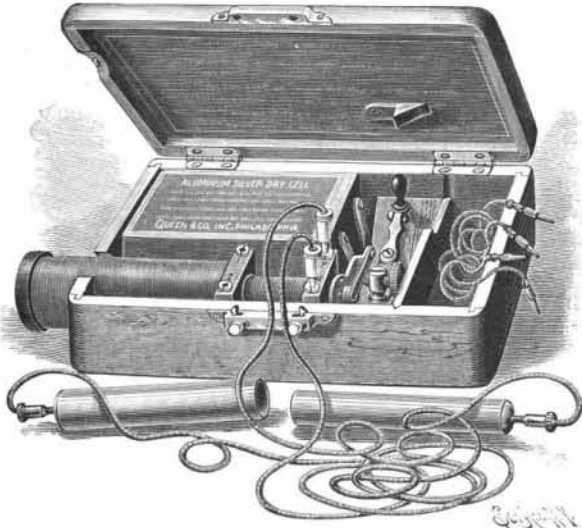


that Haydn, Ramberg and their imitators, who have introduced into the orchestra of their "infantile symphonies" the cuckoo, the quail, the nightingale, and the wild cries of the kestrel, have entirely forgotten the jovial songster of the swamps. Handel alone has taken pity on these animals, and made mention, in his "Israel in Egypt," of the toads and frogs. By his peculiar accompaniment, he imitates in his oratorio the motions and the leaping of the frog. We give the famous passage of the oratorio in question in Fig. 2.



A DRY CELL FARADIC BATTERY.

As regards the notation or reproduction of the noises of the frog, that is not any easy thing to do; far from it. Yet Landois has endeavored to note a few of the "songs" that ring out upon the edges of the ponds and swamps, and it must be confessed that the attempt of this learned author has not been entirely unsuccessful. Thus, the music of Landois, executed by a harsh, youthful voice, is capable of recalling pretty closely the croaking of the green frog. The music in question is given in Fig. 1.

Although the notation of the croaking of the green frog (*Rana esculenta*) is difficult, the registering of the jerky notes of the spotted frogs and tree frogs is quite easy. The spotted frog, which is generally considered mute, nevertheless utters shrill sounds and plaintive cries when it is struck or when it is attracted by a mole or some aquatic rat. It has none the less a "song," which is quite simple, it is true, at the period of spawning.

It is well to take into consideration the fact that the males alone "sing." We know that the period of spawning with the spotted frog is relatively early as compared with that of the green frog. As soon as the first spring pools appear and the snow disappears from the fields and meadows, the spotted frogs come forth from their winter quarters and proceed to deposit their spawn upon the edges of the ponds. Mr. Zograf relates that in the vicinity of Moscow the music of this

frog begins as early as the month of March. Formerly, by reason of the prolonged thaws, the frogs were deceived and made their exit from their winter quarters earlier. The spotted frog does not utter melodies of long duration, as is the case with his relative the green frog, but merely repeats a single note with a surd bass voice (Fig. 4).

As regards the tree frogs and the Pelobatides, their voice is sonorous and clear, and may be compared to the sounds of a silver bell. We would remark that it is, for the most part, representatives of the Pelobatides that, at the beginning of twilight or in the evening, are heard repeating the sound "wok" or "oonk" with a clear and sonorous voice at the margin of stagnant water. This is why these animals are called "wok" by the peasants in certain districts. As their voice very frequently resounds on dark nights when the sky is covered with heavy clouds, the people become frightened when they hear the characteristic "wok" and "oonk," for they see a connection between these strange sounds and the tears of the souls of the drowned. It is especially in the isolated villages of Russia that this belief is prevalent. Numerous examples of it might be cited. Thus, the Russian novelist, Ivan Tourgeneff, mentions it in his admirable work, *Biejuine Lougue*. The sounds of these frogs vary between fa and do (Fig. 4).

It remains for us to say a few words concerning the "music" of toads. Let us say at once that it is very simple and not very harmonious. Here again it is during the period of spawning that the most noise is made. Their songs vary according to the species. Thus, for example, the *Bufo variabilis* has a harsh, jerky voice, while the *B. cinerius* emits a sound like that of the representatives of the Pelobatides, although its voice is not so strong. As for the rush toads, the male of which is provided with a vocal sac, and which makes itself heard at the beginning of twilight, they cry now "glookglook" and now "rahrhah," like the frogs. Mr. Zograf, moreover, tells us that he has heard them utter a prolonged "Ker-r-r-r-r."

In a general way the sounds of frogs may be registered as follows: "Brekeke-brekeke, krekete! Kpate too-oo-oo! brekete, brekete! brekete, kwarr, brekete, too-oo!"—*La Science en Famille*.

"DRY CELL" MEDICAL BATTERIES.

The illustration represents a new form of "Dry Cell" Faradic Battery, placed on the market by Queen & Co. (Inc.), of Philadelphia. This type is specially adapted for home use (preferably under the advice of a physician) and is extremely compact, convenient to handle, and durable, thus being admirably suited for carrying about when traveling. The cells are sealed, so that there is no leakage of acids, as in older forms, and the battery is perfectly clean and "nice."

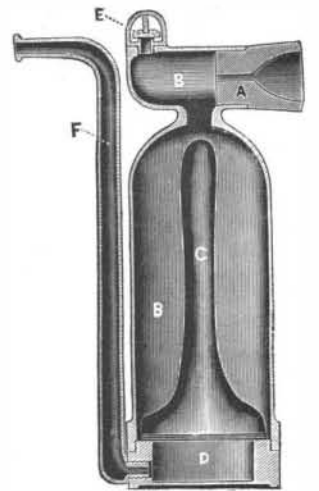
Three sizes are made, all mounted in handsome mahogany boxes. Size No. 1 contains two cells and will produce a current stronger than most people can endure, which, however, can be graded down so as to be imperceptible to the most sensitive nature. The change is effected gradually, by sliding the secondary coil on and off the primary. A special switch shuts

current off entirely when the case lid is closed. Size No. 2 is larger than the preceding, and contains four dry cells instead of two. There is also a difference in the method of current regulation, which in this style is accomplished by a switch "controller." Battery No. 3 or Physician's Battery No. 1 is the largest of the series, and is amply sufficient for the requirements of most doctors who want a compact and portable apparatus. The cell block contains six cells, which produce a very powerful current. Samples of the batteries were exhibited at the World's Fair and received the highest award for "compactness; range of action; efficiency, and beauty of workmanship." The examining judge was Dr. W. J. Herdman, of Ann Arbor, Mich. When the cells in any of the above become exhausted (which occurs only after long service), they can readily be renewed at a slight expense, by sending the containing block to the makers.

THE HARMLESS SMOKER.

The design shown in section in the illustration, which has been recently patented by Mr. Ryerson D. Gates, of Chicago, has already been introduced to a considerable extent, the object of the device being to break off and cure the tobacco habit. This is accomplished by means of a delusion which does not deprive the "user of the weed" of the pleasure of smoking, but does away with the evil effects of the habit. With it, one smokes a cigar without drawing a ny smoke into the mouth or down into the lungs, and is at first so deceived by the effect as not to distinguish the difference.

A rubber bulb, C, is in free communication with a chamber, D, in the base, with which the stem, F, is connected, and by drawing on the latter the suction causes sufficient collapse of the bulb—which is shown in collapsed form in the picture—to create a partial vacuum in the surrounding smoke chamber. B. This draws the smoke through the small end of the cigar, placed in the tip, A, and when the lips are opened in the natural way the expansion of the bulb forces the smoke out of a valve, E, immediately below the nostrils, but no smoke comes out of the mouth. It is impossible to get any nicotine in the mouth by smoking in this way, and cancer of the throat and similar troubles caused by smoking are simply out of the question.



UTILIZING THE WATER POWER OF NIAGARA FALLS.

In the SCIENTIFIC AMERICAN of March 5, 1892, we gave a full description, with numerous illustrations, of



GREAT TUNNEL AND ONE OF THE WHEEL PITS AT NIAGARA FALLS.