New Craftsmanship Born of Science

General Science

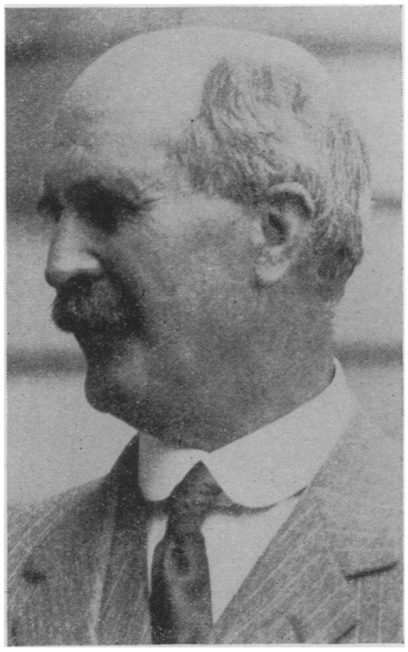
Following are the first reports of the annual meeting of the British Association for the Advancement of Science at Glasgow, September 5 to 12. Further reports will follow in next week's issue of the SCIENCE NEWS-LETTER.

The progress of industry, giving necessities and conveniences to millions, has within it the germs of its own decay unless scientific research is brought to its support.

This was the warning uttered by Sir William Bragg, eminent British physicist, in his presidential address before the British Association for the Advancement of Science. The continual development of new knowledge, new ideas, new processes, new machines, Sir William said, is the price of the continued existence of civilization as we know it. Periods of mass production, which take advantage of advances made in science, may themselves mark a lull or pause in scientific advance. Indeed, they really make such pauses necessary, for mass production is predicted upon the long-continued and high-speed repetition of processes which have been scientifically brought to a high pitch of efficiency, but which can not be changed during operation without slowing down or stopping production.

Basic to modern industry is a new craftsmanship founded on science, expressing itself as a function of organizations rather than of individuals as was the case with the old craftsmanship, the speaker declared.

"As a people departs from its primitive condition so also does its craftsmanship. I would ask you to consider the nature of the change. The elements of craftsmanship in its original form center round the individual. In his brain is the knowledge and imagination, in his hands is the skill, and round about him lie the materials and the tools of his craft. But as the years go by it becomes impossible that all the knowledge and all the technical skill should be found in one person, and all the tools be owned by him. The craftsman becomes an association of men, a great manufacturing firm, even, we might say, a nation, if all the members of the nation contribute through government intervention and control to the maintenance of some industry. Many hands, working in an alliance which is often unconscious, are employed in bringing a product to its finished form. It is a long step from the simple workshop of the old single-handed craftsman to the vast complex factory of modern industry."



SIR WILLIAM BRAGG, K.B.E., F.R.S., President of the British Association for the Advancement of Science

Chemicals, shining in the dark after exposure to proper light, may contain the secret of how the green leaf turns waste carbon dioxide from the air and water from the soil, through the use of the sun's energy, into food. This, the world's basic life process, has been the subject of study by Prof. E. C. C. Baly of Liverpool University. Professor Baly announced the discovery of an analogy between photosynthetic and photoluminescent processes. Highly activated molecules of matter, as they undergo chemical reactions in photosynthesis, emit critical quanta of radiant energy as visible light in photoluminescence.

Synthetic Sugar

Professor Baly recently made sugar out of carbon dioxide and water in a glass vessel in his laboratory. Thus the test tube was made the equivalent of a plant for the first time in history. Now he contributes a new radiation theory of chemical reaction based on the work of Einstein, Perrin, Lewis and other great physicists. Thus the chemistry of life is firmly wedded to the physics of light.

The day when synthetic men and women may be made in the laboratory, or even when artificial protoplasm may be manufactured and endowed with life is still far distant, in the opinion of Prof. J. Bronte Catenby of Trinity College, Dublin. Though the dream of laboratory-made life is at least as old as the Middle Ages, and has been revived in various forms since the development of modern chemistry has revolutionized physiology, it must still remain a dream, and even become a more remote dream than ever, because scientists are realizing the vast complexity of even the simplest cell.

Not only is the protoplasm within the cell highly complex in its chemical makeup, but to the practiced eye of the biologist it shows a highly developed structure where the tyro looking through the microscope will see only a bit of uniform mucilaginous substance. Professor Catenby announced the discovery of small specialized bits of substance within the cells, called organellæ, composed of lipoids. Lipoids are bodies chemically related to the fats. The existence of these lipoid organellæ has hitherto been unsuspected.

Only a person ignorant of cell structure now endeavors to apply a mechanistic philosophy, the speaker concluded.

Whence Sumerian Copper?

Solving the riddle of ancient trade routes with test tube and chemical spectroscope was the paradoxical procedure reported by a committee of museum workers headed by H. J. E. Peake. Archæologists wanted to know where the men of Sumer, oldest of Mesopotamian kingdoms, got their copper. The records written in the bricks do not tell. So metallurgical chemists analyzed the weapons and implements these ancients used, and then sought through all the parts of Asia round about for copper deposits that would match their analyses.

The Sumerian copper contained a little nickel as an impurity, and the search for a vein of copper ore that contained nickel was taken up. It proved to be a long one. Ores from Persia, the Black Sea region, the Sea of Marmora, Cyprus, Egypt and Sinai were examined, but yielded no nickel. Finally an ore of the right quality has been found in the State of Oman, on the Persian Gulf corner of the Arabian peninsula.