

MEDICINE

Hopeful Outlook for Babies Born With Heart Defect

American Heart Association Also Hears of Method To Increase Circulation, Treatment for Chilblains

A HOPEFUL outlook for babies born with the heart defect, patent ductus arteriosus, was given by Dr. M. J. Shapiro, of Lymanhurst Clinic and Convalescent Hospital, Minneapolis, at the meeting of the American Heart Association in New York.

This heart defect consists of an opening from the aorta, main artery leading from the heart, into the artery supplying the lungs with blood. Normally present before birth, this opening sometimes fails to close.

Most of these children get along very well, showing no stunting of growth or signs of heart strain, Dr. Shapiro declared. For those few who do develop heart strain, surgeons have devised an operation which, though dangerous, has been successful in a number of cases. The results of this operation in five patients was reported by a surgeon at the American Medical Association meeting in New York, Dr. Shapiro said.

In only two out of 19 patients with this heart condition whom Dr. Shapiro followed for from one to 17 years did signs of increasing heart strain develop.

Science News Letter, June 15, 1940

Circulation Stimulated

DANGEROUS blood clots in veins or arteries after surgical operations, phlebitis, arthritis and painful joints, and chronic arterial occlusion can be relieved, Mayo Clinic doctors hope, by a new device which they announced at the meeting of the American Heart Association.

The device is called a heating sleeve or heating boot. It was designed by Dr. George E. Brown, Jr., and Dr. Edgar V. Allen to increase the flow of blood to hands, feet, fingers and toes. Tests on normal persons and on patients with high blood pressure show that it does.

Trials on patients in whom a clot or other condition has stopped the flow of blood through a vein or artery have not yet gone far enough to show conclusively whether the new device will help by increasing the flow of blood through

other veins or arteries in the same leg or arm.

Other methods devised to increase blood flow, the Mayo doctors pointed out, are not entirely satisfactory, either because they give only temporary relief or because the machines used are cumbersome and expensive.

The heating sleeve or heating boot is made of fine copper wire woven by a special process onto a fireproof cloth. This is incorporated into a waterproof and washable cover. It is heated by electricity, a transformer reducing the voltage to 10. A fuse protects against short circuits and a thermostat included in the units prevents the temperature from increasing to more than 109.4 degrees Fahrenheit. The device can be made inexpensively and is so simple to operate that it can be used in the patient's home.

The device is used on the arm or leg opposite to the one affected with circu-

latory disorder, following the principle of reflex vasodilatation. This principle is based on the observation that heating one extremity dilates the blood vessels in the other. For example, immersing one hand in hot water increases the blood flow in the opposite extremity. In the Mayo Clinic tests, applying the new device to one arm increased the skin temperature of the toes and of the fingers on the opposite side.

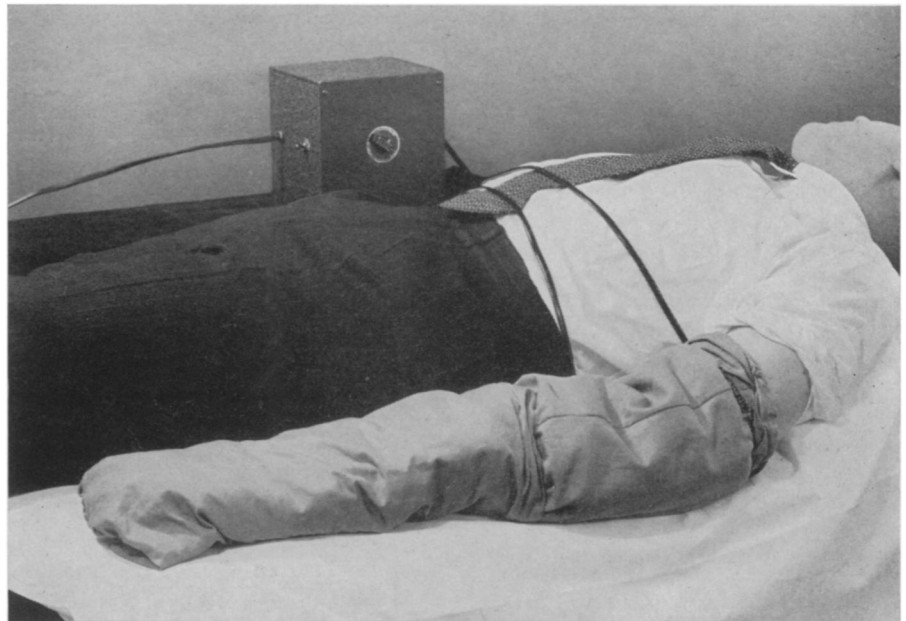
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Treat Chilblains Early

PERNIO—chilblains to the layman—is a disease of the blood vessels and not, as has long been believed, a disease of the skin, Dr. Teresa McGovern and Dr. Irving S. Wright, of New York Post-Graduate School and Hospital, Columbia University, declared.

The condition today is found more often in women than in men, affecting the legs chiefly. This is due, the New York doctors say, to the fact that in these days of short skirts and sheer hose women do not have adequate protection from the cold in winter.

To prevent chilling of the body with such a large surface area as feet and legs from mid-calf down exposed, the blood vessels in the legs are forced to constrict. As a result, the tissues, especially those just under the skin, do not



HEATING SLEEVE

Dangerous blood clots in veins or arteries may be relieved by this new device for increasing the flow of blood.

get enough nourishment, and pernio or chilblains follow.

Permanent disfigurement and long periods of incapacitation can be largely prevented by early recognition and treatment of the condition. No specific treatment, in the sense of a cure, is avail-

able, but the New York doctors report "best results" from forcing into the tissues by means of electricity a chemical (acetyl-beta-methyl choline) which dilates blood vessels. Proper clothing to protect the legs from undue exposure is also advised.

Science News Letter, June 15, 1940

AERONAUTICS

Italy's Air Force Weaker Than Several Years Ago

Loss in Spanish Civil War is Reported as 1,000 Planes; Many of Those Now in Service Are Obsolescent Types

WHILE Italian entrance into the war on Germany's side will certainly be no help to the Allies, Mussolini will have to do battle with an army and air force both of which had to be reorganized from top to bottom last winter; a navy weaker in capital ships although stronger in lighter vessels than the French fleet; and the poorest reserve of resources and raw materials of any major power in Europe.

Despite the general impression to the contrary, the Royal Italian Air Force three months ago included only 3,100 obsolescent planes, an article in *Popular Aviation* will declare. The article is based on reports this spring by the Rome air attaches of two powers, necessarily not identified. First line aircraft total 2,100, the reports agree.

Most recent Italian military plane types, including the fast Breda 88 twin-engined bomber (340 miles an hour) and a modern single-seat fighter, the Fiat G-50, were either unsuccessful or too expensive and had to be abandoned, it is stated. Newest Italian fighter is a low-wing all-metal monoplane, the Macchi 200, which has not been long in production, however. Mainstays of the force are still the trimotored Savoia-Marchetti 79 bomber and the Fiat CR-42, a little biplane fighter. Both saw service in the Spanish civil war when Mussolini was busy "non-intervening." Biplane fighters have long since been withdrawn from active service by other powers. Speed of the S-M bomber is 295 miles an hour, fully up to standards of present service planes, but there is no immediate modern replacement for it because of the Breda's failure.

The state of Il Duce's air arm is sur-

prising, the article comments, but can be explained by the fact that the Spanish civil war cost Italy 1,000 planes—500 shot down by the Loyalists and 500 left behind when the Italian troops and pilots returned home—and that Italy is a poor nation industrially. She was at the head of the air parade for years by being one of the first countries to appreciate the importance of air power. In the last few years, however, other nations have entered the race and have already outstripped her or will because of their greater resources. Even this air force, however, may be able to cause the Allies great difficulty because the French *armee d'air* is small and is reported to have been badly hurt by German raids against airdromes in France during the last three weeks.

Italy has already apparently mobilized 2,000,000 of her total of 7,500,000 troops and reserves. Not more than 4,000,000 are likely to be called up any time in the near future, however. This represents a fighting force of 120 to 130 divisions. Estimates of the number of soldiers France has available to meet a thrust across the Alps by such an Italian force agree on 1,000,000 as the maximum. France's border with Italy, however, favors the Allies, as the Alpine passes spread out into France. The French command thus has the opportunity to attack the Italian detachments coming through the passes before they can assemble.

Italian army equipment is not on the same scale as that of the Nazi army. Last fall, Marshal Badoglio reported to Mussolini that the army was not in any shape to fight a major war for months to come, and the reorganization heralded by

the sweeping cabinet changes of Oct. 30 resulted. How much progress has actually been made is another matter on which information is naturally scarce. Sledgehammer armored divisions such as the Germans unleashed on the western and northwestern front, however, are not to be expected. The Italian tank corps, for example, is known to be equipped largely with light highspeed Fiat tanks and not the heavy monsters forming the spearheads of the Nazi columns. The Whippet tanks were proved fairly well useless in Spain. The French 25 mm. anti-tank gun is useless against 30-ton Nazi tanks, but it should be effective against the lightly armored Italians.

At one time this winter, equipment shortages were so severe that a part of the troops then on active service did part of their service in sneakers instead of army boots, according to several American witnesses. The boots they should have had had been sold to France to raise badly-needed foreign exchange.

The Italian navy is relatively strong. Four modern capital ships are in commission and four under construction, not many compared with France's eight and three. Twenty-one Italian cruisers of all types are in service, and 14 are on the ways, however, as compared with 18 and three for France. As of Oct. 1, 1939, Italian destroyers outnumbered their French equivalents, 98 to 70, but France has 30 under construction against a dozen new Italian units. Over-age and under-age Italian submarines are 155; France has 76. Both have 26 undersea craft a-building.

In Bad Economic Straits

Italy has been in desperate economic straits since the start of the war. Tourist trade, a major source of income, has simply dried up. Basic raw materials are all normally imported and have been affected by the British blockade. Coal, of which Italy produces less than a tenth of her requirements, has been so hard to get that a number of factories were closed for weeks at a time. Ordinarily, Italy burns German coal brought from Hamburg by ship. The Germans and Italians both say rail shipments are meeting her needs, but not even the Italians believe that.

Here are some of the sinews of war which Italy does not produce: coal, iron, manganese, copper (Yugoslav deposits are near at hand but are small), petroleum, wool, chromium, nickel, tin. Of the important metal ores, only bauxite for aluminum is found in large quantities in