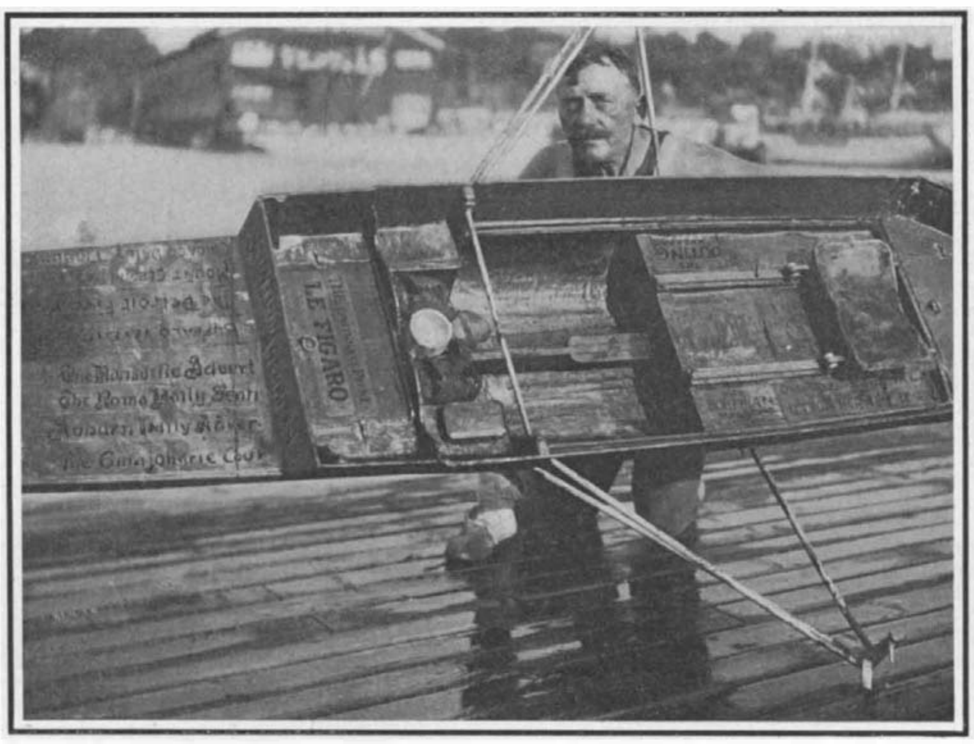
A BOAT MADE OF NEWSPAPERS.

On July 13 of the present year there might have been observed, sculling leisurely from the mouth of the Raritan River into New York Lower Bay, a bronzed and weather-beaten boatman, whose racing shell, because of the fact that it was covered from stem to stern with the printed headings of newspapers representing practically every corner of the globe, made an immediate bid for notice and closer inspection. The boatman was Capt. George W. Johnson, fifty-eight years of age, but looking forty; and his polyglot boat, built by himself of some three thousand newspapers, had served to carry him during the preceding two months on a 1,200-mile trip from St. Augustine, Fla., to New York harbor, practically the whole of the trip being made on salt water, and not a little of it on the open sea. Of course, the greater part of the route followed lay in inland waters, although in crossing some of the sounds the little craft was at times many miles from the nearest land. Thus, in crossing St. Andrew's Sound, an open stretch of six miles had to be crossed, and five miles across St. Symon's Sound. After entering Chesapeake Bay, Capt. Johnson followed the west bank to Annapolis, whence he rowed across the 12-mile stretch of water to the east shore. Another reach of 12 miles was made in crossing the mouth of the Potomac River. Naturally, he hugged the land pretty closely, being usually from 50 feet to a quarter of a mile from shore.

The little craft was built during the month of April at St. Augustine. The frame consists of a keelson of wood, ½ by ¾ inch, and gunwales, ⅞ by 1 inch; and it is divided into thirteen water-tight compartments by twelve bulkheads ¼ inch, ½ inch, and 1 inch in thickness, according to position. The method of laying on the paper shell was as follows: Molding strips ¼ by 1 inch were laid longitudinally from bulkhead to bulkhead, being fastened to false battens nailed around the edges of the bulkheads. Upon this form, of which the battens and molding strips alone were temporary, the paper shell was built up. The first set of sheets was laid with a 3-inch lap, and the successive layers were put on with a 1-inch, 2-inch, or 3-inch lap, as the case might be. After the first sheet was in place, it was carefully shellacked over, and the next sheet laid down carefully and smoothly upon it. The process was repeated, until there were thirty thicknesses, involving the use of three thousand pages, the final thickness of the shell being about ¼ of an inch. A special shellac of three pounds to the gallon, much thicker than the usual painter's shellac, was used. The deck was built up of eighteen thicknesses of paper. In placing the last layer on both the hull and the deck, care was taken to expose the headings of the papers, and as these represent all the countries of Europe, papers from places as widely separated as Egypt and Japan, to say nothing of papers from every State in the Union, from Nome, Alaska, to San Diego, Cal., the little craft has a decidedly cosmopolitan flavor. The boat is 20 feet long, 20 inches beam, 6 inches deep, has 3 inches draft, and 3 inches freeboard. When it was first placed in water it weighed 91 pounds; at present its weight is 150 pounds.

The adventurous captain of this small craft, who was formerly a printer on Frank Leslie's, is one of the oldest of the well-known scullers on the Harlem River, and was one of the organizers of the Nonpareil Boat Club. Careful attention to diet and a wholesome outdoor life, with abundance of exercise, show their effect in his fine physique.

The Newspaper Boat on Its Arrival at New York After a 1,200-Mile Trip from St. Augustine, Florida.



The Shell of the Boat is Built Up of Newspapers from All Parts of the World.

A BOAT MADE OF NEWSPAPERS.

Experiments have recently been made in Berlin to ascertain the height at which a balloon may be considered immune from hostile rifle shots. Captive balloons were sent up, and they were shot at from angles of from 15 deg. to 45 deg. Balloons traveling at a height of from 600 to 2,000 yards could be hit only once out of six shots, while they were absolutely safe at a height of 3,000 yards. Even when struck, the damage to the gas bag was so small that the balloon was able to continue its journey for hours before the escaping gas made a landing necessary.

Electrical Resistance of the Human Body.

The average resistance of the human body from the feet to the hands, when the soles of the shoes are saturated with water and the hands are wet, is about 5,000 ohms, and may be represented approximately by the resistance of a copper wire 1/10 millimeter (1/254 inch) in diameter and 2,350 meters (7,710 feet) in length.

The conditions mentioned above are the most unfavorable that occur in practice. In ordinary conditions the comparative dryness of the shoes and hands increases the resistance to between 10,000 and 20,000 ohms. Assuming the resistance to be 20,000 ohms, a current of 1/200 ampere will traverse the body if the hand touches a 100-volt circuit which is completed through the earth or through a return wire which is intentionally or accidentally grounded. If it is a direct-current circuit no harm, except a disagreeable sensation, will ordinarily result.

But contact with an alternating circuit of 100 volts and 50 cycles per second, such as is often employed in practice, will produce (although the current which traverses the body is still only 1/200 ampere) a condition of paralysis or spasm which will make it very difficult to let go the wire. Contact with an alternating circuit of 500 volts or over is extremely dangerous, especially if the contact is such that the derived current passes through a vital organ.

Polishing a Varnished Surface.

In order to obtain a good surface for polishing, each coat of varnish must be sandpapered, rubbed or mossed down, as a polish can be obtained only on a surface that is perfectly level. Therefore, the last coat of varnish, when thoroughly dry and hard, must be rubbed with No. 00 steel wool or FF pumice stone and water or oil, following with rotten stone and water or oil, and when perfectly done cleaned off thoroughly to avoid scratches. For producing a very fine polish, says a well-known authority, mix with one pint of shellac that has been cut in grain alcohol one-half pint of raw linseed oil. Shake well every time when applying it to a woolen cloth, rub briskly until the polish is hard and lustrous.—Carpentry and Building.

According to Power, a flexible glue for attaching leather to metals may be made by adding 1 part of Venetian turpentine to 4 parts of glue. The mass is heated in a glue pot as usual until it becomes sticky and ceases to give off bubbles. It works best when fresh.

WHY DO ROOTS GROW DOWN AND SHOOTS GROW UP?

BY S. LEONARD BASTIN.

Given a suitable environment, the living seed will always be ready to germinate; by a wise ordering the conditions necessary are, with the exception of light, identical with those essential for the subsequent development of the plant. A sufficiently high temperature, a small supply of moisture, the free access of air, and the tiny embryo which may have been slumbering for years starts into life. One change follows rapidly upon another in this awakening of the plant. Externally in most cases there is first apparent a decided increase in the size of the seed. If one could look inside at this stage the beginnings of the plantlet would be apparent, and it is easy to distinguish the root and shoot of the specimen which will soon make its entry into the world. Very little time must be lost now, for the baby plant is entirely dependent upon the food supply packed away in the seed, and this is strictly limited. Before all the matter is gone, the plant must have established its own independence. But it is not long before the elongation of the root and the shoot brings the two chief parts of the plant out into the world, in which they will henceforth have to make their way. However the seed may be disposed, the radicle invariably dives downward, while the plumule extends up toward the sky. A common enough occurrence certainly, and yet one which in its attempted explanation has provided the puzzle of the ages.

The persistency with which the original root of the seedling will turn toward the earth, even though it is constantly hindered, is remarkable evidence to the strength of the tendency. The continual turning of a growing seed each time the radicle has taken up its downward course, results in a most strange distortion of the root. After witnessing the almost pitiful struggle, it has been commonly suggested that the root wants to bury itself in the darkness of the soil. This can be proved, however, to be quite a mistaken impression. Seeds planted in a shallow box filled with soil, and in which the bottom has been bored with numerous holes, send their roots downward out into the light just as if they were in the ground. By this same experiment it is obvious, too, that the radicle does not go where it can secure moisture. It is possible to grow seedlings upside down by the simple process of inverting a receptacle in which they may be placed. A most interesting demonstration, and one which is quite easy to carry out, is arranged with a cigar box filled with damp moss and planted with a few French bean seeds. By means of string, the moss is held in position, so that it will not fall out when the box is placed upside down. The whole thing is then suspended in a fairly light position, and by means of a mirror placed underneath, the surface of the moss is kept well illuminated. It is of course necessary to keep everything quite moist, and if this is done the seeds will quite soon germinate. Even under such conditions the growth of the newly-born plants will be on the usual lines as far as it is possible. The roots will endeavor to grow down toward the light, and most of the shoots will try, quite vainly of course, to make their way up through the bottom of the box. Some of these latter may contrive to grow out horizontally for a space, and so get a chance to turn upward when the edge of the box is reached. It is noteworthy that the upper part of the seedling is more able to adapt itself to special circumstances than is the radicle.

It is thus apparent that in the behavior of the young plant at its birth, there are more powerful factors at work than light and darkness, great as are the influences of these upon vegetation in after life. In order to get a more clear idea of the facts of the case, a certain Mr. Knight, a member of the Horticultural Society, arranged an experiment which has ever since been connected with his name. On the rim of a vertical wheel, which was continually kept in slow motion, some bean seeds were sown. It was devised so that the circumference of the wheel was constantly in contact with water, and thus every inducement was given to the seeds to develop. In this case, the radicle took up a very pronounced position, growing straight out away from the axis of the wheel. Evidently, owing to