thousands of other things. Science and research provide substitutes, and when substitutes become scarce, substitutes for substitutes. Silver goes to work for a change. Other things do the work of shellac, tung oil and other products of Asia and the East. And there are many useful and necessary gadgets: Air sirens, blackout lamps, fences that hear and electronic robots that replace watchmen.

Manpower Critical Problem

Manpower for the scientific war is one of the critical problems. Already most of the physicists and radio engineers are in the service of research, more than 3,500 for NDRC alone. For the Navy 25,000 women with radio experience are being sought. Radio amateurs to the total of 15,000 are in the armed services. Physicians are being assigned to posts in the uniform and to serve industry and civilians. Industry is searching for technically trained men. Every college graduate in science and engineering has several jobs waiting for him. Because this is to be a long war there is a growing realization that the boys and girls now in high school, particularly those with scientific promise, must be sought out and given opportunity to do the job they are best fitted for. Intensive short courses in engineering are training thousands of them for immediate jobs in industry, while others will find opportunity in accelerated courses in technical schools.

Science Talent Search

Thousands of high school boys and girls of potential scientific ability will be brought to attention by a science talent search being conducted by Science Service as one of the activities of Science Clubs of America. Twenty Westinghouse science scholarships will be awarded.

Under present conditions youth must come into active service earlier than has been customary in the past. If the war lasts five years longer, the boys and girls now 13 will be needed for fighting or production. In scientific research youth is no handicap, it may even be an advantage, once the basic foundations of past progress are known. Remember that Perkin was in school and 18 when he discovered mauve, that Hall was 26 when he produced aluminum, that Newton was 19 when he worked out the principles of gravitation.

We must begin an intensive search for genius, or at least talent in science. Those who have been endowed by nature and their ancestors and by their training and environment with a flair for science and research must be allowed to use that ability to the best interests of our war effort and our civilization. We must see to it that the unusual boy or girl gets an opportunity to go to college or technical school and is channeled into a definite specialized responsibility in our growing national machine for fighting and producing. We must see to it that the exceptional boy or girl is given the basic education that will allow him to become a leader in the important reconstruction after the war.

More than 50,000 inventive suggestions have been offered by the American public as an aid to winning the war. Some of these ideas are in actual use by the armed forces. There is still opportunity to help in this way. Suggestions should be addressed to the National Inventors Council, Department of Commerce, Washington, D. C. Lawrence Langner, secretary of the NIC, has suggested that anyone intending to invent should ask himself this question: "What would I do if I were the Commander in Chief of the Army and Navy and could use any invention which I could devise?"

Science News Letter, May 2, 1942

FITTING MEN TO WORK

For such "tight spot" jobs as this one of bucking up the rivets inside a wing, several aircraft manufacturers are using midgets. This man is only four feet tall and weighs 88 pounds.

PHYSIOLOGY

Unknown Mechanism That Starts Blood Flow Found

FOR the first time, the mechanism that starts the blood circulating through the lungs at birth has been discovered. The finding, by Dr. J. Allen Kennedy and Dr. Sam L. Clark, of Vanderbilt University School of Medicine, was announced at the meeting in St. Paul, Minn., of the newly organized American Federation for Clinical Research.

Prevention of the incurable form of congenital heart disease whose victims are known as "blue babies" may follow.

The newly-discovered mechanism is a muscular contraction which closes the ductus arteriosus. This is a channel between the pulmonary artery and the aorta which before birth shunts the blood so that it bypasses the lungs. Normally it closes at birth. If it did not we should all have congenital heart disease, with blue skins because our blood did not get enough oxygen.

There have been many theories of how the ductus closed, Dr. Kennedy pointed out, but none were founded on scientific fact. He and Dr. Clark found that the ductus is different in structure and reactions from other large arteries.

"We have observed that it closes by a muscular contraction and that in response to certain definite stimuli it will close," he reported. "At birth it normally closes within a few minutes and remains closed.

"The best method of causing closure of the ductus is inflation of the lungs with air or oxygen, either by normal breathing or by an artificial inflation method. Both are effective. Oxygen is apparently a necessary component of the gas mixture. Certain other stimuli will also cause prompt closure of the ductus.

"As an outgrowth of this work we have developed a new conception of the cause of patency (failure to close) of the ductus arteriosus. Instead of being caused by a developmental anomaly or true malformation, which has always been the accepted cause, we believe it is due to the failure of a normal physiological mechanism which should occur at birth, probably closely related to normal breathing and normal oxygenation of the blood after breathing has begun."

Science News Letter, May 2, 1942