



PATHWAYS OF PARTICLES

New view of the world's largest and newest cyclotron, the 200-ton giant of the University of California, showing the vacuum chambers down which the atomic particles are speeded, with energies as great as 32,000,000 electron volts after they have been accelerated in great spirals in the cyclotron proper.

now with present cyclotrons and its evidence can be detected by the radioactivity produced in normally stable elements like beryllium, boron and almost all the rest of the familiar 92 elements of the periodic table. But the amounts are most minute. While the alchemists' dream of transmutation has been technically ful-

filled the production of transmutation on a practical scale is far ahead.

And yet the day may not be so far off at that for it is estimated that three years of construction only would be needed to build a new 2,000-ton cyclotron. It is much more than pure day-dreaming to say that such an instrument might not only discover a new, cheap and almost inexhaustible source of power but it might (shall one say as a by-product) turn out to be the long-sought philosopher's stone—a means of transforming base metal into gold.

Science News Letter, December 16, 1939

ENGINEERING

Plastics Engineers Draft Plain Water As Lubricant

PLAIN ordinary water is now being used successfully as a lubricant for bearings in giant steel mill rolls and large ship propeller shafts through advances in the plastics industry. L. M. Tichvinsky, of the Westinghouse Research Laboratories, told the meeting of the American Society of Mechanical Engineers in Philadelphia.

Woven textile fabrics are impregnated with an organic binder and then treated by temperature and pressure to create these bearings, which require no oil or grease but perform efficiently when lubricated with water, which serves both as a cooling agent and as a lubricant.

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GENERAL SCIENCE

Marx "John the Baptist" Of Modern Social Science

An unofficial scientific ambassador from Great Britain to the United States is Julian Sorell Huxley, F.R.S., D.Sc., head of the London Zoo, grandson of the famous Thomas Henry Huxley of Darwin's day and an eminent biologist in his own right. Dr. Huxley comes to America as an exchange lecturer to represent British science at the Columbus, Ohio, meeting of the American Association for the Advancement of Science during Christmas week with a preliminary honoring banquet at Washington, under the joint auspices of the Association, the Smithsonian Institution, and of the Scientific Monthly.

KARL MARX, founder of the modern Socialist movement, was declared to be "the true John the Baptist of Social Science" by Dr. Julian Huxley, speaking in Washington.

Some thinkers claim for Herbert Spencer, contemporary of Darwin and the elder Huxley, the distinction of being the first to point toward an eventual application of the findings and methods of objective science in the problems of human society, but Dr. Huxley relegated Spencer to a position analogous to that of one of the Hebrew prophets, rather than that of a direct precursor.

"He demonstrated that social science was an inevitable development," Dr. Huxley stated, "but his notions of what form it would actually take and what methods it should employ were vague and essentially erroneous.

"Marx, on the other hand, developed a system directly based on social facts and directly applicable to them. He did

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not prophesy a Messiah, he indicated the Messiah. As natural scientists tend to undervalue Bacon because he himself did not make discoveries or work out experimental techniques, so social scientists tend to underrate Marx because his system is a dialectical one, ready-made and complete with answer to any problem, not sufficiently empirical and inductive for their scientific taste. It is doubtless true that, as occurred in the case of natural science, the social scientists must go their own way to work, regardless of doctrine or theoretical system: a precursor cannot take the place of the Messiah or the gospel he indicates. But at least Marx, like Bacon, gave expression to a new outlook and a new method of attack, and helped materially to alter the intellectual climate so as to make it propitious for the scientific workers in his field."

To the question why social science has taken so long to emerge into large-scale operation, Dr. Huxley returned two answers. First, the method of the controlled experiment, beloved tool of natural science, is impossible when working with human society. There are no societies among lower organisms sufficiently similar to human societies to serve as experimental material; man must be his own guinea pig in social experimentation. Moreover, nothing less than the whole of society will serve: results of experiments on limited groups of people, even in the most completely regimented state, would not yield dependable answers.

The second reason for the laggard state of social science offered by Dr. Huxley is the natural reluctance of the human mind to accept multiple causes for any phenomenon. No matter how complex the behavior of a human group, we always try to find "the cause" instead of seeking for a number of causes, of a complexity comparable to the results they produce. Also, man is always the victim of his own mental slant or bias; it is practically impossible for him to divest himself of inborn and acquired prejudices.

Methods will have to be worked out, especially by the application of mathematical analysis to the problems of multiple causation, and by the use of properly adapted propaganda for the overcoming of bias.

Science News Letter, December 16, 1939

Infantile paralysis accounts for about 29% of the crippling conditions in a New York hospital which specializes in treatment of the crippled.



"Didn't Little Boys Get Trains, Grandpa?"

"No, sonny, not when I was a little boy. You see, Santa Claus hadn't learned how to make electric trains, or automobiles, or airplanes then. I used to get a jackknife or a pair of mittens for Christmas. You're a lucky boy!"

BOYS and girls aren't the only lucky ones these days. Just check over the things you have, and ask yourself how many of them a family like yours could have had even a generation ago. Certainly not your radio or your electric refrigerator. Probably not your automobile, or even your electric lights. And there are thousands of other things—now available in a wide variety and at a reasonable price—that were unknown or prohibitively expensive only a few years ago.

Yes, we say we are lucky today. But it wasn't luck that made all these things available to us. It was American industry—its scientists, engineers, and workmen—who developed these new products, improved them, made them less expensive so that more millions of people can enjoy them.

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