is a condition in which the sex of the individual is in doubt.

The condition is rare in twins. Only eight previous cases in twins have been reported in medical history, and of these six were either born dead or died in early infancy. From their external appearances, Dr. Rhodes believes the twins he reports are male pseudohermaphrodites. When they are older, further examinations will be made to find their sex.

Science News Letter, November 13, 1943

RESOURCES

Critical Coal Shortage

Low temperatures may prevail in homes in many sections of the country this year due to the lack of sufficient fuels of all types.

➤ RESERVE COAL stockpiles are reported low in various sections and low temperatures may result in many homes this winter unless increased production and shipments meet the daily needs. Even the quota allowed to retailers by government officials, 90% of last year's supply, may not be available in certain communities.

The reason is a coal shortage which will probably grow worse as the activities incident to war continue to expand, unless production can be increased. For a substantial period the production has fallen below the level of national requirements.

The best proof of this statement rests in the fact that in the period from Jan. 1 to Sept. 1 of this year, consumers' stockpiles of bituminous coal were reduced from 85,889,000 tons to 75,292,000 tons. Production in that period lacked 10,597,000 tons of equalling requirements, and the difference had to be made up from reserves.

That is only half the story. During the same period last year stockpiles were increased by nearly 20,000,000 tons as protection against future requirements. This year, instead of building up reserves, production did not meet current needs and consumers were forced to burn stockpiles.

In September, 1942, it was estimated by the Federal Solid Fuels Administrator that 600,000,000 tons would be needed for 1943. Consumption so far shows this estimate to be close to the mark. Production as of Oct. 1 was a little less than 445,000,000 tons. Even without strikes it would be a practical impossibility to reach the 600,000,000 goal now.

The anthracite situation is even worse than the bituminous coal situation. It was estimated at the beginning of the year that 65,000,000 tons would have to be mined to meet all requirements. This is an increase of 10% over the production of the previous year. Actual increased production to date is less than 1%.

Anthracite is the number one household fuel in the North Middle Atlantic States, and large quantities are used in New England although fuel oil was the most used fuel there in normal times. New England now is reported to be in a bad situation, with many communities whose local stockpiles are exhausted.

The price factor does not enter into the present coal situation to any considerable extent. Ceiling prices established by OPA permitted an increase of about 25c a ton for bituminous coal and 50c for anthracite to meet mining adjustments.

Science News Letter, November 13, 1943

AERONAUTICS

Air "Freight Trains"

Post-war planes, using glider pick-up service, will make safe, speedy and cheap delivery of cargo. This type of service is now out of the stunt class.

➤ IT COSTS less per pound to ship your wife by air from Washington to Mexico City than a pair of shoes, and the shoe package needs only a pair of legs to get it on and off the plane, while your wife demands attentive service, a comfortable seat, air conditioning, the latest magazines and meals.

Air "freight trains," employing glider pick-up service, to come after the war will change this cargo picture, Grover Loening, consultant on aircraft for the WPB, reported to the Institute of Aeronautical Sciences meeting in Washington. He emphasized the tremendous commercial aspects of the glider pick-up air train. Developments initiated by the late Richard Du Pont and use by the Army Air Forces have greatly accelerated the progress in this field. Though just beginning, this type of service is now out of the stunt class and into the practical, Mr. Loening stated.

Using the hypothetical example of an air trip between New York and Washington, Mr. Loening pointed out that a glider train carrying cargo designated for intermediate stops on the run, could unload and pick up new cargo without losing valuable time by stopping to land and could make the complete trip in 81 minutes with an average rate of speed of 168 miles per hour.

The same trip, using a present-type cargo plane without a trailer, would take 168 minutes with an average rate of speed of 82 miles per hour due to the frequent stops for loading and unloading. On the same trip by glider train, non-stop passengers bound for Washington would be placed in the tug, or powered, plane.

These air freight cars, Mr. Loening explained, will not be strung out in a single line behind the tug plane, but will be fanned out on different length cables to prevent any chance of collision. They will not be the clumsy, box-car shape that the word "freight car" brings to mind, but will be the ultimate in stream-lining to eliminate all surface drag.

It is generally assumed at this time that having more than three gliders in the train is impractical.

Advantages of such a system of glider pick-up air trains, as pointed out by Mr. Loening, will be the time saved in cargo handling; the lower freight cost for air cargo; the many points along a route served without stopping to land; the use of shorter runways already in existence as a glider needs less length to land; the lack of vibration in a glider carrier, which will permit the fast and safe shipping of perishables; less fire and crash risk as the gliders carry no engines, so if something should go wrong with one of three gliders, this glider could be automatically released and 75% of the load

—two gliders and the tug—could be saved.

Disadvantages of this system which exist at present must be met by the designers, Mr. Loening pointed out. No aircraft as yet has been specifically designed as the tug plane. Problems are those relating to lowering fuel and engine power requirements for the tug and still getting the glider off the ground; desirable weight and load for glider to facilitate picking up and insuring against too fast a landing; resistance to tow lines; and more crew cost as each glider requires a pilot until such time as radio and electronics developments permit automatic control from the tug plane to pick up and release a glider.

Science News Letter, November 13, 1943

PUBLIC HEALTH

Health of Armed Forces

Members of the services of the United States, including WACS, WAVES, and SPARS, are in excellent health. Malaria, dysentery are chief Army problems.

➤ MEMBERS of the armed forces quartered in the United States and the WACS, WAVES and SPARS are in excellent health, the Office of War Information reports on the basis of a survey of service records.

Overseas, the health record is also excellent. Malaria and dysenteries are the chief problems in land combat conditions. The Navy has had some trouble with infectious jaundice and with filariasis, the tropical disease which, when it becomes chronic, leads to elephantiasis. Fewer than seven cases per 100,000 men in the Navy, however, have been infected with this parasitic disease which is spread by mosquitos. No mention of any of these cases of filariasis having progressed to the elephantiasis stage appears in the OWI report.

Our armed forces overseas are better off so far as malaria is concerned than those of our enemies or any other armies operating in the same theaters as our Army, Army and Navy officials believe. The Army's malaria rate for overseas units in 1942 was about 30 per 1,000 men and so far in 1943 the annual rate is about 80 per 1,000. This increase is because of increased war activity in malaria areas. The Japanese, it is stated, failed to make adequate preparations against malaria, and consequently their troops are suffering from it much more acutely than ours.

Sickness or non-battle injuries kept an average of slightly more than 3% of the Army personnel in this country off duty at any given time during 1942. Abroad, the rate, even including battle casualties, was slightly lower. The Navy's corresponding "non-effective" rate was about 2% in 1942, also a record low. For 1943, Army figures show a continuation of the good health picture.

Venereal diseases in the Army and Navy are being held to low figures. In the United States, the Army's rate for men treated this year stands at about 40 per 1,000 men per year. The Navy's rate is 33 per 1,000.

"In this class of diseases there is a wide divergence," OWI states, "between the major branches and the women's services. Fewer than one in 10,000 women in the uniformed services has been admitted to treatment for venereal diseases.

"Of some 1,100 WACS released for disability in a 10-month period, only one was discharged because of syphilis and only one because of gonorrhea."

About 25% of the WACS released for disability were released because of defects or ailments peculiar to women. About 45% were released for neuropsychiatric disorders, but many of these disorders, it was stated, would probably not be considered abnormal in civilian life. Separate health records are not kept for WAVES and SPARS but it is stated their health problems, except for venereal diseases, are much the same as those for the men.

Science News Letter, November 13, 1943

MILITARY SCIENCE-ETYMOLOGY

Do You Know a Fuse from a Fuze?

➤ FUSE OR FUZE? We were all confused too. It seems that the Army's Ordnance Division uses "fuse" for a device that times the explosion of a projectile by means of a powder train; "fuze" for a purely mechanical device to set off the big bang. Despite confusion, Science Services refuses to depart from this Army usage.

Science News Letter, November 13, 1943

ORDNANCE

Fuzes on 20-Pound Bombs Tested in New Wind Tunnel

➤ FUZES for 20-pound fragmentation bombs are now tested in three-foot tunnels with gales of from 300 to 800 miles an hour to simulate wind currents encountered by falling bombs. The tunnels are in use at the Westinghouse Appliance Division plant at East Springfield, Mass.

The bombs in which these fuzes are used explode and scatter fragments upon striking the earth. Premature explosion is prevented by the timing fuze which has a bow-like vane on its tip that revolves as the bomb falls. After a predetermined number of revolutions it loosens a safety device, which in turn releases the firing pin to strike explosive portions of the bomb when it hits the earth.

To test a fuze in the new tunnel, it is placed in the path of compressed air fired from a cylindrical tank. The air when released whirls the vane and releases the safety device. The action is recorded by a beam of light on a photoelectric cell, released as the safety device falls off.

Science News Letter, November 13, 1943

TESTING BOMB FUZE—A fuze for a 20-pound fragmentation bomb is being installed in the path of a man-made gale to determine how the fuze would perform when dropped by an American airman. Wind tunnel tests such as this at the Westinghouse East Springfield plant provide a constant check on the quality of fuzes produced.