

facts; and Mr. Crossley's testimony will be abundantly substantiated by all who have had much to do with patent rights. Mr. Crossley refers to the weekly list of patents issued for evidence that a large part of them are assigned wholly or partly to manufacturing companies. In other words, the practical worth of the patents has been demonstrated, and Mr. Crossley has found, upon inquiry, that in nearly all cases the assignors obtain a good price for their inventions. He adds:

"Whenever I have had an opportunity to inquire of inventors as to the success they have had with their patents, the general testimony has been that the inventors have made something satisfactory out of their patents. A number of years ago, Secretary of the Interior Thompson caused an inquiry to be made in this same matter, and it was reported that the value of patents issued would average about \$10,000 each."

When it is borne in mind that to a large extent patents are taken out to cover and protect devices and processes which are, so to speak, stepping stones to final inventions which alone are to be practically applied, this high average value is very significant. Then there must be taken into account the large number of inventions which the makers do not develop, not because of inherent worthlessness, but because the inventor's attention is turned to something else. In all such cases the patents pay indirectly in securing the registration and accurate description of the inventions, by which means they become a permanent part of the common stock of practical knowledge.

THE CONCORD SCHOOL OF PHILOSOPHY.

The *Christian at Work*, alluding to the closing of the recent session of the Concord School of Philosophy, rather sneeringly suggests that no new problems were solved nor any new impulse given likely to lift the moral world out of its orbit. The editor further says that he believes it was Mr. Joseph Cook who pronounced Mr. A. Bronson Alcott "the modern Plato." Perhaps he meant the Concord Plato. Every New England village is supposed to have a Plato, and, for all we know, a Socrates as well. But hemlock is not drunk now as freely as it was, and the modern Socrates is not as anxious as his ancient prototype was to be rid of the prison house of his body. It must be a very happy thought to a New England philosopher to imagine himself going down to his grave a nineteenth century Plato. Still, we fear the Phædo will be read when the Concordia is forgotten; and if a modern Plato usurps the olden one in public regard, it will be when English is a dead language, when the theories of its pronunciation are as many as the stones of Trinity spire, and when that New Zealand itinerant shall wander among the ruins of the New York Post Office and puzzle over the lost order of American architecture, or, mayhap, some antiquarian shall puzzle over a translation of a poem of Emerson's, and search in vain for the key to the unsolvable enigma.

TIN IN MAINE.

Among the mining interests just now showing signs of early and profitable development in Maine, not the least in importance is that connected with tin. The country has no lack of mines of gold, silver, copper, and lead; and if any failure should occur in those now opening in Maine, it is not likely that many besides their particular owners would be conscious of the deficiency. Nor is it likely that any great or radical effect would be wrought upon the general industries of the country, should the yield of these metals in Maine prove as generous as the most enthusiastic miners there anticipate.

With tin the case is different. For that metal we are obliged to go abroad, chiefly to England, and so long as England controls the market for tin, there is little hope of our wresting from her the larger traffic in tin plate. The development of tin mining at home to a degree sufficient to secure the practical independence of our vast industries employing tin and tinned iron would be worth much more to the country, indirectly if not directly, than any mine of gold or silver. Accordingly it may be safely said that the announcement of the discovery of extremely promising deposits of tin ore in Maine is likely to awaken a heartier interest throughout the country than any other mining reports from that land of mining booms. If any of Maine's mineral products fail, it is sincerely to be hoped that the failure will not be in tin.

Indications of tin were discovered in Maine some ten years ago; but then it was the popular belief that Maine was not nor ever could be a mining State. Recent explorations in the town of Winslow, on the Kennebec, a few miles above the State capital, have discovered half a dozen metallic veins of rich tin ore, in a rock formation precisely like those in which tin is found in Cornwall, Germany, and New South Wales.

As described by Professor C. H. Hitchcock, the rock which incloses the tin ores of Winslow is a mica schist or killas, associated with somewhat calcareous layers, and adjacent to a hard quartzite band, called an *elan* by miners. Thirty feet width of vertical sheets of killas show twelve granite veins from half of one inch to three inches width, crossed, occasionally, by stragglers. These veins are full of crystals of tin ore (cassiterite) with the associated minerals fluorspar, margarite, mispickel, beryl, lepidolite, etc. The mineral, geological, and physical feature of the Winslow mine are, Professor Hitchcock adds, "identical with those common to the stanniferous districts of Europe," and

"the ore seems to be sufficiently abundant to remunerate quite extensive outlays for mining operations."

Professor Forrest Shepherd describes the mineralized belt at Winslow as from thirty to forty or more feet in width. In a shallow pit where it has been uncovered five or more veins appear within a space of eight feet, a promise unequaled in any Cornwall or Saxony mine. And what is particularly encouraging, the Winslow deposits are, at the surface, equal in quality, Professor Shepherd says, to the best in Cornwall, and in a series of veins most favorably situated, while in Cornwall and elsewhere the veins are rarely remunerative except at great depths.

A company has been formed to develop the Winslow mine and to extend the exploration for tin in other parts of the State. The prospect of success is, to say the least, very encouraging. Should the yield prove abundant a particularly favorable opportunity would seem to offer for the manufacture of tin plate in that State, owing to the abundance of suitable iron ore and the proximity of forests for supplying the charcoal required to smelt it.

THE AMERICAN SCIENCE ASSOCIATION.

The twenty-ninth meeting of the American Association for the Advancement of Science began in Boston, August 25. The meeting was called to order by the retiring President, Prof. Geo. F. Barker, of Philadelphia, who immediately resigned the chair to the President-elect, the Hon. Lewis H. Morgan, of Rochester. President Rogers, of the Massachusetts Institute of Technology, delivered an introductory address, which was followed by addresses of welcome by Mayor Prince and Governor Long.

The secretary reported the deaths for the past year as follows: George W. Abbe, New York; E. B. Andrews, Lancaster, Ohio; Homer C. Blake, New York; F. A. Cairns, New York; Caleb Cooke, Salem, Mass.; Benjamin F. Mudge, Manhattan, Kan.; Thomas Nicholson, New Orleans; Louis Francis de Pourtales, Cambridge, Mass.

A committee was appointed to draft resolutions on the death of Gen. Albert J. Myer, and another to send by cable the cordial greetings of the Association to the British Association at Swansea, on the occasion of its fiftieth meeting.

The general session was then adjourned, and the various sections and sub-sections organized. In the afternoon, Section A was addressed by Prof. Asaph Hall, of Washington, who reviewed the recent advances in the science of astronomy, and the services rendered by men who, like Fraunhofer, have aided the work by optical and mechanical skill.

In the sub-section of chemistry, Prof. John M. Ordway reviewed the recent achievements of practical chemistry, and discussed its methods. The sub-section of anthropology was addressed by Major J. W. Powell, on the social organization and government of the Wyandotte Indians. In the evening the retiring President, Prof. Barker, delivered the customary address, his subject being, "Some Modern Aspects of the Life Question." He took the ground that every action of the living body is, sooner or later, to be recognized as purely chemical or physical, the life that science has to deal with having no existence apart from matter.

The second day's meetings were held in Harvard College, Cambridge. The appointed eulogy on the late Prof. Henry was delivered by Prof. Alfred M. Thayer, who dwelt especially on Prof. Henry's work as a discoverer in science. The practical side of that work was touched in connection with the experiments which proved so beneficial to the light-house and fog-signal service. One discovery—that lard oil, when subjected to a heat of 280° Fahr., is superior to sperm oil in fluidity and illuminating power—saves the Government \$100,000 a year.

Prof. Alexander Agassiz, Vice-President of Section B, followed with an address on "Paleontological and Embryological Development," choosing his illustrations from a limited group of marine animals—*zourchins*—having less than 300 living species, and more than 2,000 known fossil species.

The rest of the day was spent in the museums, laboratories, libraries, the observatory, and other buildings of Harvard College.

The reading of the 218 papers comprised in the programme was to begin on the third day, Friday, and continues until the final adjournment on Wednesday, Sept. 1. Nearly 600 members were registered the first day, and fully 500 new members have been elected during the two days completed at this writing.

MINING DEBRIS IN CALIFORNIA.

The California Mining Debris Commission, with Capt. J. B. Eads as consulting engineer, have lately gone over the Yuba River country to consider the plans proposed for the disposal of mining debris. If correctly reported, Capt. Eads favors the construction of brush dams rather than those of stone, as originally recommended by the commission. In his opinion, a series of brush dams across the river would entirely arrest the flow of sand and clay; and as fast as the brush is buried other layers might be added from time to time, gradually raising the height of the dam until the catchment basin is full.

A dam of this sort is proposed about eight miles above Marysville, where there is tolerably high ground on opposite sides of the valley. The plan contemplates the building of a brush dam nearly two miles long and seven or eight feet high to begin with. This dam would catch and hold a large quantity of debris, and become buried and strengthened by the deposit. From time to time additions would

be placed upon top of the new foundation thus formed. Proceeding up the river, the banks become higher, forming a broad and deep area between them for storage of matter to be checked by the dams. From this lower dam to the foot of the dumps from the mines there is an area of seven square miles to be filled by the debris, and were it filled to the depth of forty feet at the upper end it would not interfere with mining operations. Two miles higher is Point Du Guerre, a rocky point about sixty feet high, and extending into the canon or valley some distance. From this point to a higher one across the river it is proposed to extend the second dam, the length of which will be nearly a mile. Beginning with brush loaded with rock, and adding new material as it may be needed, a dam forty feet in height can safely and cheaply be built up. An abundance of willows can be cut for the dams along the river side, and Capt. Eads has great confidence in their efficiency for the work required. Below the dams, where the river banks are defective, brush wing dams will easily keep the current in place; and, with the stoppage of dams above, the concentrated water will quickly cut out a single deep channel.

Albert J. Myer.

Brigadier-General Albert J. Myer, Chief Signal Officer, United States Army, familiarly known as "Old Probabilities," died at Buffalo, N. Y., August 24.

General Myer was born in Newburg, N. Y., Sept. 20, 1828. He was graduated at Geneva College in 1847, and in 1851 received the degree of doctor of medicine from the University of Buffalo. In 1854 he was appointed assistant surgeon in the army. While on duty on the Texan frontier, where a clear atmosphere and broad reaches of plain offered superior facilities for signaling by vision, his attention was drawn to the possible advantages of a system of sight signals in military and naval operations. The result was the preparation of a "Manual of Signals for the United States Army and Navy," which was published in 1858. During the next two years he was engaged in developing a special signal service for the army, becoming Chief Signal Officer in 1860. His service during the war was brilliant and vitally important, and his advancement was correspondingly rapid. One of the most dramatic episodes of the war was the saving of Allatoona, Ga., in 1864, by bringing up troops by signals in time to relieve and defend that valuable post, the messages being sent over the heads of the enemy.

After the war General Myer introduced a course of signals at the naval and military schools at Annapolis and West Point, and was largely instrumental in establishing telegraphic communication with military posts on the extreme frontier, 5,000 miles of telegraph lines having been built under his supervision. In the spring of 1870 he was, by Act of Congress, charged with the special duty of developing a national system of meteorological service, which was accomplished within a year. The success of this system under his admirable management has led to the establishment of a uniform international system of simultaneous meteorological observation over nearly all the northern hemisphere; arrangements being made at the International Meteorological Congress at Vienna in 1873, for the exchange of one report of observations taken daily at the same instant over all the United States, nearly all of Europe, Northern Asia, and Northern Africa. It is seldom that a work begun by one man grows under his own supervision into a service of such far-reaching and comprehensive usefulness.

The Kelley Run Colliery Fire.

The attempt to quench the fire in the new slope of the Thomas Coal Company, near Shenandoah, Pa., by sealing the outlets and forcing in steam, has failed. The mine caved in August 24, and to all appearances the fire is beyond control. The alternative plan for quenching the fire with carbonic acid gas and nitrogen, undertaken by a Pittsburg firm, has also been abandoned, the flames having secured so large an opening to the outer air that there seems no possibility of cutting off the supply of oxygen.

A Rude Tramway.

Seven miles of log track are being laid at Essex Center, Ontario, connecting four saw mills with timber cuttings in the woods. The road is made of small trees, stripped of their branches, and laid end to end, like rails. Four cars are being built for the road, the rim of the wheels being concave, so as to run on the track, and the axles turned longer than the hubs of the wheels to allow play for any unevenness. The trains will be drawn by a steam locomotive.

Hollow Ground Razors.

It is not long since it was confidently asserted that, even if the required quality of steel could be produced here, the United States could never compete with England in the manufacture of razors and other fine cutlery, owing to the excessive cost of grinding and finishing. Like a good many other "insuperable" obstacles to American success in the arts, this seems to have been pretty well overcome, since large quantities of Sheffield razor "blanks" are now sent here expressly to be finished. It seems that the art of "hollow grinding," German style, requires a degree of skill a little beyond that of the Sheffield workmen. Accordingly Sheffield manufacturers have to pay double freight across the Atlantic to secure the fine finish to their razors that the trade now demands.