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FOUNDED BY EDWARD C. HEGELER

SEPTEMBER 1928

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"DR. CHAMBERLIN IN HIS STUDY, 1928."

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THE OPEN COURT

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Volume XLII (No. 9) SEPTEMBER, 1928 Number 868

PROFESSOR CHAMBERLIN, DEAN OF AMERICAN SCIENTISTS, ON THE FUTURE OF MAN

BY J. V. NASH

AMONG living American men of science Dr. Thomas C. Chamberlin holds, by reason of his age and achievements, a preëminent position. A contemporary of Charles Darwin (he received a gold medal from the Paris Exposition of 1878, in recognition of his geological discoveries), at the age of eighty-five the veteran geologist is still intellectually alert and busily investigating new problems involving the interior structure of the earth.

Professor Chamberlin's pioneering researches half a century ago gave us the story of the great Ice Ages in North America, but he is more widely known as the co-discoverer of the Planetesimal hypothesis which during the last twenty-five years has largely supplanted, both in America and abroad, the Laplacian and other theories concerning the origin of the earth and the development of the solar system.

Elected to the Presidency of the University of Wisconsin in 1887, after five years of intensive work as an administrator, during which he reorganized the institution and placed it in the front rank among our State universities, Dr. Chamberlin in 1892 accepted an invitation from Dr. William Rainey Harper to come to the newly established University of Chicago as Professor and Head of the Department of Geology, where he would be free to devote his entire time to science, with the best modern equipment and facilities for research. Thus it was that Professor Chamberlin established his headquarters in Chicago, where he has remained ever since and has conducted a long series of brilliant investigations in the fundamental problems of geology. The results of his research have been

given to the world in several books and in numerous articles appearing in the *Journal of Geology*, of which Professor Chamberlin has been for many years Editor.

Not long ago, believing that the impressions and recollections of so eminent a scientist, expressed in an informal personal interview, would be of general interest, I sought an appointment with Professor Chamberlin. The request for an interview was cheerfully granted, and I spent several hours with the octogenarian geologist in his private study.

With reference to his latest investigations, he gave me the following brief summary:

"The interior of the earth is no longer a realm of darkness and mere speculation. Three lines of specific evidence now penetrate it. While their full import is not yet at command, important light has already been shed on the tectonic or architectural state of the interior. The earth is a heterogeneous elastic solid, inclosed in a riveted jacket which it has been for ages forming about itself from worn and weathered surface material reshaped and bound together by exudations from within. The floating crust is a misinterpretation. The continents stand on solid (elastico-static) foundations. The earth is better organized and stronger to-day than ever before, and the reorganizing processes show no signs of exhaustion."

I then asked Professor Chamberlin to tell me something about the early chapters in his extraordinarily fruitful scientific career. Looking back reminiscently over an interval of some sixty years, he replied:

"I began simply as an educator without any thought of scientific investigation. I taught the old classical course of the strictest sort. There was very little science in it, and I was personally strongly inclined to the philosophies. But my experience as a public school teacher and principal, in the 1860's, convinced me that the course of study was too narrow, limited, and dry really to meet the needs of the ordinary pupil. So during the two years when I was principal of the high school at Delavan, Wisconsin, I gave little talks on various subjects—geology, astronomy, history, and things of that sort—in order to broaden the course out, and I also started some little excursions to see something of Nature.

"I was untrained in these lines, but as a boy on the farm in the pioneer days when Nature was still almost unmodified, I had an unusual opportunity to see Nature as it was, as a boy sees it. I

have always regretted exceedingly that I had not had a little training in scientific lines as a boy, because my opportunities were so extraordinary in those early days. The migration of the birds and the animals was something rather wonderful, in a way, in southern Wisconsin, where there was a special concentration of migrants. In doing this supplementary work for the pupils, I became myself interested in the sciences.

"I saw the coming wave of scientific development, and so I stopped teaching for a year and went to the University of Michigan to study the sciences. I studied the full range of the leading branches. I had tickets of admission to the dissecting rooms, and so on.

"Then for four years I taught the natural sciences in the White-water Normal School, in Wisconsin, where I covered all the leading sciences—human physiology, botany, zoölogy, chemistry, physics, geology, and astronomy. I took those up by turn, as I could, because I could not do thorough work in all of them at one time.

"But I then saw that the field was too large. It was necessary to concentrate, and I chose geology. I was instrumental in the starting of the Wisconsin Geological Survey of 1869 and subsequent years. That was where I really started in science. My predilection was for paleontology, but my field—the eastern Wisconsin—was very heavily covered with glacial formations, and as a matter of necessity I had to give much attention, if not foremost attention, to glacial problems. This gave me a trend in that direction, and naturally there arose in my mind the question of the cause of so extraordinary a thing as the great ice invasions. I tried several theories that were then current, but they did not work very well. At the close of the Wisconsin work I became head of the Glacial Division of the United States Geological Survey.¹

"It was from that larger point of view that I began to consider causes and methods of how the glaciations had come about, and was compelled to reject one after another of the causes assigned, until finally I took up an old suggestion of Tyndall's that it was due to change in the constitution of the atmosphere, particularly the carbon dioxide, which Tyndall held was especially fitted to absorb heat and affect climate. In the study of the atmospheric constitution I was naturally led back to the original state of the atmosphere,

¹ Professor Chamberlin studied the glaciers of Switzerland in 1878, and those of Greenland in 1894 when he accompanied Peary on his polar expedition.

and some questions with reference to the great hot, moist atmosphere that had been the current view were raised. I tried to test these hypothesis by the kinetic theory of gases, which was then new, and found that they would not stand the test."

These investigations finally led back to a reconsideration of the whole question of the earth's origin, and Professor Chamberlin went on to explain his approach to that difficult problem:

"Up to that time I had been, like most scientists, a devotee of the Kant-Laplace hypothesis of a gaseous mode of origin of the earth. My investigations, however, introduced profound skepticism, but as I was not quite willing to throw over my fixed beliefs—things that I had been teaching for years—without a more firm ground of objection than was afforded by the atmosphere and by the kinetic theory, which was then new and on trial, I turned to the solar system; that is, the earth and the sun in particular, to see if there were objections that were independent of the atmosphere,—mechanical objections and so forth,—and I hit upon the slow rotation of the sun. The surface of the sun moves only about $1\frac{1}{3}$ miles per second, whereas Mercury, the innermost planet, moves near 30 miles, and the earth moves $18\frac{1}{2}$. So I could not see how a mass of gas that had been throwing off rings, as they used to say, that were rotating at these high speeds, could contract down and rotate so slowly. The problem involved the *moment of momentum*.

"Then one day I happened to meet Moulton on the campus. I had had some acquaintance with him and he had been helpful in some things before. He was then a young instructor or graduate student. So I put it up to him. He began to inquire into whether the Laplacian hypothesis would stand tests in that line, and he found it would not. He reached very decided results.

"That was the beginning of our co-operative work, and perhaps I may be pardoned for saying that it was a rather unusual combination in that field. Moulton, you see, was strong on celestial mechanics and on mathematics, whereas I was a naturalist. I worked from the earth; Laplace and Kant and all those men had been working from the heavens—working down. I looked upon the features of the earth as hereditary traits and wanted to trace them back and find out whence they came and how. That is the geological method, just as we find beds of rock and determine how they came about. The method is naturalistic, distinctly so.

"Then Moulton, working from the point of view of celestial mechanics and mathematics, understood the other side perfectly, and could test things by the principles of mechanics, so that we made up a co-partnership spontaneously and have worked together ever since, more or less. That is how it began; that is how our relations developed. We worked from very different points of view but co-operatively.

"This led to the rejection of the Laplacian hypothesis not only, but also of the others that had been derived from a heavenly point of view and that involved the same mechanical principles. It did not make any difference whether the body was made up of gas or of separate particulars, meteoric or not, provided the mechanics were the same. And so I was forced to abandon both of these suppositions. I did not do that in a minute; I worked years on it, trying to see if there was not some way in which these difficulties could be avoided and the Laplacian hypothesis or the meteoric hypothesis could be made to stand. But I could not make any substitute work, although I tried collisions and glancing collisions and various other things.

"Finally I hit upon the doctrine of the close approach of a passing star, producing a dynamic encounter but not a physical encounter as a basis. While Moulton and I worked in close co-operation, we worked independently; yet we so depended upon each other that it is a joint work, and that is the way the public should understand it. The Planetesimal hypothesis, developed as a result of that work, is radically different from the others. The others bring matter together in mass, whereas the Planetesimal keeps the matter separate.

"The essence of it is that in the beginning there were small bodies—not meteorites—which moved in orbits like planets, and that these planetesimals, or little planets, gathered into big planets. The passing star caused the sun to throw this matter out, and pulled it forward and gave it orbits. These embryo planets had planetary orbits, but little ones, and they grew up. But instead of growing up by bounding, they grew up by concurrent motion. Meteorites go in all sorts of different directions, and gases are going every way, whereas these bodies were going all one way. So they came together concurrently, going in the same direction, like automobiles flowing in one direction.

"That leads to this radical conclusion from the geological point of view: The earth grew up slowly, and hence when falling bodies struck the atmosphere they became hot but were cold by the time others fell on them; so the earth grew up from the infall of these planetesimals in a relatively cool way and never was molten, never was all gas. All the time it was growing up very slowly—say a billion years or so in growing up—without being very hot. There was more or less irregularity of growth, because the atmosphere would sift the material more or less, causing more lodgment here than yonder, lodgment of heavier matter in one place than in another, so that the earth became irregular; and out of that came the continents and the fact that the land is mostly in one hemisphere and the water in the other, and such things.

"In other words, the Planetesimal theory leads to a very different concept of the way the continents rose and the way the earth has behaved ever since. That is the parting of the ways. It is this that I have expressed more definitely and sharply in my recent article in the *Journal of Geology*. I believe it is a more trenchant article than any I have ever written before—more summary. I urged very specifically the conclusion that the floating crust, the molten globe idea, and all that, is a misinterpretation, and that the earth is solid, has always been solid, has grown up as a mass of little solid particles, and that these have worked upon one another. There is internal reorganization going on all the time, and that is the explanation of our earth movements or earthquakes, and all of that. Thus we get a very different concept of the great things in geology.

"I feel the greatest confidence that this new view of the earth is going to win, because it is built up from the earth, as it were, but it is going to be slow. I said at the start to Salisbury and some others that it will be twenty-five years before the Planetesimal hypothesis will come fairly before the world. The twenty-five years are not quite up, but perhaps twenty-five years was a little scant. However, I think by the end of twenty-five years there will be a rather decided opinion on the part of those who really do the thinking."

With further reference to some of his recent investigations, Dr. Chamberlin said: "As you know, the geographies have told us that if we draw a line around the earth, most of the water will be found on one side and nearly all the land on the other. In other words,

the earth is one-sided in a very strange way. The division is not parallel with the axis, but crosses it diagonally. The key to my method is this: I don't start with the theory and come forward. I start with the thing that is and go back. That is the thing I am working on now; that is, the formation of the core of the earth, and the reason why one end of the core became big and light, and the other dense and heavy. The great problem is the difference in the hemispheres and then the shaping of the continents, and the fact that the North Pole is sunken and the South Pole protrudes. That is what is before me. I want to get that in good scientific form, and the whole thing in a little better shape for teaching.

"I never dreamed," he added reflectively, "of getting so far when I started. One thing has led to another. I want to find the bottom of things; the philosophical tendency is strong in me. I am not content to know that a thing is so; I want to know why—as the Indians say, 'How come?'"

My next question concerned the religious position at which Professor Chamberlin has arrived. "My father," he explained, "was a minister. He was not a man of scholastic training, but a student and a thinker. He was distinctively philosophical. I was brought up in theological philosophy. He was an Arminian, not a Calvinist, and I used to fight Calvinism from a boy up. So I was reared in that religio-philosophical atmosphere. I do not regret it, but it was a very different point of view from the scientist's. Now, I suppose I have fallen from grace, that I am a backslider.

"But I do not entirely lose the theological point of view. That is, I think this is not simply a stiff, rigorous organism. I cannot help thinking of myself as having a certain amount of liberty. I do not think like a machine; I do not think so, at any rate. Individuality, personality, responsibility, and all that is something that is so strongly ingrained in me now that I cannot get rid of it.

"Just how life and volition and thought got into the geological system is the biggest problem to solve, and we have to recognize that if we put the physical with the mental there are two sides to it. You cannot make the physical all mental or the mental all physical. So I am a sort of Ishmaelite. I am not with the mechanists or the determinists; nor, on the other hand, am I with the idealists—I am very far from that. In other words, I try to take the situation as it is.

"My fundamental theological prepossession is that whoever made the cosmic system was honest about it, and he made us in the circumstances honest. That is, we could not have evolved for billions of years or so in a factitious way; we evolved on sound lines in general. We are all full of shortages and mistakes and all that, but fundamentally the thing is as we see it. Just how the consciousness and the volition, and all that, come out of this other system and work with it is a pretty complicated problem, and I guess we will go on down through some generations yet before there is a complete answer. But the absurdest thing perhaps in all human history is for a man to sit down and write in favor of pure idealism. I mean sitting down and writing that there is nobody else except himself. We have to accept the situation as it is. We do not understand it, but we must keep the balance and punch from both sides. We will get there sometime."

"Do you believe with Tennyson that there is "one far-off divine event?" I required.

"Oh, no!" he rejoined. "It is so multiple. It is a wonderfully organized system. But I am coming to think more and more of the wonderful thing that we are ourselves physiologically. Yesterday I summed it up to myself by saying that I believe this corpse of mine knew about a thousand times more than I do. Just think of it! I go down to breakfast. I take this, that, or the other thing. That is all I know about it; I take it because I want it. But think of how that is organized! Certain new compounds, a multitude of new compounds, are made, and made to work together. If I take a given number of carbo-hydrates, they will make fats, and so forth and so on. They co-operate with one another, and the machine works. And how it works! The more I get down into the details of physiological action, the more amazed I am that the whole thing could be gotten together and made to work, to go the way it does. It is a marvelous thing. The knowledge of chemistry that a man's body has would discount a dozen chemists outside."

Continuing the line of thought suggested in my last question, I asked: "Do you think that the human race is moving forward?"

"It is among my theological dogmas," Professor Chamberlin answered smilingly, "that the optimist and the pessimist are both fools, but that the optimist is the more comfortable fellow of the

two, and I am an optimist—on the whole. That is to say, I do not believe that the whole thing is going all right, and I do not think that the whole thing is going all bad. I never could accept the doctrine of total depravity. On the whole, the system, as I see it, taking the heavens and the earth and all that is in the earth together, is working towards order and towards efficiency, and the amount of wastage, irregularity, of disorder, is relatively small.

"The things that disturb us are agitative and more or less destructive, but when you measure them up they are very, very small, compared with the orderly movements [rolling his hands rapidly], which are so quiet we don't know anything about them. For instance, we are just discovering the enormous energies that are locked up in revolutionary movements in the atoms. So I think we are really just in the beginning of things, just beginning to learn how to think. I know, of course, that some of the biologists are quite of the other mind. I have had some spirited discussions with friends at Madison on that subject. I go up there once in a while over Sunday, and we usually have some sort of gathering—a friendly conflict. We occupied pretty much of one evening in discussing the question whether the race did not reach its climax at the time of the Greeks. I contend that we are going 'way, 'way on. I think we are just in the puerile condition, just beginning to find out how to think and get into things. That is my feeling. From the standpoint of the earth, I am an advocate of a great future. I have been that for years. That is the gist of my Boston address before the American Association for the Advancement of Science.

"Just before I went to China on the Chinese Educational Commission with President Burton, a friend in Washington gave a dinner to a Chinese commissioner who happened to be there—Kang Shao Yi, who has been more or less prominent since. This friend had met him and been his guest in China. So he tendered a dinner to us two. There were present at the dinner Lord Bryce, a man of first order, Secretary Garfield, Mr. Pinchot, President Van Hise, and some others, a very choice company.

"After dinner my host asked me to say some things about the Chinese Mission which was just about to start, and in the course of my remarks I contrasted the ordinary view of the earth as a dying globe, freezing and drying up. When I first began here at

the University we worked on this problem a little, and we came to the conclusion that it would be about 10,000 years according to that theory before the whole thing would wind up, and it would be a miserable end.

"Then I sketched our modern view that the present geological conditions are likely to last for hundreds of thousands, more likely millions—possibly a hundred million years yet to come. So I said we have a chance. We might possibly commit suicide one way or another, and that will be the end of it. But we have a chance.

"I drew out those two pictures and I said I would not have it in my heart really to go to China if the first picture were true, that it would not be worth while to try to resurrect a nation, under those conditions, when we were all going down into the crash or the freeze-up. Quite to my surprise, Bryce took up the cue sharply, and for about an hour we had something of an encounter. Van Hise took up the other side. Finally Bryce said, 'Well, you have given us a very fresh point of view of an old question,' or something of that sort, and ended the discussion.

"I merely say this to show that from far back I have been a declared believer in a large opportunity for the human race. Just how the race is going to meet it is an independent question, but I believe it will meet it successfully. The most comfortable religious opinion I have is that if an organization, an organism, or a being does not take itself into the universal system, the system cuts it out.

"There may be more devils than saints in the world, but the devils die before the saints—they commit suicide. It is a fundamental theological principle of mine that the devil is a fool. He would not be a devil if he were not a fool. While he is acting smart and seems to be bright, he is playing the fool all the time. He ought to get in accord with things—in harmony with the system.

"That is what righteousness is. For instance, I do the right thing when I go to breakfast and eat the proper food in the proper amount, and in so doing do the thing that is best for my system. If I go down there and gorge myself, that is sin. Indulgence in strong liquor is destructive. So it is all through life. When we do the thing that fits us into the organization, into the general cosmos, and help on the system and work with it, both for ourselves and for the system, then we are cosmically righteous. If we do

not, we are Mephistophelian, and the cosmos cuts us out.

"It is to me a comforting thought that those who try to live in accord with their relations and obligations of all sorts prosper on the whole, and the others are killed off. If nine-tenths of the human race chooses to go to destruction, the one-tenth will live on." "And will replenish the earth?" I suggested. "Yes, yes, the system does not seem to be made to perpetuate all. An oak will bear thousands of acorns to produce one tree. Nature is sporadic all through."

Our conversation turned to the University of Chicago, where Professor Chamberlin has spent more than thirty years of his life. "I am a prejudiced witness in this case," he said, "but I think, between us, that the University of Chicago has struck the middle path perhaps more nearly than any other American or foreign institution, in that it holds with a fair degree of firmness to the best of the old thought, and is open and free towards new thought. It does not go wild; it has not cut the cables, springing off from the past, but there is lots of freedom—all the freedom that any man ought to have, and more than a good many ought to use.

"A man, I think, in the university lines should have a disposition to be free and to go free, but he should not cut loose from all that has made the race what it is. He should hold on to the good that has been proven in the past, while he strikes out freely for good that has not been realized, on the supposition that we are going to be better all the time.

"In the time that I have been connected with higher institutions there has been a wonderful change. You know we were under criticism all the time—'science falsely so called,' 'science is good in its place,' and so on. We used to have that; we do not have it now. The thing has swung to the other side. Science is the upper dog. It may do some foolish things on account of that.

"I think that the University is moving right along in general on lines of the very best kind. I think it is a great godsend to the State institutions that are growing up all about it, for an independent institution of this sort can do some things that they cannot do, tied up as they are politically. It can set the fashion and they can follow, but they cannot be leaders very well. On the other hand, they are striking out in lines that our University does not choose to follow, and so it gets benefit from them.

"I said to Dr. Harper about the time he was organizing the University here, 'You will make more students than you will get.' I do not think he quite understood me. But what I meant was this: that the establishment of the University of Chicago would create



Professor T. C. Chamberlin
Professor F. R. Moulton
Co-Discoverers of the
Planetesimal Hypothesis.

students by educating the people by stimulating the people, and that there would be more students made indirectly in that way who would go to other institutions than come here. That, I think, has been literally true. I think that the University of Chicago has made for other institutions students in the proportion of about five to one that has come here. So I think the establishment of the University of Chicago is one of the greatest goods educationally that has ever happened to any country. It was established here in a comparatively free atmosphere and Chicago has become free.

"Athletics? I am a moderate enthusiast in athletics. I think on the whole it is good. I think it is a fine thing that the attention of the young people is turned so strongly to building up their physical systems and taking care of them. I think it is a fine thing

that our sports are put under regulation, thus eliminating the rowdiness that used to prevail in the colleges. We have systematic contests. To be sure, it is rivalry—strong, sharp, and keen. [He snapped out these words with great vigor.] But it is under regulation, there is nothing mean about it; so that the substitution of organized athletics for the old college pranks I think is a very great thing. But we must not go to excess. We can overdo the development of the

muscles or anything else. Excess, as I have said, means sin. Most of our sins are perversions or excess—about the same thing. A man ought not to overwork his physical system any more than he overheats his auto and damages it permanently."

"Do you think," I asked, "that the human race will ever come together for peace and good-will?"

"Yes," answered Professor Chamberlin without hesitation, "we will work in that direction all the time, but we cannot go too fast. We will work toward it through increasing good-will, partly because it is to our interest. We want customers. Economics are going to control things more in the future. We as a strong producing nation will want to furnish the things that the rest of the world needs, and we want other countries well disposed, so that they will take our goods rather than others' or at least as readily. So I think the natural development of economics, productiveness, the comforts of life, are going to work toward peace.

"But we cannot secure peace by getting together and talking about it merely. We cannot open our doors to the burglars and the gunmen and the bandits just yet. In other words, I do not believe in the typical pacifist attitude. I believe in keeping ourselves in a condition to defend ourselves and to punish the criminals. I believe in punishing the criminals, too. That is, I believe in having a sharp, keen sense of what is wrong, and not having that too much softened by molluscan ideas. We have criminals who become very conspicuous and notorious, and lots of people sympathize with them whom you would not expect to do so. When I was a college professor in a small institution, I had the reputation of being at once the most approachable and the most severe member of the faculty. I guess that was true. I was sympathetic enough to the students, but if they went wrong I spanked them!"

"Have we reached the end of evolution," I asked, as a final question. The aged geologist's kindly face lighted up as he answered:

"Oh, no; evolution is going on as long as the machine runs. It may be a downward evolution by and by. I think the biologists are correct enough in seeing limitations, but those are likely to be overcome. In my experience, almost all my life, when certain people reach the point where they say, 'We never can do that,' that is just the thing we set to work and do. So they said, 'You are not evolved

as well as the birds—you cannot fly.’ That is just what we are doing now: we are flying. I suppose that there will develop in time, the instinct of a flyer; that is, a pilot will act instinctively in guiding his ship, much as we act instinctively in our walking. The automobilist seems to be developing an instinct for guiding him. Some can do wonders in that way; there are even many women who handle their machines with great skill.

“That is all evolution. I think that the introduction of the automobile and farm machinery and all that sort of thing is going to have a very great educational effect. Everybody is growing up with the mechanical instinct as it were—the mechanical insight, more or less. The laws of motion and momentum are growing up.

“This reminds me of an incident that may be of interest. Some years ago, as you may know, I wrote a little book on the origin of the earth. At that time I was President of the Chicago Academy of Sciences on the North Side. One of the members of the Board was LaVerne Noyes, the builder of Ida Noyes Hall at the University and the donor of other large gifts. He had a fine house near Lincoln Park, where he would invite the Board over to dinner, followed by a Board meeting and a ride in his auto perhaps. I was under very great obligations to him, and so I sent him a copy of my book as one of the little ways in which I could return the compliment.

“When I met him again shortly afterwards he told me an interesting story. He said: ‘I thought I would do a little missionary work for your book; so I mentioned it to one of my friends in the Union League Club at lunch and praised it, and he said he would like to see it. So I gave him the book. He was a literary man and an orator of some reputation. A few days later he returned the book, with the remark that there was nothing in it for him. When I got into my car I threw the book down on the seat and when I got home the chauffeur said to me: “Mr. Noyes, would you mind leaving that book in the car for a little while?” I gladly consented and in the course of some days the chauffeur brought it back to me and said some very nice things about it. I thought that I would see whether he was just being polite or really had got something out of it; so I began to lead him out and found that he had a very good notion of its contents.’

“This showed me that I could write for a chauffeur better than I could for an orator. The chauffeur was dealing with machinery

and forces, and so he had the basis for understanding how the solar system could rotate. He had a really good scientific foundation, whereas the orator was studying words for their emotional effect; so the chauffeur was keener, stronger, and better informed on mechanical lines than the educated orator was.

"That shows how we are evolving. Now think of the thousands of chauffeurs in this city. Every one of those chauffeurs is a good deal more skillful than he was when he started. He knows a good deal more about machinery, mechanics, principles, physics, and all that, and so he is becoming educated. In the same way the farmer who now runs his auto, his reaper, his thresher, his silo, and this machine and that machine, is much better educated and knows more and thinks more soundly than he did before. As we travel about we educate ourselves. We are educating ourselves very rapidly, and in most respects that is sound and fundamental, and really it is a thing that we have to deal with."

It is a rather curious coincidence that Count Hermann Keyserling in his recent book, *The World in the Making*, selects the chauffeur as the typical representative of the new age upon which the world is entering. This interview with Professor Chamberlin took place some time before the appearance of Count Keyserling's volume.

"Oh, yes," Professor Chamberlin smiled in his robust way as he said good-by, "on the whole I think we are just entering the blossoming stage of earth history, and we have lots of time—we have lots of time to work it out. It is not any decree of the Lord that we are going to go to smash. The question is with us. We have the chance; if we will take advantage of it I think we shall profit, and if we do not we shall go to ruin as we ought to."

So Professor Chamberlin, notwithstanding the catastrophe of the World War and the post-war ills with which the world is afflicted, views the future with youthful hope. The Fates have not loaded the dice against mankind. It is for man himself to decide what his future is to be.