A Perpetual Motion Humbug.

MESSRS. EDITORS :—I have a pendulum in motion whose oscillations are maintained by magnetism induced by the pendulum carrying a helix past the poles of permanent a magnet, at the instant after its reaching the center of oscillation. The magnetic influence is, of course, only momentary, but is sufficient to drive the pendulum beyond its opposite center and thus maintain a constant vibration. Is this perpetual motion? Is it new to you or your readers?

J. M. H.

Worcester, Mass., April 5, 1866.

[If we understand the description, the statement is simply incredible. As there is an appreciable, though extremely minute portion of time required to induce magnetism in a helix by a permanent magnet, the pendulum would be drawn backward in its ascent more powerfully than it would be drawn forward in its descent, and thus its motion would be retarded. It would therefore stop sooner in consequence of the presence of the magnet.—EDS.]

New Things in France.

ABORTION.

Encore le goitre. M. Lager announces to the Academy of Sciences that he has produced a number of thyroid enlargements in rats by injecting metallic sulphates under the skin. He has discovered that the use of sulphates will produce abortion, a fact, I believe long known in England, where large doses of sulphate of potash have been employed for the purpose

GRAFTING RATS.

Rats are as plentiful in Paris as London, and they are often the victims of physiological experiments. M. Bert, for example, gained the prize in experimental physiology for removing their tails from their natural position, and grafting them upon all sorts of odd places the middle of the back of the animal, for instance, and even in the cavity of the peritoneum. M Bert made one very curious observation. He succeeded in uniting the small end of the tail to the body, and found out that the large extremity, which was free, recovered its sensibility, thus showing that the nerves will convey sensation in a direction inverse to that in which they act under normal circumstances.

SEEING THE INSIDE OF ONE'S OWN EYE.

By the use of endoscopes, laryngoscopes, and ophthalmoscopes the medical man is enabled to get a sight of many things shut out from ordinary view. M. Houdin has added another to these ingenious instruments—the iridoscope—by the aid of which an individual is able to see all that is going on in his own eye. It is simply an opaque shell to cover the eye, pierced in the center with a very small hole. On looking through steadfastly at the sky, or at any diffused light the observer may watch the tears streaming over the globe, and note the dilatation and contraction of the iris, and even see the aqueous humor poured in when the eye is fatigued by a long observation. It is needless to say that with the aid of this instrument a man can easily find out for himself whether he has a cataract or not. If he has he will only see a sort of veil covering the luminous disk, which is seen by a healthy eye. The instrument is certainly simple and curious, and will no doubt excite attention in those who are anxious to know more of themselves. An "iridoscope" may be readily extemporized by making a hole in the bottom of a pill-box with a fine needle.

POISONING BY PHARAOH'S SERPENTS.

We have had here two or three cases of poisoning in young men who have been occupied in making up Pharaoh's serpents. No one had died, but one has been seriously ill.—*Correspondence of the Chemical News.*

PROTECTED LEAD PIPES.

A correspondent writes from Germany that the Water-works of Leipsic have recently been completed, and adds that the leaden pipes employed for house service have been protected by Schwartz and De Wilde's process. Our readers will remember that this is a process for obtaining on the inside of the pipe a coating of sulphide of lead, which is unacted on by water, that attacks lead itself.—*Chemical News.*

English Ironclads.

The following is a list of the ironclads we now possess, either actually in commission or nearly ready for sea, and exclusive of those which, like the *Hercules*, etc., have not long been begun:—

Ship's Name.	Tunnage.	Horse-power.	Length.	Beam.	No. of protected gun under light fair	Thickness of Armor	Thickness of Backing.
			Ft.	Ft.		inches.	Inches.
Achilles	6,221	1,250	332	58	26	4½	18
Black Prince	6,109	1,250	380	58	26	4½	18
Warrior	6,109	1,250	380	58	26	4½	18
Agincourt	6,621	1,350	400	59	30	5½	10
Minotaur	6,621	1,350	400	59	30	5½	10
Northumberland	6,621	1,350	400	59	30	5½	10
Hector	4,089	800	280	56	34	4½	18
Valiant	4,063	800	280	56	32	4½	18
Defence	3,740	600	280	54	16	4½	18
Resistance	3,710	600	280	54	16	4½	18
Caledonia	4,125	1,000	273	59	32	4½	Wood ship. side 48½in. thick.
Ocean	4,047	1,000	273	59	32	4½	ditto 25½
Prince Consort	4,045	1,000	273	58	33	4½	ditto 29½
Royal Alfred	4,063	800	279	56	32	6 and 4½	ditto 29½
Royal Oak	4,056	800	275	56	32	4½	ditto 20½
Lord Clyde	4,067	1,300	280	59	34	4½ and 5½ and 6 in	ditto 31½
Lord Warden	4,067	1,000	280	53	34	4½ and 5½ and 6 in	ditto 31½
Zealous	3,716	800	252	59	16	4½	ditto 30½.
Bellerophon	4,246	1,000	300	56	12	6	Wood ship. side 22 in. thick.
Pallas	2,372	600	225	50	5	4½	Wood ship. side 22 in. thick.
Favorite	2,206	400	225	47	8	4½	ditto 26
Research	1,253	200	195	35	4	4½	ditto 19
Enterprise	993	140	190	36	4	4½	ditto 19½
Viper	737	160	165	32	2	4½	10
Vixen	754	160	160	32	2	4½	10
Warrior	777	167	162	32	2	4½	10
Prince Albert	2,529	500	240	48	6	4½	18
Royal Sovereign	3,765	800	240	62	5	5½	Wood ship. side 36 in. thick.
Scorpion	1,857	350	220	42	4	4½ and 3	9
Wivern	1,857	350	220	42	4	4½ and 3	9

The *Times* punlishes this list, which is right, and adds a wish "that the Admiralty would adopt the French system of fastening on the plates with what are termed wood screws instead of through bolts," which is wrong; going on to say that "the latter weaken the plate very considerably and do not hold it on at all, whereas the trials made with the French system of fastening at Shoebury showed it to be so superior to ours as to be literally above any degree of comparison." This passage affords another excellent example of the blunders which people commit when they write about that which they do not understand. It is perfectly true that the wood bolts referred to did not break, and that for the best of all reasons—the wood did not afford sufficient hold to overcome their tenacity, the bolts drew bodily out of the timber, but the destruction of the target was none the less complete because they did not actually break.—*London Engineer.*

Composition of Alloys.

Lead.	Tin.	Bismuth.	Point of Fusion.	Point of Solidification.
120 parts.	140 parts.	120 parts.	130° C.	112° C.
145 "	145 "	100 "	140	129
150 "	150 "	75 "	150	136
150 "	150 "	50 "	160	150
170 "	180 "	35 "	170	163
210 "	190 "	30 "	180	165
140 "	155 "	30 "	190	180
200 "	185 "	30 "	200	180
200 "	180 "	30 "	210	180
240 "	150 "	30 "	220	180
207 "	194 "	30 "	180	180

It is generally to be remarked that the fusion point of an alloy is not in relation to the proportions of the metals which enter into its composition. The alloy of 150 parts of lead, 150 parts of tin, and 50 parts of bismuth (proportions evidently corresponding to 6 atoms of lead, 12 atoms of tin, and 1 atom of bismuth), is one of those which solidify most regularly—that is to say, that no one of the metals entering into its composition crystallizes separately on cooling, and that the alloy remains perfectly homogeneous.

It may be observed that the point of solidification of the last five alloys on this table is constant at 180°. When these alloys are melted and then allowed to cool, small crystals form at 220°, 210° 200°, or 190°, according to their composition, and when the temperature has descended to 180°, the whole mass solidifies. It is noticeable that during the whole time of solidification the temperature remains at 180°, and that the mercury of the thermometer again begins to descend only when every part of the alloy has become solid.

Another alloy remaining very homogeneous, and unvarying in temperature during solidification, is that composed of 207 parts of lead and 294 parts of tin (2 equivalents lead to 5 equivalents tin). This alloy melts as 180°, and solidifies at precisely the same temperature.

In these two alloys, which have the most useful properties, the different metals are united in atomic proportions, which seems to prove that, to obtain a good alloy, it is necessary to take into consideration the atomic weight of the metals composing it. It is beyond a doubt that such alloys, remaining so homogeneous during solidification, are possessed of valuable properties not belonging to other and less homogeneous alloys. This question is certainly of great interest in the manufacture of printing type, and for similar purposes; and deserves to be thoroughly studied.—*Bulletin de la Societe Chimique and Chemical News.*

[It will be observed that the temperatures are given in the centigrade scale. To reduce them to Fahrenheit degrees, multiply by 9, divide by 5, and add 32. In the centigrade thermometer, the interval between the freezing and the boiling point of water, is divided into 100 degrees, and the freezing point is made the zero. Fahrenheit divided the interval into 180 degrees, and made his zero 32 degrees below the freezing point. The proportion of 180 to 100 is the same as that of 9 to 5 —EDS.

The Funnel of the "Bellerophon."

At the recent trial of the *Bellerophon* English ironclad frigate, the boilers steamed freely and the engines were thus enabled to work up to the required power. The first trial was a failure in this respect, and success was obtained by putting two more courses, 16 feet, to the funnel or smoke stack. This was deemed an unfair proceeding by some, and the following discussion took place in relation to it in Parliament:—

Sir J. Pakington, who had a question on the paper with reference to the lengthening of the funnel of the *Bellerophon* for the purpose of forcing her speed, said that he should be extremely sorry to ask a question which implied a suspicion of anything like unfair conduct without having good reason for so doing. Therefore he felt bound to state that, since he had given notice of the question, he had received information that nothing more was done than was commonly done in other cases with the view to a fair trial of speed.

Lord C. Paget said the answer he had to give was that which he intended if the question had been put, that it was a common practice to lengthen the funnels of vessels with the view to obtain a better draft in the engine room. In the case of the *Bellerophon* the Messrs. Penn had lengthened her funnel without having sought any permission from the Admiralty. And he might mention that the *Warrior*, the right hon. baronet's own ship, had been treated in the same way. (Laughter.)

Air in Wine Tuns.

M. Camille Saint Pierre opened a large wine tun, the air in which would not support the combustion of a candle. As, however, the tun contained some quicklime, it was clear that the effect could not be attributed to carbonic acid. He therefore removed some of the air for analysis, and found it to consist in 100 parts of oxygen 11·85, and nitrogen 85·15. The author remarks that the excess of nitrogen may be attributed to one of two causes—either nitrogen must have been generated or oxygen must have been absorbed. The former hypothesis he rejects and considers it more probable that the walls of the tun, under the influence of moisture, become capable of absorbing oxygen; and he asks whether this action is due to mycoderms or the oxidation of certain matters soaked into the wood of old tuns.—*Les Mondes.*

THE diving bell has been abandoned on the Thames in favor of the diving bell dress, principally because the men employed were found, while the Westminster Bridge was being built, to spend their time at the bottom in playing cards, and there was of course no effectual means of keeping a check on them. It is not easy to play cards in a diving dress alone, however, and the remedy has proved very satisfactory in its operation.

BURGLAR alarms are inquired for by our country readers, and we think that makers of such articles would find it advantageous to keep a short advertisement in the SCIENTIFIC AMERICAN.