

HUMAN PROGRESS AND THE SCIENTIST

HUMAN progress has always been painfully slow. This has been so because of innate conservatism, and conservatism brings with it stability.

How stubbornly and steadfastly mankind resisted progress is reflected in the fate of advanced thinkers who ventured beyond the beaten paths. We are reminded of Roger Bacon, an English friar, who lived in the thirteenth century. He is said to be "the first European to emphasize the importance of experiment as the only reliable source of facts concerning natural phenomena." In the field of physics, he dared distinguish between superstition and knowledge. His reward was to be forced to spend the last thirteen years of his life in prison for practicing the "black arts." We also recall Paracelsus, a German alchemist and physician educated in Switzerland, who in his practice defied the thirteenth-century old blind adherence to Galen. How ironic that we still like to call our physicians "Galenos"! Paracelsus' theme was "that the activities of the human body are chemical, that health depends on the proper chemical composition of

the organs and fluids." He laid the foundation for the practice of curing disease by the application of specific remedies, at the price of suffering unpopularity and persecution. Again, there was Copernicus, a Polish priest, who dedicated himself to mathematics and astronomy. He sponsored the belief that the earth and other planets revolved around the sun, not the sun around the earth, as was the belief then. He was cautious enough to bide his time and only announced his ideas on his death bed. Another case in point was that of Kepler, a German mathematician and astronomer, who discovered three important laws on planetary motion and on which the work of Newton was founded later. He was too mathematical to suit his contemporaries. The Italian philosopher and astronomer Galileo worked on the phases of some planets and dared question Aristotle's theory that the velocity of falling bodies is proportional to their weights. He was sentenced to prison as a heretic. Even Newton who lived later, in an age when people were becoming more tolerant, was moved to

say "A man must resolve to put out nothing new or become a slave to defend it."

In our supposedly enlightened century, disquieting vestiges of this inherent antagonism to progress still persist, not so much in the form of open opposition to concepts that are too advanced for a ready comprehension, but in the form of passive resistance which has the effect of starving out science by non-support. We become impatient, unsympathetic and overskeptical when scientists mark time to study properly the various angles of a complicated problem. We no longer imprison researchers, it is true, but we not infrequently meet them with tolerant jeers and at best indulgently look upon them as precocious infants, when their only fault is that they stubbornly adhere to facts irrespective of preponderant beliefs.

Consistently and steadfastly our habits of thought have become virtually imprisoned by the tyranny of tradition. No better proof of this statement can be found than the codes of some of our oldest learned professions, which are everlastingly bound by mossy precedents in the solution of current problems. As if further to insure the shackling of our thoughts, we insistently draw up rules be-

yond which we may not venture. The whole process is, indeed, an effective machinery to stultify growth and breed mediocrity.

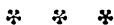
Of all research activities, the pursuit of knowledge in the natural sciences has perhaps suffered least from the conservatism of mankind, and this largely because its efforts have relatively been less directed towards man himself. So long as his interests affected his physical environment and the lower organisms and had no bearing on his intimate being as far as he could see, man was quite content to leave the scientist alone.

But in his eagerness to solve external, day by day problems, in his desire to make existence a bit easier and more secure, he is encountering difficulties in adjusting his relations with his own kind; and thus he still has recourse to combat, as in primeval times—only today he utilizes methods more destructive, less selective, and more devastating in their effects.

We have no quarrel with conservatism, since the stability of human institutions must be preserved. At the same time, this should not be so reactionary as to deny possible progress by restriction of activities towards the amelioration of conditions, efforts which seek new remedies and courses of action

by an accurate and analytical study of conditions, working under the open-minded attitude that the only way to solve a problem is first to understand it. That errors will be committed goes without saying, for no experiment was ever successful from the beginning, and no scheme of amelioration has ever worked perfectly. Perhaps we can still say with Ovid: "Here lies Phaeton, the driver of his

father's chariot, which if he failed to manage, yet he fell in a great undertaking." The same spirit of healthy discontent that impels the researcher in the natural sciences to seek continually ways for betterment should no longer remain in his exclusive patrimony but must animate all thinkers in all branches of learning.—*B. M. Gonzalez, condensed from an address, Fifth Philippine Science Convention Feb. 21, 1939.*



How to Succeed in Medicine

SOME years ago a "quack doctor" residing in Paris had to appear before a judge on a charge of practising medicine without a licence. To the astonishment of all present he calmly took out some papers from his pocket, handed them to the judge, and said, "I have the right to practise medicine and sell prescriptions. There is my doctor's diploma!"

"Then why do you hide your real profession?" asked the judge when he had assured himself of the authenticity of the documents.

"It's very simple," replied the accused man. "At the age of 27 I became a doctor and soon had a large practice. There was only one drawback—my patients didn't pay. I had to emigrate to America to look for work. There I managed to save some money, enough to enable me to return home and set up a little store.

"Through occasional prescriptions and cures among friends and acquaintances I won the reputation of a 'miracle-healer,' so that people took my advice on blind faith. They began to pour into my shop. And since they all believed I wasn't a real doctor, they paid me regularly and generously.

"I beg you, your honour, do not betray me!"—*Parade.*