

Science and Art.

California Academy of Natural Sciences.

POLYPS.—The city of San Francisco, (Cal.) is composed of all kinds of people, and among these some of the ablest men on our continent. California has allured many of the most gifted, learned, and ingenious men—chemists, mechanics, and artists—from all parts of the world, and we have been told by one who has resided there for a number of years, that, in proportion to its inhabitants, San Francisco contains five times more scientific men than New York. We have some strong evidence of the truth of this statement in the accounts recently published in our San Francisco cotemporaries, of an Academy of Natural Sciences having been formed in that city, and measures having been taken by it to lay out a botanical garden, and provide a library, museum, &c.

At a meeting of the Academy held on the 31st of last July, Dr. Ayres exhibited a species of hydra, found in a stream near the Mission Dolores. These are minute Polyps, approaching the lowest recognized type of animal existence. A hydra may be cut in pieces without injury, each piece becoming in time a perfect hydra: he had verified this a number of times. These little Polyps are found adhering to sticks in most of the gently flowing streams of California. They look like little lumps of jelly—have a thread-like crown of arms, and are in length about half an inch, no thicker than a fine sewing needle, and of a light reddish brown color. Dr. A., on arriving in California, felt desirous of ascertaining whether the same forms existed on that side as on the east of the continent, two species having been known to him in the Eastern States. In Europe there are two species, one brown and one green; in the vicinity of Boston there are two resembling the European types in color. Prof. Agassiz has named them *gracilis* and *carnea*. Dr. Ayres thus describes the three species:—

“1. *H. gracilis* (Agassiz).—Very small, of a bright green, closely allied to *H. viridis*, but much more extensible. Found in the eastern part of Massachusetts, probably in other parts of the Eastern States.

H. carnea (Agassiz).—Larger than the *gracilis*, of a light reddish brown, allied to *Hydra fusca* but having the tentacula shorter. Found in Massachusetts and Connecticut very abundantly; much more common than the last.

H. tenuis (Ayres).—About the size of the *carnea*, which it resembles in color, and to which it is allied, but from which it differs in the same point and to about the same degree as *carnea* differs from *fusca*. The tentacula are much less developed, having not more than about half the size of those of *carnea*. Found very abundantly near San Francisco, California.

Whether we shall yet detect, on this side of the mountains, a green species to represent *H. gracilis*, or perhaps others entirely distinct, is left for future research.”

The points of structure referred to in the communication, were exhibited under the microscope, and illustrated by drawings.

Explosive Burning Fluids.

We have noticed in some of our cotemporaries, accounts of a number of accidents from the use of volatile fluids used for illumination, and sold with the guarantee of not being explosive. It is indeed true that none of these fluids are really explosive—they must change their state from the fluid to the gaseous, and mix with the atmosphere before they become explosive. It is therefore wrong for the sellers of these fluids to take advantage of the public by a technical deception. Such a deception is the more to be deprecated because it tends to make persons more careless in the use of such fluids.

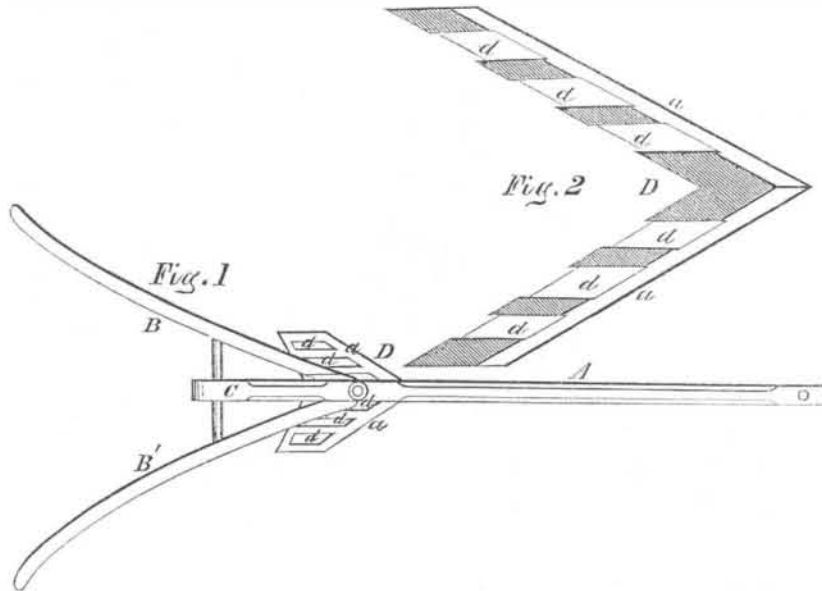
To Clean Silver Plate.

It is not safe to clean silver plate with an acid, as it will remove the thin skin of the precious metal which is laid on the copper (or white metal) whether laid on by the old method of plating or by the galvanic battery. Sweet oil and rotten-stone, finishing either with prepared whiting or tripoli, are the only safe materials to use for cleaning silver plate

POTATO DIGGER.

On the 4th of July last, a patent was granted to Galusha J. Bundy, of Lyndon, Vt., for an improvement in machines for digging potatoes, represented by the annexed engravings,—figure 1 being a top view and fig. 2 a transverse section of the mold-board. The same letters of reference indicate like parts on both figures. This agricultural implement is in many respects like a common plow; it has a beam, A, and handles, B B, united to an inclined bar, C, to which the scoop or plow-

share, D, is attached. The scoop is formed with two angular mold-boards, *a a*, forming an angle. The improvement consists in providing these mold-boards with slots, *d d d*, arranged in vertical directions, or nearly so; that is, standing upwards rather than horizontally. The planes of these slots are disposed parallel to each other and to the plane of the beam, and they are each made to extend from near the bottom of each mold-board to near the top of the same. Through these slots the



air passes while the machine is used in plowing through or digging into a potato field, the potatoes being thrown upon each side of the furrow and left in full sight. This mold-board works through the earth or soil, acting like a sieve, raising and separating the potatoes from the earth, and leaving most of the earth or soil in its place.

There can be no question about the simplicity of this potato digging plow: it raises the potatoes and leaves them only to be gathered up, which labor can be performed by boys. The claim is for the construction of the potato plow, with slots standing vertically or

nearly so, and having their respective planes parallel to a vertical plane passing through the draught beam. Digging potatoes is a severe and tedious operation; any machinery to obviate the manual labor in this department of agriculture, should be welcomed by all those engaged in farming. We have been assured by Mr. Bundy that it will turn out several acres of potatoes in a day, and that it can be handled with as much facility as a common plow.

More information respecting patent rights, &c., may be obtained by letter addressed to the patentee at his residence, Lyndon, Vt.

Brown and Boeklen's Improved Bottle for Effervescent Drinks.



July 25, 1854, enables the bottle to be closed by a common cork, which merely requires to be driven into its place, where the pressure of the gas acts upon it only laterally or on its side, and not on its end, and therefore does not tend in any way to expel it. The cork is inserted at the mouth of the bottle, but instead of passing down the neck, it enters an oblique passage, and passes through one side.

Fig. 1 is an outside view of one of these bottles, and fig. 2 a section of the neck, mouth, and cork passage.

A is the neck; *a* is the mouth; B is the cork passage, to receive the cork. In this bottle the cork passage is open at the lower end, and both ends of the cork are exposed, but in figure 3 a section is represented of the neck and mouth of a bottle on the same principle, with the lower end of the cork passage closed at *d*. The latter form may be used if it be desired to compress a small quantity of air in the bottle, as is done by corking a common bottle; but the former allows no air to be compressed, which gives additional security against bursting the bottle. One of the most important characteristics of the invention is, that though the cork is exposed laterally to the pressure of the gas, an unobstructed straight passage is left through the neck of the bottle. This peculiarity will be best understood by referring to the dotted lines in fig. 3. The liquid can be poured out in as regular a stream as from a common bottle, without splashing.

The invention is well worthy of the attention of manufacturers of bottles, either in glass or stone ware.

For any further information on the subject, apply by letter (post-paid) to H. T. Brown, 150 Adelphi street, Brooklyn, N. Y., or to R. Boeklen, No. 5 Essex street, Jersey City.

Clocks.

Connecticut has twenty-eight clock factories, employs 1,279 hands in the manufacture, has \$1,002,000 capital invested, and makes

annually 790,000 clocks. One fourth of these time keepers find a market in England.

LITERARY NOTICES.

THE SCIENTIFIC STAIR BUILDER.—Our readers will remember that we gave in our last volume some account of a work which was in press, bearing the above title, by Robert Ridgell, an experienced, skillful, stair builder of Philadelphia. That work has now been issued from the press, and does honor to its author. It contains 40 plates with clear and full explanations. The book is well printed, and the plates are large and well executed. The art of stair-building is one of great beauty because it embraces a high range of geometrical knowledge and mechanical skill. It is true that men may be engaged in it who possess these qualifications to a very limited extent, but to be a master mechanic—a true journeyman stair builder—a man must write geometry with his saw and chisel, in rail, baluster, and plank. This is just the work for those who desire to be superior and scientific workmen. We cannot enter into a description of the several plates, nor present even an outline of the peculiar features of this work, it must be seen and examined for itself, and every stair builder, architect, and house builder should see it. The most experienced in the art will find something new in it, and the youngest apprentice will find it to be the beacon of his trade. We hail this work from a working-man, as being one of the finest acquisitions ever made to the practical scientific literature of the age. For particulars respecting where it can be obtained, we refer our readers to an advertisement in another column.

BUSHMAN'S PRINCIPLES OF PHYSIOLOGY.—This is the title of a neat little volume just issued by Messrs. Blanchard & Lea, Philadelphia, republished from the London edition. It is a popular treatise on the functions and phenomena of human life. The author, Dr. J. Stephenson Bushman, is physician of the Metropolitan Hospital; he treats the subject in a clear and instructive manner. It is well illustrated, and is a work which we can sincerely recommend for schools and libraries.

OVERMAN'S PRACTICAL MINERALOGY.—Lindsay & Blackston have issued a new edition of this excellent work by the late Frederick Overman. It is divided into three parts, viz.: Mineralogy, Mining, and Assaying, and is very full in all that relates to the useful metals. It is useful to every man who works in the metals, no matter what kind of metal, or to what uses he applies them.

WARING'S ELEMENTS OF AGRICULTURE.—Geo. E. Waring, Jr., Consulting Agriculturist, this city, is the author of the above work, and D. Appleton & Co. are the publishers. It treats of the nature of plants, the soil, manures, mechanical cultivation and analysis. It describes Prof. Mapes superphosphate of lime. It is composed of 100 lbs. bone black, 56 sulphuric acid, 36 guano, and 20 sulphate of ammonia.—The book is dedicated to Prof. M., the author having been his pupil. It contains some good illustrations, and is worthy of being extensively read and studied.

CALIFORNIA CHRONICLE.—We are indebted to the publishers Frank Soule and Co., for regular files of this spirited journal. The *Chronicle* is a large, well edited, handsome daily, and its columns attest to its value as an advertising medium. It seems to deserve and enjoy a liberal patronage from Californian business men.

THE MINING MAGAZINE.—For September, contains its usually interesting and valuable variety of matter upon mining and kindred branches. This journal is under the management of W. J. Tenney, and is a publication of great merit.

HOUSEHOLD WORDS AND ILLUSTRATED MAGAZINE OF ART.—These sterling publications are now managed by T. L. McElrath & Co., Spence street, and are among the choicest works of the day. The Magazine of Art is superbly illustrated with the very best specimens of wood engraving. Charles Dickens, Leigh Hunt, Fryday, and other eminent writers, supply the columns of the *Household Words*.



Inventors, and Manufacturers

The Tenth Volume of the SCIENTIFIC AMERICAN commenced on the 16th of September. It is an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Its general contents embrace notices of the LATEST AND BEST SCIENTIFIC, MECHANICAL, CHEMICAL AND AGRICULTURAL DISCOVERIES.—with Editorial comments explaining their application notices of NEW PROCESSES in all branches of Manufactures; PRACTICAL HINTS on Machinery; information as to STEAM, and all processes to which it is applicable; also Mining, Millwrighting, Dyeing, and all arts involving CHEMICAL SCIENCE; Engineering, Architecture; comprehensive SCIENTIFIC MEMORANDA: Proceedings of Scientific Bodies; Accounts of Exhibitions,—together with news and information upon THOUSANDS OF OTHER SUBJECTS.

Reports of U. S. PATENTS granted are also published every week, including OFFICIAL COPIES of all the PATENT CLAIMS; these Claims are published in the Scientific American in ADVANCE OF ALL OTHER PAPERS.

The CONTRIBUTORS to the Scientific American are among the MOST EMINENT scientific and practical men of the times. The Editorial Department is universally acknowledged to be conducted with GREAT ABILITY, and to be distinguished, not only for the excellence and truthfulness of its discussions, but for the fearlessness with which error is combated and false theories are exploded.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and PEOPLE IN EVERY PROFESSION IN LIFE, will find the SCIENTIFIC AMERICAN to be of great value in their respective callings. Its counsels and suggestions will save them HUNDREDS OF DOLLARS annually, besides affording them a continual source of knowledge, the experience of which is beyond pecuniary estimate.

The SCIENTIFIC AMERICAN is published once a week; every number contains eight large quarto pages, forming annually a complete and splendid volume, illustrated with SEVERAL HUNDRED ORIGINAL ENGRAVINGS.

TERMS! TERMS!! TERMS!!!

One Copy, for One Year	\$2
“ Six Months	\$1
Five copies, for Six Months	\$4
Ten Copies for Six Months,	\$8
Ten Copies, for Twelve Months	\$15
Fifteen Copies for Twelve Months	\$22
Twenty Copies for Twelve Months	\$28

Southern, Western, and Canada Money taken at par for Subscriptions, or Post Office Stamps taken at their par value. Letters should be directed (post-paid) to

MUNN & CO.
128 Fulton street, New York.

For LIST OF PRIZES see Editorial page.