THE PET AMBITION OF JOHN ROACH.

The papers are now teeming with appreciative notices of Mr. John Roach, the distinguished shipbuilder and still more remarkable statesman and philanthropist, who has recently gone to his rest. Mr. Roach was universally recognized as the most active, earnest, and productive of shipbuilders, and was widely known as a man of broad and sound views of political economy as judged from the point of view of the protectionist; but it is doubtful whether many, aside from his personal friends and his own employes, ever associated his name with those of the last named class of benefactors of their race. But the occasional hints at this modestly concealed side of the character of that great man which have appeared since his death have reminded me of one or two occasions in which he, while generally discussing matters of business, displayed characteristics hardly to have been anticipated in a man of his habits and occupations, and having a history and surrounding such as were his during all the earlier portion of his life.

I first met Mr. Roach nearly twenty-five years ago, during the most exciting period of the civil war, at that great Washington hostelry which was then, as it has remained, one of the most attractive fields of study for the reader of human nature that can be found among all the great public houses of this country. We had had occasion to discuss some matters relating to the operations of the navy—I was then in the service—and the conversation finally turned upon the general policy of the country, especially as affecting the administration of the navy department and the development of an efficient corps of engineers; and he insisted that I should accompany him, with a mutual friend, to his room, above stairs, where a pleasanter atmosphere and a bright fire might prove conducive to our comfort. In the course of our chat, the great shipbuilder exhibited such a capacity of mental grasp, such power of expression, and such clearness of vision in a field to which I had supposed him an utter stranger, that I was as much amazed as delighted. He took the leading part in the conversation, and kept us entranced with his wonderful magnetism, and, at times, his eloquence, until nearly daybreak, when we left him, completely tired out, while he was himself as fresh, apparently, as in the first hour of our interview.

At another time, meeting on the "limited" train, both *en route* to Washington from New York, he seized upon the first available opportunity to get me cornered at the smokers' end of the car, to tell me of a plan which, as he said, he had had in mind since the very earliest days of his prosperity, when he began to see a possibility of his being able, at some time in the future, to do something for other men who might have as little of this world's goods as he possessed but a few years before. His idea was that, at some time in the not distant future, when he should have placed his business on an absolutely secure footing, and should have made his family suitable provision against future needs, he would found an institution in the neighborhood of some large city, presumably New York, in which every impecunious inventor should find all the aid that he might need to perfect the devices which might be taking shape in his brain, and to get them into successful operation. He would establish a school of some kind, perhaps a technical school like that so splendidly started at Hoboken by the will of the late Edwin A. Stevens, with the operations of which he was thoroughly familiar, and in which he always exhibited a real interest, or like the Sibley College of Cornell University, and similar schools of mechanics and engineering, now becoming, fortunately, so common in the United States and Europe, but with the special modifications required to make his pet scheme an integral and essential part of the plan. He would make it possible for the needy inventor to find there all the tools, apparatus for experimentation, facilities for construction and operation of his invention, whatever, in fact, he might in any way find useful in its development, and even the aid of experienced mechanics and of learned men of science, all placed freely at his disposal, so that he might, quietly and comfortably, go about his work with an assurance that, if there was anything at all in his notion, it should be most certainly, and promptly, and effectively given working form and useful application.

Mr. Roach believed, as he said, that such an institution might, if properly organized and well managed, be made to return to the country many times its cost by securing the immediate development of valuable inventions and their prompt application where, without such aid, they might lie dormant and useless for years, or even be lost to the world altogether. As he put it, the successful development of a single such invention might give to the world the equivalent of millions of dollars in facilitating production, saving lives and property, or in promoting the comfort of the people.

The would-be philanthropist declared himself thoroughly in earnest in the matter, and was very anxious to learn all that could be ascertained in regard to the probable cost of such an institution, and was ready to contemplate with equanimity the expenditure of a million of dollars in this most philanthropic of schemes. He became finally very much inclined to add such an endowment as he contemplated to that of some already established technical school; but it is to be presumed that he never quite reached the point at which he aimed to bring his private fortune, preliminarily to its appropriation. Like many another good man, with a heart as large as his brain, he went under before he felt that he had gotten his own life-raft quite safe.

I have had several such experiences; but I have never met a man who seemed to me to take at once so large and so generous a view of the opportunities of wealth—with perhaps a single exception—as did John Roach. The incident was a very pleasant surprise to me, who had never suspected that so much thought for the less fortunate of his fellow mortals had found a place in the mind of a man who was driving so tremendous a business with such wonderful energy and persistence. The anecdote will probably be as pleasant a revelation to many others among his many friends, even, perhaps, to some who had known him much longer than its narrator. I doubt if even his nearest and dearest friends ever knew all the good that this fluent, yet reticent, man aspired to accomplish. The stories told by his own men of his thought of them, of his unceasing care for them, of his friendly aid and wise counsel, always freely given when asked, would make a volume, and a very touching and tender interest would it have to every "manly man," such as was John Roach himself.

R. H. THURSTON.

Sibley College, Cornell University,
Ithaca, N. Y., Jan., 1887.

Papier Mache.

The manufacture of papier mache (literally, "chewed paper") forms an important branch of the paper industry. Who does not remember those projectiles of our school days which we called "spit-balls," and which when thrown at a wall or ceiling adhered thereto with tenacity? What was most striking about these balls was their extraordinary hardness after they became thoroughly dry, this being the more marked in proportion as the chewing had been more perfect.

It was through observing such hardness that the idea occurred to some one to employ paper pulp in the manufacture of various objects. Yet the substance employed in the industry is not a "mashed" paper in the absolute sense of the word, but is a paper converted into a soft cardboard by mechanical processes.

In the manufacture of papier mache, the raw material used is a bluish-gray, unsized, strong, fine-grained paper. The sheets may be compared (whiteness, which is of no account, being excepted) to Annonay lithographic paper. Cotton forms the basis of it.

These sheets are pasted together by means of a layer of dextrine or starch, applied with a steel spatula. When the desired thickness has been obtained, the mass is put into a hydraulic press that operates in a highly heated drying room. Under the immense pressure of this apparatus there forms a solid block, which is as hard as boxwood or ebony, and which is perfectly plane or has the form of the mould in which the raw material, so ductile when moist and so hard when dry, was compressed. It can be moulded into any shape whatever, that of table legs, chair arms, rose-work, mouldings, etc.

This sort of wood, without pores, sap, fibers, and knots, is capable of being worked with the saw, the gouge, the rasp, and the lathe. It can be polished, if need be, although this operation is reserved for the thick black varnish that is applied to it in several coats with an intervening stay of a night in a very hot, air-heated drying room. When it comes from the latter the varnish is very hard, and is free from blisters and cracks. It is possible that many of the objects that are offered to us as being finished with Japan or Chinese lacquer are merely impregnated and covered with a mixture of gum copal, bitumen, tar, resin, and other hydrocarbons impregnated with lampblack and color in certain proportions.

The baking is the important point. When this operation has been too greatly prolonged, the varnish scales off and cracks; and when it has not been carried to a sufficient extent, the surface remains sticky. It is not necessary, then, to exceed a certain temperature, always higher than 100°.

This moulded and pressed paper can be easily turned in the lathe, and made into light and indestructible balls and beads, or be fashioned into inkstands, caskets, and cylinders.

It is from this substance that are manufactured all those bracelets of large black beads studded with Scotch imitation diamonds, all those necklaces, pins, clasps, and trinkets of all sorts that are taken for pitch coal or some precious wood. Again, those handsome bracelets composed of semi-lucid and opaline globules that seem to have been cut out of a stone formed of concentric layers, like certain precious stones, are merely of papier mache, cemented with white varnish and coated with the same. So, too, those beautiful nacreous, painted and gilded trays, round tables, and caskets that are known as Japanese work are merely papier mache. The Japanese know but one kind of gilding, while we have two—the dead and the brilliant. We have, likewise, a liquid nacre taken from the scales of the whitebait that well imitates the white currant and certain transparent berries. The nacre is solidly inlaid by means of the hydraulic press, and finally the surface is finished with pumice stone in order to make it perfectly even, and covered with a colorless varnish of the first quality.—*Bull. des Fabricants de Papier.*

The Wooden Railways of the United States.

The *Northwestern Lumberman* gives the following table of the various logging railways of this country:

	Number of roads.	Number of miles.	Number of miles standard gauge.	Number of miles narrow gauge.	Number of locomotives.	Number of cars.
Alabama	28	146	36	64	27	250
Arkansas	28	104	83½	61½	23	215
California	23	114	72	80½	40	549
Florida	15	176	85	35	18	208
Georgia	32	225	132½	2	61	944
Kentucky	4	44	50	4¼	7	177
Louisiana	9	35	2	19	9	67
Maryland	1	13	.....	13	2	12
Michigan	54	283	128	225½	60	1,370
Minnesota	1	3	5	.....	1	9
Mississippi	15	65	21½	31	15	139
Missouri	7	31	21	12	7	93
Nevada	2	8	.....	8	2	9
New Hampshire	3	19	26	.....	7	134
New York	4	9	6	.....	2	20
North Carolina	8	117	6	4	9	123
Ohio	5	18	5	12	3	36
Oregon	3	7	4	4	1	28
Pennsylvania	44	168	123	51	36	444
South Carolina	16	170	99	25	20	124
Tennessee	7	51	.....	51	4	80
Texas	35	153	.....	153	36	296
Utah	1	2	.....	.....	.....	4
Vermont	1	4	4	.....	1	15
Virginia	7	126	.....	107½	13	284
Washington Terr.	18	109	56½	27	12	114
West Virginia	5	32	7	8½	3	48
Wisconsin	7	56	38	2	9	95
Totals	388	2,288	1,011	1,001	428	5,182

These roads for the most part are made of wood, consisting of longitudinal poles or timbers, and the cars and locomotives that run on them are provided with grooved or double-flanged wheels. They are the cheapest form of railway. The estimated aggregate amount invested in these roads is close on to twelve millions of dollars, itemized as follows:

428 locomotives at $4,000	$1,712,000
5,182 cars, at $150	777,300
2,288 miles roadbed and track, at $4,000	9,152,000
Total	$11,641,300

How to Cleanse Drop Oil.

An interrogator in one of our Continental exchanges wishes to know how he can cleanse the thick drop oil from the engine, bearings, shaftings, pulleys, etc., so that it can again be used for lubricating, and N. A. answers as follows:

This drop oil is collected in many mills and factories to be cleaned and used again. A little apparatus has been constructed for this purpose, which, it is reasonable to suppose, is patented. It may be described as follows: The apparatus is a box-like concern, of several "stories," the interior either lined with, or else consisting entirely of, lead. Above, it has a shoulder like a funnel, into which is poured the oil to be cleaned. The purified oil passes off through an escape pipe in the bottom. The different shelves, or "stories," are perforated and covered to a height of about two inches with raw, loose cotton, through which the oil must percolate. The cotton serves as filter, and retains all kinds of contaminations. After the oil has in this manner passed through the several shelves, it is nice and clean and drops into a vessel underneath. The dirty cotton is occasionally replaced by clean. This is about the most inexpensive way of effecting it that I know of. It is also necessary to add that the apparatus must stand in a warm place. The cleaning of the oil with chemicals is both a tedious and a doubtful process, because even after thorough washing it may still retain traces of acids, rendering it unfit for lubricating purposes.

Change of Officers.

The death of John Roach, who was president of the Chalmers-Spence Co., of New York, well-known manufacturers of asbestos goods of all kinds, left a vacancy, which was filled by the trustees of the company, on the 24th inst., by the advancement of Robert H. Martin, the former secretary and business manager. Mr. Geo. E. Weed still holds the position of treasurer, while Mr. C. H. Van Nostrand, the former efficient and agreeable managing clerk, has been made secretary of the company. The business of this company is steadily on the increase.

Comet *a*, 1887 (Thome).

Science Observer says: On January 24, a cable message, received from Dr. A. Krueger, announced the discovery of a bright comet by Dr. Thome, Director of the Observatory at Cordoba, on January 18, in the constellation Grus, and further stated that the object will become very brilliant, and in physical characteristics similar to the great comet of 1880. The tail of this comet was seen at Melbourne on the night of January 21, as reported by the Associated Press.