ANNUAL COMMENCEMENT EXERCISES

With a greatly reduced Senior Class, but with a service flag showing 473 stars hanging above the stage, the 1918 Commencement differed little in outward aspects from those of previous years. The weather was cool and quite in contrast with the rainy season of a year ago. In all 849 degrees were granted, in addition to thirty-eight certificates of completion of their courses given to the nurses in the two University hospitals. Though 400 members of the class are in service, only 177 were given degrees, and practically none of these were present, so that, with the nurses, who added in their white uniforms a new note to the program, there were only 710 graduates present to receive their diplomas. Of this number exactly one-half were women.

The Commencement procession was formed as usual at the sound of the bugle. With the speaker of the day, President William L. Bryan, of the University of Indiana, and President Hutchins at the head, followed by the recipients of honorary degrees, the Regents, the Faculties and the alumni, the Commencement Procession passed down from the entrance of University Hall, turned north, then up the diagonal walk and around the Chemistry building to North University, thence through a double line composed of members of the Senior classes to Hill Auditorium, where the exercises commenced at ten o'clock. Owing to the presence of Major General Wood the whole line of march was guarded by members of the University Training Detachment.

The program was opened with a prayer by the Reverend Lloyd C. Douglas, of the Congregational Church of Ann Arbor, followed by the Commencement address by President William Lowe Bryan, of Indiana University. President Bryan's address was as follows:

THE TRAP

Nearly all the living things in the world are compelled to work hard in order to survive. There are some exceptions. There are a few parasites among plants, animals and men. But the infinite millions of living things are compelled to struggle with all their might in order to get food, to escape their enemies, to escape death.

This hard work develops in these living beings the habits and in the long run the organs by which they live. But this is a world of change and when the world changes it is often impossible for living things to change with it. And so they die—caught in the trap of the very habits by which they were living.

I suppose this is the explanation of an extinct species. Every one of the thousands of extinct species of plants or of animals was once a success. For thousands of years millions of individuals got food, escaped their enemies, reproduced themselves. The species had the organs and the habits necessary to survive. Then there was a change. The individuals of that species could not change sufficiently. They could not escape from themselves. They were caught and killed in the trap of their own habits.

The same thing is true in the case of vanished races and types of men. Take the case of Daniel Boone and the men who came with him across the mountains into Kentucky in the middle of the eighteenth century. These men were wonderfully adapted to their environment. They were more cunning than the wolves or than the Indians. They could snuff a candle at one hundred yards with a rifle bullet. They could kill with one shot. They were masters of their difficult environment. Presently, following their success hundreds and thousands of others followed them across the

mountains, bringing the beginnings of civilization including courts and laws. Many of the first pioneers were not able to adjust themselves to these new conditions. They were able to fight the Indians but not the lawyers. Daniel Boone himself found that he was not legal owner of the lands which he supposed were his. He went beyond the Mississippi in what was then the foreign country of Louisiana and got other lands and lost those and died a poor man in 1820. He was caught in the trap of the habits by which he had won success.

The same thing is illustrated again and again in industrial and economic history, especially in recent generations. Some years ago a school superintendent told me a story concerning the establishment of the Tin Plate Mills at Elmwood, Indiana, in 1896. He said that skilled workmen were brought from Wales to do the more difficult parts of the work. These men were paid high wages, some of them twenty dollars a day. Presently, the mill introduced a machine by which a man and a boy could do the work of twenty men. This displaced many of the skilled Welshmen. My friend asked the superintendent what would become of the displaced men. He said, "We can give them other work if they will learn to do it." My friend said that very few of them did adjust themselves to the new situation and that you would find one of them a year later perhaps working in a livery stable at $1.25 per day. These men were caught in the trap of the habits by which they had been living.

A few years ago I talked with the president of a company which manufactures stoves in the northern part of Indiana. He told me that he had developed short cut methods by which a given amount of work could be done with a smaller number of movements and in a shorter time. He had found that many of the workmen and the foremen of middle age either could not or would not learn the short cut methods. So said he, "I threw them out and put in high school graduates and college graduates who did not know anything. They did not know anything but they could and they did learn to do what we wanted them to do. I made good with the directors and stockholders, for within a short time we were able to cut down the length of the day by an hour and make more stoves than before." "Yes," said I, "you were able to make good with the directors and stockholders but how about the workmen and foremen in middle life who were thrown out upon the rubbish heap,—caught and killed in the trap of their own habits?"

We are having a nation-wide and a world-wide movement toward what is called vocational education,—meaning thereby for the most part trade education. I believe in that. No man more so. I believe in the immediately utilitarian types of education for two reasons. *First,* because they are necessary. We can not win the war without them. We can not win industrially after the war without them. Our government is finding it necessary to train one-half million drafted men for the trades necessary in the army and navy. We can not win against the Germans after the war if Germany continues to raise three times as much per acre as we do. *Second,* I believe in universal education in the handicrafts because I believe that this is a necessary part of human culture. I revere Plato as one of the immortal prophets but I do not believe with Plato that contact with the earth or with earthly work degrades. On the contrary, I believe with William Morris and with other modern prophets that mankind is to be saved partly by its contact with the earth in every lowly form of labor.

Nevertheless, I am deeply concerned lest our vocational education may not accomplish what it should. Incidentally, as the matter now stands, it fails in innumerable cases for lack of adequately prepared teachers. Every friend of vocational education realizes this deplorable fact. But our vocational education in many instances is open to another equally grave peril. A friend of mine visited the trade school in a Massachusetts city which makes shoes. In the trade school maintained by the city, the boys and girls were preparing to work in the shoe factories. They were learning the routines which would make it possible for them presently to go into the factories and earn a dollar a day. It is an epoch in a boy's life when he is able to do work that is worth a dollar a day. This is far better than something worse. But if the public schools of that city do nothing in the way of trade education for a boy except to teach him how to work at a certain machine so that he can earn a dollar a day then the public

school system of Massachusetts is sending that boy straight into a psychological and economic trap like that of the Tin Plate men at Elmwood and the stove men at Kokomo.

Two or three years ago a group of leaders in vocational education met to prepare a course of study for a vocational high school. One of those men talked with me about the struggle within the committee to obtain these two conditions. First, that the way should be kept open from the lower levels of the trades taught to the upper levels of these trades and beyond that to the better paid occupations for which these trades prepare the way. Second, that the course of study in that trade school should keep in view the fact that the boys and girls are not simply workers but also human beings, citizens of the United States, with vital concern in all the highest issues of life. It took a fight to keep that course of study from being a trap.

We have essentially the same problem in professional education. Whoever confines his study of any profession to the surface routines which are necessary in order to make a beginning in it, is headed straight for a psychological and economic trap.

I find in the schools of engineering that many of the students and some of the professors have the idea that a student should hurry through to a paying job. The boy wishes to escape as soon as possible from the underlying sciences—physics, mechanics, mathematics, chemistry. He wishes to work as soon a posible and as much as possible with the machines and processes now in use. He wishes to hurry through to a hundred dollars a month. It is, as I suggested above, an epoch in a young man's life when his work is worth a hundred dollars a month. But his haste is dangerous. There never was a time when machines and processes were changing so fast. Not simply in details but in fundamentals. The young engineer who has left unmastered the sciences which underlie engineering, the sciences which reveal more and more profoundly the laws of the ocean of force in which we live and with which we have to do, will find in twenty years that he can not comprehend the engineering of that day. If it is my boy and I think he has brains enough I want him not to hurry over fast.

I happen to know personally two of the highest paid engineers in the world. One of these has lately retired from the position of chief engineer of one of the great mining companies to accept a position in the United States army. I happen to know that he did not study engineering at all when he was in college. What did he study? For one thing he had a generous course in the liberal arts, which he has never found to his disadvantage and which will surely not be to his disadvantage in his contacts with the officers of France and of England and of Italy. Besides that he studied the sciences which underlie engineering,—mathematics, mechanics, physics, chemistry. He began his technical study of engineering after his graduation. As a matter of course the success of such a man depends upon other things than the course of study which he has taken, but a great part of the reason why he was early in life at the head of a great company directing the work of large numbers of engineers in two continents was because from his more fundamental education he knew how to meet not only the routine problems but the new problems which were constantly confronting him.

The other case is like a fairy tale. Something more than twenty-five years ago a man came from the farthermost backwoods of Indiana to the State University. He came from the region where Edward Eggleston has located his story "The Hoosier Schoolmaster." He believed that he was one of the family which is most conspicious in that story and he was proud of it. He was older than most of the students and he was in doubt whether to go on with his college education. He asked the advice of one of the wisest men I have ever known—a shoemaker. This shoemaker was a remarkable man. For example, he would tell you the truth. He was entirely capable of telling the young man from the backwoods that he had better go back to his little hill farm for the rest of his life. But after consideration he advised the young man to go on with his studies. The young man did so with the intention of becoming an engineer. He did not study engineering however. He studied the foundations of engineering—mathematics, mechanics, chemistry, physics, geology. After his graduation he went on with the study of mining engineering. Some years later a great English mining company wrote the president of his university, asking him to send a trustworthy engineer to investigate a mine which they thought of buying. The young engineer of whom I am speaking was sent. He made the investigation and reported adversely.

The company then sent an engineer from London. He found that the report of the young American was correct. The company did not take the mine. They took the man and since that time they have sent him to Africa and Asia and I know not where besides in their service. A few years ago when David Starr Jordan was in London, he received a letter from his former student expressing his regret that he could not meet President Jordan but offering him the use of his automobile and his suite of rooms at the Hotel Cecil. When I heard that story I thought that that was a long way from Flat Creek. Little Shocky in the story was afraid that God had forgotten Flat Creek. But God did not forget Flat Creek, when our American democracy was established. God did not forget Flat Creek, when the American school system was established "rising in regular gradation," as our Indiana Constitution has it, "from common school to State University. Democracy is not a phrase nor a document nor a system of government. Democracy is opportunity. Democracy is opportunity for Shocky and the like of him to come up out of Flat Creek and go, if he has the ability and the will into the seats of the mighty. This is the democracy for which we are fighting.

We have far too narrow a definition of the word "practical." Let me illustrate with a story in three chapters. In the middle of the last century there was in Cambridge University, England, a great mathematician named Maxwell. In the course of his theoretical studies he discovered a hitherto unforseen connection between light and electricity. Only a few men of science knew anything of this discovery. The vast majority of the world, if they had heard of it, would have thought it remote from any practical concern of mankind. That is the first chapter.

Some years later, a German physicist named Hertz was able to demonstrate Maxwell's results experimentally in the laboratory. Still the world, aside from a few scientists, knew nothing of it and cared nothing for it. That is the second chapter.

All the world heard of the next chapter. This was the discovery of the X-ray by Professor Roentgen. The whole civilized world is made to realize every day the enormous values in many fields, including surgery, of this discovery. What our hard headed American men should understand is that his debt goes back one step to Roentgen, two steps to Hertz and three steps to Clark Maxwell, pure mathematician.

In the fall of 1752 Benjamin Franklin went out in a time of a rising storm with a kite and a string and a bottle in order to catch lightning. He says that he avoided letting the public know anything about his experiment. He knew that he was likely to be called a fool. Later there were sermons preached against him as a blasphemer for interferring with the affairs of heaven. Franklin was once asked, what is the use of science? He replied by another quetsion: "What is the use of a baby?" It is of no use at all but it will grow." The fire that came down his kite string would bake no bread then. It does now. We live in an ocean of force. Whoever discovers anything whatever concerning it has done something which may presently prove practical.

I find the same short-sightedness about what is practical in many of the students and some of the professors of medicine. I find that many of the boys are anxious to get away as soon as possible from the underlying sciences and to get as quickly as possible into the clinics where they can learn the routines of medicine and surgery so as presently to make a living in the practice of medicine.

Not long ago a boy came into my office to say that he had failed in organic chemistry, that his professor would not allow him to go on with physiological chemistry until he had passed in organic chemistry, that he was anxious to get on with his medical course in a practical way and that he wished me to come in as a *Deus Ex Machina* to set aside the rule and to allow him to go on with the advanced work. I tried to tell him the essential place which chemistry has as a foundation of medicine and I finally said to him, that if his request were granted he would presently be a physician who knew nothing of chemistry except the fact that he had had it once and made 60. I tried to make him see what the underlying sciences have done for the practice of medicine within our generation. I told him of my own memories of the yellow fever plague in New Orleans, of how through centuries past men battled with this plague in ignorance and in their ignorance died and of how then a few men of science had mastered the plague and stopped it in mid career. I said to him what I have said to you today, that if it were my son and I thought he had brains enough

I should want him not to hurry through to a license to practice medicine but to be one of these who would share in this most beneficient war—science against the plague.

An eminent scholar has said that the most important work of the United States at Panama was not the digging of the canal but the work of physicians which made it possible for white men to live there. We have in Africa and in South America vast areas with infinite potential wealth of natural resources which must lie there unused until the scientific physician conquers the tropical insect. When that conquest is made, the world will win back a greater wealth than it has spent in the great war.

Let me put this whole matter in another way. Bergson has said that living things may be graded by these two texts. First, how much energy has the living being in question at its disposition? Second, how many different things can the living being in question do with the energy at its disposition for its own advantage and the advantage of its species? The variety of things which it can do, according to Bergson, is the chief advantage which the animal has over the plant. The enormously greater variety of things which he can do, he holds, is the chief advantage which a man has over any animal. This, he holds, is the chief advantage of the superior over the inferior man. Here was the difficulty with the Tin Plate men at Elmwood and the stove men at Kokomo. Here is the difficulty with the routine engineer, the routine physician, the routine man in any occupation.

It may be said that every living being must end in a smaller or in a larger trap. We all must act. We all therefore develop habits and in all of us these habits constitute some kind of trap. Wordsworth finds that this is true even of poets. "Shades of the prison-house begin to close upon the growing boy" and "Full soon thy Soul shall have her earthly freight, and custom lie upon thee with a weight, heavy as frost, and deep almost as life." This seems to be true if we consider the short run but not if we consider the long run. Bergson says, "Life is a wave which mounts." Everything else falls. Life mounts. There was a long period in the history of the world when the highest form of life on this planet was plant life. If one could have visited the world then he could not have imagined the possibility that out of those forms of life there would rise others that could run and swim and fly. But that miracle happened. There was another long period in which the highest form of life here was animal life. If one could have visited the world then, he would not have imagined the possibility that out of that life there would arise a being that could use tools and with those tools work out a higher and higher intelligence. But that miracle happened.

We have the same thing illustrated in the history of civilization and of morals. At one date slavery is universal and seems bound to continue forever, fortified by the human interests which gave rise to it. But life is a wave which mounts and presently it bursts up through the iniquitous interests and establishes a larger freedom. At one date autocracy is universal and seems bound to continue forever. The shrewd man, the cunning man, the practical man holds that it can not be overthrown. But life is a flood which mounts. It bursts up through the established autocracies on the way to larger freedom. It did this at Philadelphia, in 1776. It did this in Paris in 1789. It strove to do this at Berlin in 1848, but for the time failed. Today it is the infinite strength of Life—which is none other than the Life of God,—that struggles to burst its way up through and over the last surviving autocracy.

The evolution of life on this planet from its first beginnings until this day may be viewed as on the one hand the creation of the organs and the habits which are found to be temporarily useful and then an escape out of the traps of those organs and of those habits into greater and greater freedom.

Meanwhile what can I do in the course of my short individual life to escape the traps which lie in wait for me? There are two things that I can do. One less important. One more important. The less important way is to spend a certain part of my energy year by year in acts which lie outside my bread winning occupation. This is the defense for play in all its healthful forms, from the play of little children to the high forms of play which we call art. This is the defense for general as distinguished from occupational education. This is the defense for the study of liberal arts in high schools and colleges. This is the defense for the study of Latin and Greek by those who will not use either professionally. Work makes us old physiologically, psycholog-

ically. Play in all its forms and general education in all its forms tend to keep us young, tend to keep us plastic, help us to escape from occupational traps. It is a fundamental misfortune for a man to have no interests outside his bread winning occupation.

There is however a far more fundamental way of escaping from the trap of my occupation. That is by a deeper mastery of the occupation itself. Carlyle has said that the most insignificant thing may be "a window through which the seeing eye may look into the infinite." In like manner there is no occupation through which a man may not come to grips with the infinite.

One of the greatest and wisest persons whom I have ever known was a woman, who for fifty years was concerned with the teaching of little children. Kipling has said that teaching is a belittling business. She did not find it so because, as it was said of her, she could walk and she could fly. She could walk with the little children in their round of daily tasks. She could fly to the world of great philosophers, the great poets, the great prophets and she could bring from those the wisdom to guide those little children toward all that is possible for a man. There is no trap for such a spirit.

Miss Tarbell tells a story of Lincoln, the lawyer. He was called to Cincinnati as attorney in a patent right case. The chief attorney on his side was Edwin M. Stanton, afterwards his Secretary of War. Mr. Stanton had no respect for the unusual looking lawyer from Illinois and declined to have him speak, treating him in a manner in the highest degree humiliating. Mr. Lincoln walked from the Court House in the company of a young man who told the story to Miss Tarbell. After a long silence, Lincoln said, "I am going back home to study law." His young companion said, "Why, Mr. Lincoln, we think of you now as one of our leading lawyers." "Well," said Mr. Lincoln, "I have been able to get along after a fashion out there but I see that those eastern lawyers have a grasp of the fundamental principles of law which I have not. I am going back home to study law."

It has been said that some great men, as for example, Goethe, have a second adolescence after forty. Mr. Lincoln was such a man. The Lincoln that we know grew to be what he was in large part because in such a crisis of his life instead of wasting himself in useless anger he could say, "I am going home to study law."

A little while ago I spoke of the liberalizing values of the classics. I wish now to say that their greatest value does not come to those who read them for esthetic pleasure. The ideas and the wisdom locked up in the great classics of all the culture languages constitute an energy greater than any kind of dynamite.

Virgil was not a statue nor a book in Dante's Palace of Art. Virgil led Dante through all the descending circles of hell and back again. Let Virgil and the like of him do their office for us today. To win this war, we must have powder and wheat. Still more we must have the voice of God through the prophets in every great literature. Let the professor of the classics who trembles lest in this utilitarian age his masters will be forgotten call upon them to rise from the dead and show this generation the pillar of clouds by day and the pillar of fire by night which they should follow.

The Spartans won their victories partly with their spears and partly with the songs of the crippled Tyrtaeus. Our world must win, partly by machines of industry and war, far more by the visions and songs of the masters in whom life has risen to its heights.