promising multitude, ninety per cent. have been either cured or greatly benefited.

We have proved that a number of diseases which by common consent have been assigned to the category of "*incurables*," no longer belong there. We have cured a number of cases of Bright's disease. Two of these cases were brothers whose father, one brother, and one sister had died of the same disease. We have treated four cases of *Locomotor ataxia*, or *progressive paralysis*. In all of these the progress of the disease has been arrested (which no system of medication has ever been known to do), and the patients have made genuine progress toward health. We almost never fail to cure asthma—even of fifteen years' standing—unless the case has been spoiled by the use of narcotics, which served as palliatives but constantly aggravated the disease. The same can be said of that "*opprobrium medendi*," hay fever. The cases of consumption—confirmed phthisis—which the Compound Oxygen has cured can be counted by scores. We are confident that we make more *genuine cures* of catarrh—nasal, laryngeal, bronchial, and pulmonary—than all the catarrh specialists in the country.

A distinguished member of the New York Bar, who appeared to be a wreck both physically and mentally, and who had settled up his worldly affairs, resumed his active business after three months' treatment; and this business be has successfully followed for a year. Mrs. Mary A. Livermore, who had been disabled for nearly two years by a dangerous exhaustion of the brain, has for a year and a half been prosecuting her professional work with more ease and energy than ever before. The Hon. W. D. Kelley, the Father of the National House of Representatives, will tell any one that he owes the last ten years of his life to Compound Oxygen; and it can hardly be disputed that during this period his labors have not been surpassed by those of any other member of Congress. William Penn Nixon, of the *Chicago Inter-Ocean*, says that he owes his life and some years of active usefulness to the virtues of Compound Oxygen. The public know very well the unqualified testimony which Mr. T. S. Arthur has borne in favor of the Compound Oxygen as exhibited in his own case.

But why multiply examples? We have published many hundred statements in the patients' own language of the effects of Compound Oxygen in almost every kind of disease.

Now what of the future? Having accomplished what we have, and against such odds, our progress henceforward should be broader, more successful, and more beneficent. As was to have been expected, proprietors of sanitariums and health resorts, whose business has been diverted from them by the popularity of the Compound Oxygen, try to show that our agent is inert. But until they can rationally account for the thousands of wonderful cures effected by it, their tirades are in vain. Of course there are—and there will probably be more—imitators of the Compound Oxygen. Some have already stolen our title, our literature, and even our testimonials. One of them, having obtained from William Penn Nixon an opinion of Compound Oxygen in his own case, now publishes it as though Mr. Nixon was cured by his treatment instead of ours! Some of those agents may be innocuous; but we have a good reason to believe that many of them are positively injurious. They will have their day.

But despite all factious opposition Compound Oxygen must become increasingly popular, so long as it possesses the ability to effect such remarkable cures as now attest its merit.

For full information regarding the treatment and its use, address Drs. STARKEY & PALEN,
1109 and 1111 Girard St., Philadelphia.

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from $1 to $5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at the office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) C. M. asks: In what proportion of bulk atmospheric air is reduced by compression into 2, 3, 4, etc., atmospheres? I mean, for instance, what room will 1 cubic foot of air occupy after having been compressed to 2, 3, 4, etc., atmospheres, showing a pressure of 45, 60, 75, 90, etc., lb. respectively? A. The pressure resulting from the compression of atmospheric air in volumes after cooling to the normal temperature is—volumes compressed into one—

2 vol.	4 vol.	6 vol.	8 vol.	10 vol.
15 lb.	30 lb.	45 lb.	60 lb.	90 lb., etc.

At the instant of compression the pressure arising from the liberation of the latent heat carries the pressure somewhat higher.

(2) H. M. B.—We should infer from the description that the substance was some sort of slag having a melting point lower than the heat to which the bricks were exposed. It is probably a silicate of lime or iron. To positively determine its nature an analysis would be necessary, the expense of which would be from $10 to $20, and a larger quantity of the coating would be required.

(3) J. L. T. writes that hammering and heating are two essentials to insure a good mill pick. Never strike a pick or any steel tool on edge where the red heat has left it; let all the hammering be on the flat surface, and the last blows right along the point of the tool to bring the steel close where the greatest resistance to the blow is required. Clean, cold, soft water with salt enough in it to float a common potato. Give the pick a cherry red heat, and dip without drawing temper; if the steel is good, you will have a pick that will give good service, and you can draw them down just as thin as you want them and give them from 1¼ in. to 1½ in. clear temper.

(4) F. W. M. writes: 1. Suppose I have a gear wheel with a loose journal-bearing surface 2 in. in width, revolving on a shaft 1½ inches in diameter, and another loose gear wheel just like the first, only that the width of its journal-bearing surface is half an inch, and it revolves on a shaft 6 inches in diameter. Will the bearing surface in both cases be the same, viz., 9·4248 + sq. in.? A. The bearing surface will be the same, 9·4248 + sq. in. 2. Now suppose the wheel on the 6 in. shaft is to be revolved only one-fourth as fast as the wheel on the 1½ in. shaft, would the friction and wear be same in each? A. The friction and wear on the small shaft will be about four times as great as on the larger. The contact surfaces in both instances are the same, but in the former case the same particles are brought in contact with one another four times while the other shaft is revolving once; and since the weight upon both shafts is assumed to be the same, the wear must be four times as rapid in the one instance as in the other. 3. Would it require any more power to operate one than the other? I have been thinking that under the above circumstances the wheel with the large shaft would suffer no more wear or friction, and take no more power, than the wheel with the smaller shaft. But if they were both to make a revolution in the same time, the former would wear four times as fast and take four times the power. A. It is impossible to answer the question of power positively, as the conditions are not fully enough given. We should say, however, that the power required to fulfill above conditions will be about the same for both shafts, although theoretically a little more power will be required to overcome greater wear of smaller shaft.

(5) O. F., Jersey City, asks what sized air chamber is required to sustain about 2,000 lb. dead weight in water? A. A chamber containing 32 cubic ft. of air is sufficient if made of wood.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

S. P.—The sample consists of pyrite (iron sulphide). In order to determine whether it carried gold in paying quantities, an assay, costing $5.00, will be necessary.—C. B. S.—The specimen is decomposed limestone, of no value.

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