

"Salome" therapeutic qualities allied with radiotherapy? Would not the music of Berlioz, if conducted by a surgeon of light and leading, near the bedside of a patient, be a more effective check to disagreeable set-backs than thermotherapy?

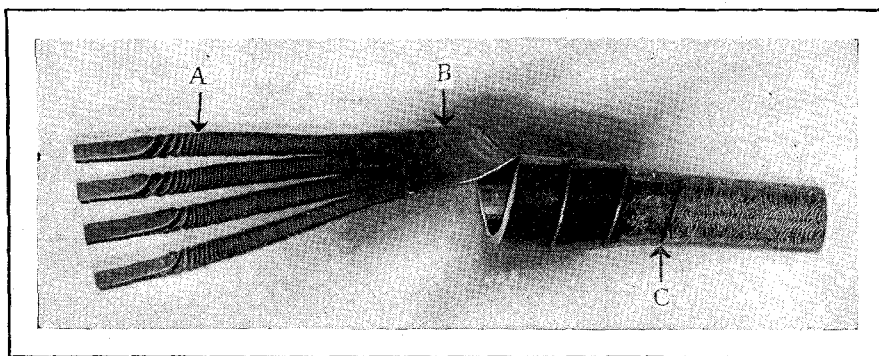
"In truth, we have here an as yet unexplored country that no doubt will yield rich rewards to those daring spirits in the medical and musical worlds, who, for aught we know, may already be hard at work on an alliance that shall be the therapeutic boon of the future.

"At present the status of musical education among our physicians is not a thing to be too boastful of; hence, the first attempts in the matter of interpreting a musical score should be made in secret lest the execrable playing create an invincible prejudice in the minds of the public against the forming of a medical orchestra. But what is more important to remember is that directly such a body of men are put to work in the sick-room, a musical director of rare judgment is absolutely necessary, for if he be either a thorough musician without any extensive knowledge of symptomatology, or a medical man ignorant of the effect that modern music may have on the sick, no good results will ensue. What would not be the dire consequences of a mistake in judgment that would insist upon the playing of a Richard Strauss or Hector Berlioz composition shortly after a surgical operation, when the soothing tones of a Mozartian score would have greater therapeutic value!"

DAMASCUS GUN-BARRELS

THE COMPLICATED patterns on Damascus gun-barrels are not merely on the surface, as might seem at first glance, but extend through the mass of the metal, which is built up of two different materials. Hence the pattern can not wear off, but is brought out even more clearly with age. How this is effected is told by Frank A. Stanley in the course of an article on "Manufacturing Shot-Gun Barrels," contributed to *The American Machinist* (New York, June 2). Says Mr. Stanley:

"A number of thin charcoal-iron and steel plates are first welded together in alternate arrangement until the required number of layers is obtained, depending upon the size and character of the pattern desired in the barrel. From this composite block of metal, strips are cut in the form of ribbons, each, of course, composed of as many laminations as there were sheets of steel and iron in the original welded material. These composite ribbons are then twisted as indicated at A, after which a number of them are butt welded together edgewise throughout their entire length as at B in the same illustration. We now have a ribbon made up of the narrow and



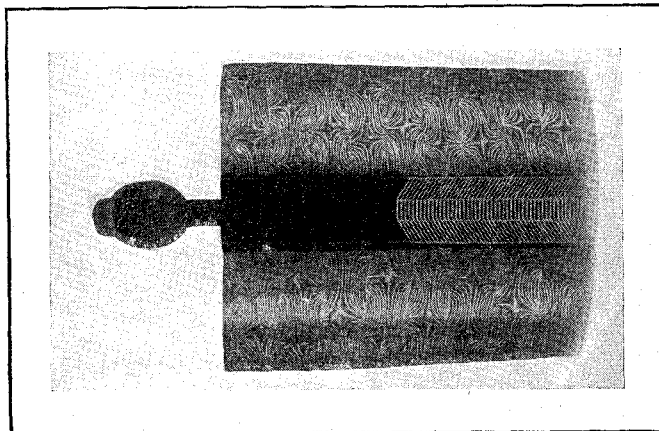
HOW THE DAMASCUS BARREL IS BUILT.

twisted strips, and the next stage is to weld this ribbon spirally upon a mandrel, thus forming a tube which is butt welded spirally from end to end as at C. This then is the rough barrel which, after being machined internally to within a few thousandths of the required size of bore, is ready for the gun manufacturer, who proceeds to finish the tube outside and in to suit his requirements. It will be clear that the character of the pattern upon the barrel is determined by the number of steel and iron strips in the ribbon, the thickness and width of the latter, the amount of twist given these ribbons and the number of strands which are welded together prior to welding spirally upon the mandrel.

"The figure thus formed is not superficial, but instead extends through the entire thickness of the metal to the bore. The browning process through which the barrel is passed in finishing brings out the figured ornamentation in black and silvery-white lines, and no matter how much material may be removed from the surface of the original barrel, when this is afterward finished and browned, the pattern will still be brought out clearly upon the surface."

HOT-AIR BLASTS IN MEDICINE

THE DANGER of exposing oneself to a current of cold air is proverbial; and tho some physicians now sniff at it, most persons believe that even a blast from an electric fan may cause them to take cold. That by raising the temperature sufficiently such a current may be transformed



BREECH END OF A PAIR OF DAMASCUS GUN-BARRELS.

The complicated pattern extends throughout the metal, and is not merely on the surface.

into a curative agent of great value is now affirmed by Dr. A. Gradenwitz, who writes of the virtue of the hot-air blast, or "douche" as he calls it, in *Cosmos* (Paris, May 21). We read:

"The electric hot-air fan, which has been used for some time in the practise of medicine, has undergone interesting modifications of form and usage during recent years. In its original form, it was a device of American origin, used to dry the hair, the current driven by an electric fan being heated by an electric resistance, so that the longest hair could be dried by it in a very short time.

"Now this current of heated air has been found to have great importance in therapeutics: in affections such as gout, rheumatism, or neuralgia, a daily treatment of ten to fifteen minutes produces marked relief, and with prolonged treatment a complete cure may be effected. The affected members must of course be protected against danger of chill after the treatment by specially warm clothing.

"Soon after this new curative method had been adopted in medicine, it was observed that the same currents of hot air have a valuable curative effect on the diseased tissues in abscesses, etc., owing to the hyperemia [accumulation of blood in the part] that they induce. It is for this reason that hot-air douches have been rapidly adopted, not only in hospitals and sanatoriums, but in the offices of specialists and even of general

practitioners. The ease with which they are controlled, and the fact that the hot-air device may be operated merely by connecting it with an ordinary electric outlet (the heat being regulated at will by an interrupter connected with the apparatus) have contributed greatly toward making it acceptable in medical practise. It should be noted that these douches, which can not be secured with any other kind of apparatus, are capable of producing in half a minute a vigorous air current at a temperature of 212° F.

"Now, an electro-medical manufacturing concern in Berlin has extended the use of the hot-air douche to veterinary medicine. The fan used for this purpose has an electric motor wound in

series and placed in the sleeve of the machine; a 1.5-inch tube supports the electric radiator, which heats the air current to the boiling-point. The weight of the apparatus is two pounds; the consumption of current in the motor, under a tension of 220 volts, is 0.2 ampere and that of the radiator is 2 amperes. . . .

"As dogs and horses are particularly subject to maladies due to chill, the hot-air douche furnishes an excellent means of relieving and curing their troubles. Even the most nervous dogs become accustomed at the second sitting to the action of the hot-air current. Of course all patients, men or animals, must be protected with special care against danger of taking cold, which is temporarily augmented just after the treatment."—*Translation made for THE LITERARY DIGEST.*

CAN FRIGHT WHITEN THE HAIR?

DOUBT IS thrown by a recent investigator, Professor Stieda, of Königsberg, Germany, on the popular belief that the hair may be whitened suddenly by shock. His studies lead him to believe that hair normally whitens, not through change or disappearance of its coloring-matter, but through actual substitution of one kind of hair for another. Such a change must depend, therefore, on the speed of growth. We read in *The Lancet* (London, May 21):

"Professor Stieda admits that a pigmented hair may become gray in its proximal part if the development of pigment in the hair root ceases, so that the newly formed part of a pigmented hair may thus become colorless. The whitening of the hair associated with advancing years is regarded as a physiological process, but Professor Stieda allows that psychological agencies, such as long grief, anxiety, and insanity, may induce similar changes, which are, however, not necessarily permanent. The average life of the hairs is a matter of considerable importance in regard to this question. According to the observations of Dr. Pincus, of Berlin, the long hairs of the head last from two to four years, the short ones from four to nine months. Dr. Moll has calculated that the life of the eyelashes is from three to four months. Various theories have been put forward to explain the supposed occurrence of sudden whitening of the hair. Vauquelin suggested that a substance might be excreted by the skin powerful enough to destroy the pigment of the hair. Another suggestion, proposed by Landois, was to the effect that a sudden accumulation of air occurred within the hairs. Metchnikoff has supposed that certain phagocytes or chromophages enter the hair and withdraw its pigment. All of these suggestions Professor Stieda subjects to a very destructive criticism, and he concludes by affirming that all the supposed cases of sudden blanching of the hair are either instances of deception or of incorrect observation. He gives several instances in point; among them the historical example of Marie Antoinette, whose hair is said to have turned gray the night before her execution, the fact being that she had been gray-haired for some time previously. He also mentions the case of a medical practitioner with dark hair in Berlin who went into a hospital to undergo an operation. On leaving he was much commiserated by many people owing to the fact that his hair was snow-white. The truth, however, was that he was not able to dye his hair as he had previously done daily, an explanation which he appears to have withheld from his sympathizers."

A CHEESE 124 YEARS OLD—In the Alpine regions of the Swiss cantons of Vaud and Valais, according to *L'Industrie Laitière* (Paris, May 8), cheese-makers preserve their products for years. Says this paper, as abstracted in *Cosmos* (Paris, May 21):

"They assert that the cheeses improve with age. At Ormonts, in the canton of Vaud, occurs the custom of making special cheeses for certain family festivals. These are properly labeled and are not eaten until several years later, on the occasion of some other festival, or even at a funeral repast. Often these cheeses are bequeathed from generation to generation as heirlooms. In recent years, at Ormonts, there was found hidden a cheese dating from 1785. It was as hard as a stone and had to be cut with a saw, but was nevertheless good."—*Translation made for THE LITERARY DIGEST.*

AEROPLANE AND DIRIGIBLE IN WAR

THE COMPETITION between "flying-machine" and "air-ship" for the dominion of the air is not yet settled. That they may have to be content with dividing the rule between them—serving respectively as the battle-ship and the torpedo-boat of the aerial navies—is the opinion of an editorial writer in *Engineering* (London, June 3). He says:

"We incline to the view that they will be accessories to each other in the same way and in the same relative degrees as the battle-ship and torpedo-firing craft. The 'command of the air,' like the 'command of the sea,' will only be gained by hard fighting, and until it is secured by combat in the sky, aerial invasion of the enemy's country will be impossible, altho forays and reconnaissances may be attempted under favorable conditions of darkness or fog. In this work the aeroplane will find its true vocation."

"What is probable is that in actual war each combatant would have a fleet of flying-machines of various kinds, and that in the case of any enemy appearing it would be the first duty of the opposing aerial fleet to attack him. Obviously, the home fleet would have the same advantage of acting near its base which a home fleet at sea has, and therefore an attacking fleet would not be allowed to sail over an enemy's territory unless it had such a decisive superiority that it could defeat the home fleet near that fleet's own base. In order to be of any use, therefore, a flying-machine, whether balloon or aeroplane, must be able to fight in the air, and the only types which will be of actual use in war will be those which can fight with a fair prospect of victory."

"It is yet too early in any way to forecast what will be the development of aerial warfare, tho it is certain that it will be a most important factor in the battles of the future. It is, however, of interest to endeavor to forecast what will be the probable merits and disadvantages of the aeroplane and balloon, respectively, as applied to war purposes in the next few years. The question, therefore, arises, what chance the dirigible would be likely to have in a fight if it met with aeroplanes; and further, what chance each has of doing effective work without fighting."

There can be no doubt, the writer thinks, that the dirigible could never do any effective work without fighting, because it is not so fast as the aeroplane. The latter might do effective scouting work if it were opposed only by dirigibles, for the latter could not be of very great numbers, and would not be swift enough to cover a large area. We read further:

"In considering the question of which would come off best in case of a fight in the air, it must always be remembered that the dirigible is a very expensive machine, and that for a given expenditure the aeroplanes would always be in a very great numerical superiority. This is a most important point, often overlooked, but it is easy to attach too much significance to it. Some years ago a French Minister of Marine argued that, as a torpedo-boat could send an ironclad to the bottom, and only cost one-fortieth as much, it was the best policy to spend the money on torpedo-boats, and not on war-ships. As a result France lost her old place among the naval nations of the world. In matters of armament cost is not the guiding principle; there is nothing so expensive as defeat, and to avoid this the most efficient weapons must be provided in sufficient numbers. Battles, aerial or terrestrial, are won by hard hitting, in which the dirigible, like the battle-ship, must excel. The aeroplane has its function in warfare, just as the torpedo-boat has, and will always be a cause of grave anxiety to the commander of the dirigible on account of its superior speed. It will be to him what the torpedo-boat and the submarine are conjointly to the fleet admiral."

"Aerial battles will be fought in three-dimensional space, and will call for a new set of military principles, and for an all-round resource on the part of the commanders far in excess of any yet seen. At the present time the dirigible balloon is regarded by the military authorities of the world as the only aerial vessel suitable to their needs. Germany has fourteen in commission and nine under construction, while 1,000 officers and men are under training to form their crews. Docks and hangars [sheds] are being built at strategic points, and a system of tactics is being evolved. No doubt the aeroplane is also being studied and improved by the German military authorities, but