fell into conversation. He was a graduate of one of the largest and best of our eastern technical schools, and was then employed in some important works in Providence. Obviously he was not getting on badly, for he was off on a vacation trip with his little family. Yet his earlier experiences had evidently soured him, for he said, "I'll tell you the proper preparation for business. It is not a college or technical education, but the life of a newsboy or bootblack, who knows everybody's hand is against him and uses his hand against everybody. The newsboy has cut his eyeteeth." That attitude is not the true one. We have, to be sure, our hard experiences and our discouraging ones, but we do not knuckle under for all that. On the contrary, we forget them as soon as we can. When the umpire roasts our team in one place, we lose the game and are sore over it for awhile; but the next time we will be playing somewhere else and the umpire will be different. Experience shows that sooner or later all the good, strong, well-qualified men win out, and getting free from the ruck become reasonably well established. Then through our local engineering societies, such as the Lake Superior Mining Institute, or through our national society, the American Institute of Mining Engineers, or the Mining and Metallurgical Society, or in other ways, come our professional associations and friendships which are altogether delightful. They

are well worth much patient and dogged endurance at the outset.

On bestowing a degree in medicine it is the custom, as you doubtless all know, for some older member of the profession to administer the oath of Hippocrates, a very ancient ritual which has been observed for quite two thousand years. Many times at commencement at home we have seen the group of young physicians stand while they were reminded of the pledge which had come down through the long line of centuries, so long in fact, that the very gods by whom the early Greeks made affirmation have passed away. Each man is adjured to swear by whatever he holds most sacred to practise his profession in honor and uprightness, to be always ready for the call of the sick, to enter no man's house other than to bring the acts of healing, to never perform, much less suggest, a wrong, to keep inviolably secret what is learned of the lives of men. Many times amid a solemn hush I have heard the senior professor in the medical school conclude: "And now if you observe your oath may success and prosperity attend you; the opposite if you shall prove yourself foresworn."

In engineering no ancient pledge has come down to us from Archimedes, our great forerunner, nor from those master minds which built the pyramids or laid out the great systems of irrigation in the valleys of the Tigris and Euphrates. Our profession, distinctively named, is of comparatively modern date. Yet mining is a very ancient art. We do not know when the first rush of placer miners to some new productive diggings took place; but the myth of the Argonauts and the Golden Fleece reminds us that there were such expeditions. We do know that the Assyrians fought with the Egyptians for the copper mines of the Sinatic Peninsula which separated them; that Athens was the leading state in Greece because of the lead-silver mines at Laurium, its seaport, whose ancient slags are now being reworked by the French; that Hannibal, said by H. C. Hoover to have been originally a mining engineer, fought the Romans for the copper mines of Spain; and so on through the centuries.

While we have no Hippocratic oath, we must feel the force of the traditions of a calling that is very old. We must realize, too, that when a man has completed a severe course of training, and has his name added to the alumni list of a professional school of high character, he has given pledges for straight dealing and true speech for all the remainder of his life. The graduates of our engineering schools feel this just as do the graduates of the Military Academy at West Point. And rarely in the former as in the latter, do we find in the long list of names and professional service, the records of those who have been actuated by other than high professional standards. Graduates have in their keeping not only their own reputations, but also the reputations of the schools wherein they have prepared for special service. No appeal for straight conduct and true speech could be stronger.

And now when Commencement is over and you are out in life you will all miss the fellows and the old associations, but while not permitting the old ties to diminish in strength, you must be prepared to make new ones and find friends wherever your work takes you. You must enter into the life and interests of the communities where you will finally settle, and find in them the satisfying of the craving for sympathetic companionship which all of us gregarious beings feel. From time to time come class reunions and alumni