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leads to depth and depth to further depth.'

"Here I was, using penicillin which I myself had prepared without the facilities of a modern fully equipped laboratory at my disposal. The only

apparatus I had used was the usual equipment found in the average family kitchen of today."

Within the first three weeks he used it on 29 patients. In a few the results were disappointing, he reports, but many improved with "incredible" rapidity.

Science News Letter, December 4, 1943

EVOLUTION—SOCIOLOGY

Civilization Mutations

Leading biologist, in new book, sees revolutionary changes in progress, but warns against trying to hasten the process too violently.

► **RECOGNITION** that the world is undergoing great and rapid changes, with a warning against attempting to hasten the process violently, is one of the conclusions presented by Dr. Edwin Grant Conklin, well-known biologist, in a new book, *Man: Real and Ideal*, just published by Scribner's. Dr. Conklin, who has been president of Science Service since 1937, is professor emeritus of zoology at Princeton University and president of the American Philosophical Society.

"Society is in the throes of revolutionary changes which are inspired by the desire to shatter things to bits and then remould them nearer to the heart's desire. But if such desires are not wise and just they produce ruin rather than progress. This shattering of things to bits in order to remould them nearer to the heart's desire is the method of revolution rather than that of evolution, of tyranny and compulsion rather than of freedom and education, of autocracy rather than of democracy.

"All development builds on what has gone before, and not merely on its ruins. All biological, intellectual, social advance has been made in this way. Utter ruin ends in extinction, and not progress."

Dr. Conklin points to a biological analogy in support of his contention. Sudden large changes are sometimes seen to occur in new generations, in the course of evolutionary development. Changes of this type are known as mutations. Scientists who have observed the occurrence of thousands of mutations know that very few of them can pass the test of natural selection. Early death is the fate of almost all mutating organisms.

"Nowhere in the living world is progress brought about by shattering things to bits," Dr. Conklin observes, "but

rather by relatively minor changes in organization. Only when changes are viable and beneficial can there be 'evolution through revolution.'"

Specifically for the United States, Dr. Conklin foresees a post-war set-up in which the traditional rugged individualism of the space-free pioneers will of necessity become adjusted to the requirements for mutual accommodation inherent in a more closely packed society.

"He would be blind indeed who could not see that at present all social tendencies throughout the world are in the direction of greater consideration for the group and less for the single individual," he points out. "This protection of the many from exploitation by a few is bound to go further in the future. It will surely increase opportunities for the 'common man' and lead to a more just and vital democracy."

Science News Letter, December 4, 1943

ENGINEERING

Puffs of Powder Make Whistle Signals Visible

► **ONE** of the best known of American inventors, John Hays Hammond, Jr., is back for another patent, this time on a system for supplementing the sound signals of an air whistle with corresponding visual signals.

Ships' captains used to working with steam, he points out, often depend on watching the white puffs from a whistle rather than on hearing the blasts, especially when the confused noises of many craft in a harbor make the sound of any one whistle difficult to distinguish. To such men the "invisible" blasts from the air whistle customary on diesel-propelled vessels are most unsatisfactory.

Mr. Hammond simply adds a tight cylinder containing a light, fluffy pow-

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der, and provides a supplementary blast of air to puff a cloud of this through a nozzle above the air whistle whenever the latter is sounded. Patent No. 2,334,552 has been issued on this invention.

Science News Letter, December 4, 1943

INVENTION

New Spray Gun Can Handle Two Fluids At Same Time

► **A DOUBLE-BARRELED** spray gun that can handle two stains, dyes or other fluids at the same time is presented by M. E. Hansen of Silver Lake, Ohio, for patent No. 2,335,116, assigned to American Anode, Inc. It was devised primarily to shorten the process of applying the colors to two-toned shoes, but can be adapted for other uses.

Science News Letter, December 4, 1943

The Michigan *crayfish*, a pre-war bait or bathing beach pest, now is used as food.

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