SUCCESSFUL SUBMARINE BOAT

Will Descend or Rise on an Even Keel and Has Traveled Entirely Under Water for Five Consecutive Hours. Built of Armorplate and Cigar Shaped.

Ever since the experiments of the Dutch physician, Cornelius Drebbel, early in the eighteenth century, repeated attempts have been made by individuals and by various governments to produce a successful submarine craft. Of all the nations the United States has been least active in this interesting department of maritime science, although the comparatively recent policy of strengthening the navy has led to increased activity among inventors, the aim being to produce a war craft capable of bringing about the destruction of the modern armored battleship.

Within the last six months, the attention of the public and naval officials has centered on two new submarine boats, the Holland and Lake, named after the inventors, which have been launched at the Atlantic seaboard, final tests of which are still pending. It will be a matter of general surprise, however, when it becomes known that while work on these two boats has been slowly going on, it has remained for a young Western inventor to demonstrate on the fresh water of a land-locked Wisconsin lake, remote from maritime and naval activity and interest, that a practical solution of the problem of submarine navigation is already within reach.

Richard Raddatz is the name of the inventor of this remarkable craft which has stood all tests of practical navigation and control under the water within such limits as are imposed, principally by the strength of the shell and power of the machinery. He is a mechanical engineer in the employ of the most extensive foundry and engine manufacturing company in the West, located at Milwaukee. His experiments in submarine navigation have extended over a period of 12 years, conducted, principally, at Oshkosh, Wis., or Lake Winnebago, a sheet of water about 40 miles long. With infinite patience the inventor has mastered, one by one, the difficult problems involved in a practical submarine vessel, and late in the summer of 1897, final experiments demonstrated that his boat was a thorough success, capable of meeting every requirement demanded for safe and controllable navigation beneath the surface. This assertion does not rest for its authority on the word of the inventor. What the Raddatz boat is and what may be claimed for it rests upon what it has already accomplished. Careful investigation reveals it to be an accomplished fact.

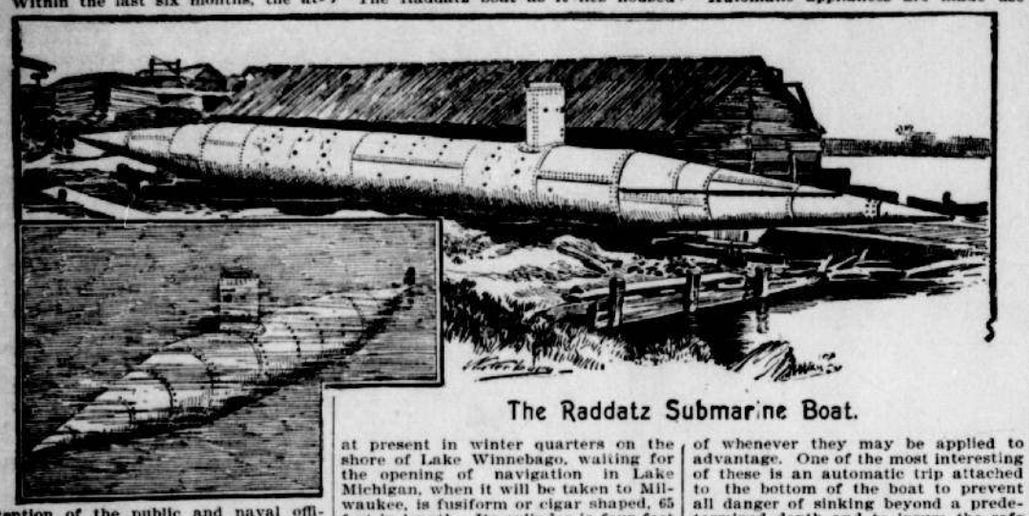
It will be wondered why this invention of Richard Raddatz, which has gone so far toward solving one of the most important problems of navigation, has not been brought more quickly and forcibly to the attention of the engineering world. Various reasons are involved in the answer. Mr. Raddatz has always felt assured of the ultimate realization of his object, and to this end he has progressed slowly and deliberately, performing almost all the work of construction alone. The principles which he has applied to the operation of the craft are his own and different from those followed by other inventors. Up to the present time he has secured no patents on his devices, aiming to shield them from the attention of other investigators along the same lines. Finally, the remoteness of Lake Winnebago from the seaboard and from the centers of maritime experiments is so great that until the reports of the most satisfactory tests last October, comparatively little interest has been manifested in his work.

The measure of the success of the Raddatz submarine boat lies in the fact that up to the present time 330 trips beneath the surface have been made, and between 60 and 80 persons have been taken down to observe the complete control of the craft. After the first 50 descents all were practically successful and without accident.

The Raddatz boat as it lies housed and that ordinarily breathed is that the former seemed fresher and cooler. At the end of several hours during which they were hermetically sealed in the craft they felt no unpleasant effects.

Nearly equally important and vital to the practical success of the boat are the devices employed for raising and sinking it, controlling its equilibrium and maintaining it constantly on a level keel. All explanation of this machinery is as carefully preserved in secrecy as that by which the air is produced and kept pure, although Inventor Raddatz insists that no use has been made for this purpose of the old principles of taking in and pumping out water when it is desired to sink or raise the craft. The machinery is capable of controlling it at any depth desired, limited only by the strength of the shell necessary to withstand the pressure of the water. The equilibrium is so perfectly regulated and adjusted that Mr. Raddatz was able to maintain his craft on an almost perfectly level keel for nearly any length of time. The final tests showed that at a specified depth during periods extending over an hour, the variation from an absolutely level keel was less than one-fourth of an inch. In addition to these appliances are others employed to adjust the equilibrium and correct any instability due to changing conditions within the boat.

Automatic appliances are made use



The Raddatz Submarine Boat.

at present in winter quarters on the shore of Lake Winnebago, waiting for the opening of navigation in Lake Michigan, when it will be taken to Milwaukee, is fusiform or cigar shaped, 65 feet in length. Its cylinder is four feet in diameter, beginning to taper at points 16 feet down each end. The extreme height is seven and one-half feet to the top of the pilot house, which rises from the otherwise regularly-shaped shell at a point about one-third the distance to the bow. The material used in construction is five-sixteenths-inch armor plate, steel riveted upon a heavy angle-iron frame work strongly braced internally. Its entire weight, with its complicated machinery, is 30 tons, of which eight tons form the weight of the shell alone. At the bow is a heavy steel spur or ram, projecting five feet from the boat proper and braced within with heavy steel bars and truss work. At the stern are the rudder and two-bladed propelier, in no way differing from similar appliances in the equipment of the ordinary surface craft.

The boat is furnished with two independent sets of machinery, one for surface and the other for submarine use. The surface machinery consists of a modified hot air engine of 50-horse power, with cylinder nine and one-half inches in diameter and 18 inches in stroke, having a maximum piston speed of about 1,000 feet a minute, driving the propeller at a speed of about 350 revolutions. Even at this comparatively high piston speed the engine runs without excessive jar or jerk. The primary source of power developed by this engine depends upon a fuel of ordinary kerosene or coal oil.

For submarine use a set of electric machinery and storage batteries is provided, the motor developing about 10-horse power at full speed and depending for power upon the chemical energy stored in the accumulators, which, in turn, depend upon the hot air engine for their life. This latter depends upon kerosene oil for the power developed by it, the charging of the accumulators being accomplished when the boat is at the surface. The storage capacity of the accumulators is sufficient for a cruise of about 10 hours beneath the surface. Thus it will be seen that the primary source of all power depends upon the amount of oil carried. The advantage of coal oil for fuel lies in the fact that it can be easily obtained in almost any part of the world.

The electrical submarine motors have propelled the craft when entirely submerged at a speed of two and one-half miles an hour for a period of five hours, during which no communication with the surface was found necessary. The hot-air engine for surface use has propelled the boat at a speed of 14 miles an hour during a period of 14 hours, although the average rate of surface speed is about eight miles an hour, which the craft can maintain indefinitely. It is to be understood in this connection that the surface speed is capable of increase to any practical limit by the expenditure of additional power; likewise the speed below the surface is limited only by similar conditions, although the very fact of the medium in which the boat operates imposes a probable limit of 10 miles an hour on submarine navigation for successful inshore work. In other words, when there is danger of running aground or encountering other obstacles, the speed of the craft depends upon the means afforded and the ability of the operator to see through the water ahead of him and avoid any dangerous obstacles which may lie in his path.

The three most important principles involved in the construction and operation of the boat are kept secret and are known only to Inventor Raddatz and the few men who have been interested in his experiments. These have to do with the manufacture and purification of the air supply, the devices invented for sinking and raising the craft and the mechanism by which under all conditions it is kept upon an absolutely level keel. It has already been stated that, as yet, no recourse has been made to patents for protection, hence the jealous care with which all information regarding these important principles is guarded.

The most important of these principles is that affecting the air supply. The craft is supplied with reservoirs and appliances which produce a mechanically and chemically prepared atmosphere sufficient to permit its submersion with two men on board for a period of 28 or 30 hours. The air is kept pure and wholesome and is manufactured in sufficient quantity and quality to supply a crew of four persons during eight and one-half hours at a time without communication with the surface. It is presumed that the oxygen is renewed by chemical action and the carbonic acid gas absorbed by caustic poatsh, caustic soda and lime. Persons who have experienced a submarine trip in the boat say the only difference they detected between the manufactured atmosphere of whenever they may be applied to advantage. One of the most interesting of these is an automatic trip attached to the bottom of the boat to prevent all danger of sinking beyond a predetermined depth and to insure the safe return of the boat to the surface in case of accident. With this trip in practical working order it is impossible to sink the craft below the safety point either by accident or intention. The device consists of a heavy weight attached to the keel, with electrical connection running to the gauge in the pilot house by which the depth at all times is registered in feet. At a point on the gauge, at present set at 250 feet, is an electrical contact which establishes the electrical circuit. This, in turn, unlatches the trip, and the boat, relieved of the extra weight, returns rapidly to the surface. Within 25 feet of the danger point is a sliding contact which sounds an alarm before the trip is set off and warns the operator of the pending danger. If the boat is then under perfect control, the descent is easily arrested.

Ingress and egress are obtained through a door in the top of the pilot house, the circumscribed quarters within admitting four persons besides the engineer at the stern. All the movements of the craft are controlled from the turret. It contains 10 bull's-eye apertures through which the operator is able to see in any horizontal direction and also upward and downward. At this point are the indicators, gauges, valves, levers, signals, and appliances used in the operation of the boat and the regulation of the air supply. They cover the walls of the turret in one confused mass, all within easy reach and in constant view of the operator. Here also are the tiller which controls the rudder at the stern and an array of electrical connections running to every part of the boat. Interior illumination is supplied by incandescent lights and a searchlight has also been employed with some success for lighting the boat's course, although it is not included in the craft's equipment at the present time. Finally, in addition to the appliances which pertain only to submarine navigation, are the compasses, thermometers and barometers commonly used at sea.

The cost of operating the Raddatz boat has also been closely determined by experiments made last autumn. The surface machinery is run at an expense of from two to three cents per mile, submarine navigation costing from three to six cents per mile. The air supply is furnished at a cost of 25 cents for each person per hour. Fuel can be stored for a range of 500 miles. Finally, the boat can be put in condition for submarine work in 18 seconds and can be returned to the surface condition in 17 seconds. Under normal conditions it sinks to its determined depth beneath the waves at a rate of about 10 feet a second.

The early trials of the present Raddatz boat were accompanied with frequent repetition of all the perils and discouraging accidents which characterized the experiments made with the first craft. Its initial season afloat was one long succession of mishaps. When all its complicated machinery seemed theoretically and mechanically correct the inventor sealed himself inside the armored turret and made ready for his first descent. The air appliances were started and the propelling mechanism began to move. But scarcely had the propeller blades begun to revolve when the heavy steel hull dived erratically, end foremost, into the muddy bottom of Fox river, burying its prow deeply 10 feet below the surface, its stern protruding into the air like a strange steel spire. It was with difficulty that the inventor was rescued. Then began the tedious, disheartening work of readjustment. Sometimes the boat rolled almost completely over in the water. At other times it refused with peculiar and vexatious obstinacy to respond to its operator's touch. Each mishap revealed a new defect which furnished a new problem to be overcome. One by one they were mastered, gradually the boat became more stable and manageable, and at last it reached a point of perfection which induced others to venture a trip in the muddy waters of the river and the lake. Last season Inventor Raddatz never lacked company when he sailed forth in the steel case, and at the end of the season more than 50 persons had observed the workings of the craft from the cramped quarters within the pilot house.

A first trip beneath the surface of the water is an experience not soon to be forgotten. The passanger enters through the top of the pilot house and is seated near the operator. The engineer is stowed away in his cramped quarters beside the engine and dynamo in the stern. The door is then tightly secured and almost every sound from the outside world is cut off. Immediately he hears a hissing and bubbling noise, which tells him that the air machinery is in operation. Then come thoughts of impending danger, and a feeling of helplessness as he reflects what would be the result if even the smallest part of the mechanism refused to do its work. The first helpless apprehension does not come with the first trip only. It is an impulse which passes through the mind as often as the heavy steel door shuts out the sunlight of the world.

Scarcely has the operator taken his seat when the interior of the pilot house is suddenly ablaze with incandescent light and simultaneously the familiar hum of the dynamo is heard from far back in the stern. The passenger is confused and amazed at the number of complication of the valves, levers, indicators and signals which crowd the curved walls of the pilot house. The operator adjusts first one and then another of these and then it suddenly dawns upon the passenger that it is not the air of the outside world that he is breathing. The atmosphere steadily grows cooler and it seems lighter and more exhilarating than that to which he is accustomed.

Meanwhile the steady lapping of the waves against the steel sides of the boat indicate that it is still gliding along the surface of the water. Suddenly with a movement of a lever the engine which has been in motion ceases. Then another lever is thrown over, an indicator is adjusted and almost imperceptibly the long narrow craft sinks beneath the surface. The lapping of the waves is no longer heard, the silence is oppressive, save for the slight hum of the dynamo. Slowly the hand of the indicator travels around the dial, registering 10, 20, 30, perhaps 40, and even 50 feet. A tiny electrical signals rings, and then the sinking craft is again at rest. At no time has it deviated perceptibly from an even keel. Whether sinking or rising, it has maintained itself in a perfectly horizontal position. Finally at rest, another handle is pulled, a new set of machinery is put in motion, and the submerged craft begins to gather headway through the water. A glance through the heavy glass bull's-eyes which stud the pilot house is not likely to produce a feeling of confidence. The dull, almost opaque, waste of bluish green, brings with it a sense of absolute helplessness, an almost foolhardy dependence upon a device which is aimed to defeat the laws of nature, but over which it seems almost certain nature must triumph in the end.

With the aid of the rudder the craft is steered either to right or left, responding as readily as if it were on the surface. It rises or falls to any level which the operator may desire. At times it skims near the surface with its pilot almost visible above the crests of the waves. Again it sinks to even greater depths than at first, responding immediately to the will of the operator. Finally the hand on the central indicator travels back to the starting point. The lapping of the waves on the metal plates is once more audible and the throbbing of the dynamo ceases. The heavy door in the top of the pilot house swings slowly open and a glance out into the sunshine reveals the craft once more near its floating dock. Such is the story of a trip beneath the waves in the Raddatz submarine boat.

With the opening of spring the Raddatz craft will receive its practical test in the deep waters of Lake Michigan. If the same results are attained which have been unquestionably demonstrated on Lake Winnebago in Wisconsin, then a man to whom the bracing salt breezes of the ocean are almost unknown will have rendered invaluable service to the maritime nations of the world.

LOUIS V. DE FOE.

A BASEBALL STORY.

When New York State Was All Torn Up by Rival Clubs.

From the Chicago Chronicle.

There was a time many years ago when Corning, N. Y., thought its baseball team was some shucks. That was the time when every town which boasted anything in addition to a railroad station and a saloon had to have a baseball team, when "championship" games were played on every prairie in the land, and when every young man considered himself a coming Anson. Corning had a baseball team, but it was not alone in its joy. Hornellsville had a team which every local Hornellsvillian allowed could beat anything that ever stepped on a diamond. They had pitchers in Hornellsville who could throw compound curves, they had catchers that could catch anything that ever came over the plate. They had base-runners who scorned to run, but slid all the way around the diamond; they had outfielders who could catch flies while running backward and in the act of jumping over rows of spectators. When the Corning team was mentioned in Hornellsville a hollow, mocking laugh resounded through the town. If a Corning man heard the baseball nine of Hornellsville referred to he was moved to mirth.

Of course this state of affairs could not last forever. The tension grew so strong that something had to break. When Corning played Hornellsville everybody in each town went out and borrowed money to bet on his team. The umpire was regarded with cold suspicion before the game and had to have police protection from the adherents of the losing nine after the struggle was over. Corning suspected that Hornellsville was ringing in professional players from the league teams. Hornellsville had an idea that the bats of their players were greased secretly by emissaries of the Corning team. If a player of the Corning team fell down and sprained his arm a few days before a match game everybody in Hornellsville said he did it to make way for a substitute who had been secretly training in some mysterious place for months. If a Hornellsville man chanced to be obliged to bury his mother-in-law on the day set for a game, the Corning crowd said that he had it all fixed for her to die that day in order that his place on the team might be taken by some player of unsuspected strength and ability. Every game was followed by about eight private fights between gentlemen who began by arguing about the merits of the nines and ended by reaching for the viscera of their opponents.

Things went on in this way for most of one season, and near its close the two teams had "broken even." Each had won and lost an even number of games from the other, and the excitement grew so intense when the time approached for another game that the fire department was held in readiness for an instant call, day or night. Money which had been laid away in Corning banks for months was drawn to bluff men from Hornellsville. Baseball "fans" from that place sold real estate to get money to cover the coin produced in Corning. And then it was discovered that a nefarious plot was on foot.

Syracuse and Rochester were having the same kind of a fight. These two cities had teams which were members of the International league, including some Canadian centers, and the feeling between them was high. Rochester men had been known to suspend business dealings with customers in Syracuse after a heated argument over the abilities of the rival baseball teams. Syracuse men fought and licked their old college chums who had chanced to move to Rochester on leaving school. Whenever the teams played a game with one another the police reserves were called out and the military held in readiness for a riot call. There was trouble all over New York. The end of the season drew near, and Syracuse and Rochester were tied. So were Corning and Hornellsville in the State league. Some violent partisans of the clubs wanted the matter settled in a 40-foot ring with six-ounce gloves. Others said the situation called for nothing short of war, and volunteer companies were organized and began drills.

Syracuse men wrote to their friends in Corning for advice, and Hornellsville took comfort and tips from Rochester. Politics were forgotten and the tariff was not mentioned for months at grocery store clinics. Nothing was discussed save base running, home runs, three-baggers and drop curves.

And then Corning made a horrible discovery. Some bright mind found out that there was a movement on foot in Hornellsville to secure the Rochester team as a whole to play against Corning; that the residents of Hornellsville had lost faith in their players, and formed a purse to go out and hire the professionals from Rochester to come in and "do" the Corning players. The news spread like wildfire. It was eagerly discussed at every corner. The grocery stores rang with it. Corning talked of nothing else. What was to be done? How was the scheme of the enemy to be circumvented? The question was of paramount importance to the drouth and the price of wheat. If Rochester came on the field Corning was done for. And in this extremity a genius hit upon the only feasible plan.

"Let us hire the Syracuse team to play them," he said.

And they did. Corning sprang into the breach and raised a fund to pay the expenses of the Syracuse team. The negotiations were quickly concluded. Syracuse jumped at the chance to get another crack at its old enemy, Rochester. The players of Rochester were more than anxious to go up against Syracuse again and thus settle forever the question of supremacy. Thus it was arranged and thus it was carried out. On the day set the teams representing Rochester and Syracuse met on the diamond representing for the time Hornellsville and Corning. The residents of each town backed their team as readily as if the players were their brothers, sons and friends. The game was a great success and settled the tie between Rochester and Syracuse, and also the great struggle between Hornellsville and Corning.

VALUE OF LONDON.

Estimate of the Market Prices of Famous Public Buildings.

From the Boston Transcript.

A striking article which appeared in London recently, describing the "market" value of London, has a timely suggestiveness in connection with the battle between public and private interests over Copley square. London's greatest treasures are known by name to all, and London is so far away that the valuation put upon them will not stir other emotions than precisely those which it is the purpose of the statistitian to arouse. Mansion house, which cost £70,000 to build, says the writer, is now valued at fully ten times that figure. The Royal exchange, as a building of bricks and mortar, is worth £200,000, but land in that neighborhood has recently sold at the rate of $10,000,000 an acre, so that £2,000,000 is probably not an excessive valuation for the exchange. Eight bridges over the Thames cost £5,000,000 to build, but are now worth much more than that, while the tunnels underneath are worth other millions, and the embankment is worth probably double the $2,000,000 which it cost to make. "If St. Paul's were private property you might induce the owner to sell it for £10,000,000, but the likelihood is very remote. Those tattered banners which you have seen so often would arouse pretty keen bidding at the sales. Westminster abbey is difficult to value. But the sales give us some idea of what historic treasures are worth in the market, and I should not be surprised if the abbey—put up in lots—realized £50,000,000."

The British museum, which anybody can see for nothing, could not be bought up by all the millionaires in America. If it were absolutely empty it would be worth £1,500,000, and it is full of priceless treasures. The National gallery is worth millions. "It cost, with the new Tate gallery section, £350,000 to build, and has one picture which cost £14 an inch." The Nelson column close by is worth £50,000, and the statute of King George III., a little way down Pall Mall, cost £4,000. The Albert hall and Royal aquarium are both worth about £250,000, but the Crystal palace cost more than three times the value of both of these. Earl's court, the great show rivaling the palace, has millions' worth of treasures, and even when it is empty the twenty-five acres of gardens and buildings are worth £300,000. Imagine buying the tower, the Holborn viaduct, the miles of sewers, walks and pavements; the various markets, of which four—which are for cattle—actually cost £10,000,000 between them; think of the hospitals and schools and churches, and fancy the market value of the parks cut intocity lots. The entrances alone of Hyde park are said to have cost nearly $1,500,000. Does the statement made by the English writer seem extravagant that all the coined money in the world to-day would not adequately represent the value of what the poor can see and use in London?

DESERTION NOT COMMON.

Army and Navy Service Far More Attractive Than Formerly.

From the New York World.

The recent arrest in Jamaica of an alleged deserter from a warship in the Brooklyn navy yard was rather an unusual event in this neighborhood. Sometimes soldiers stray from Willets Point or sailors from the navy yard, get drunk and overstay their time, but that is an offense hardly to be called desertion.

The service of Uncle Sam has become much more attractive of recent years than it was in the past. Barring the chance of getting into the command of a brutal officer, the wearer of the blue has a pretty good opportunity to profit by his enlistment. Of course the pay is small, but the soldier or sailor is "found" and has little need of spending money. The service is excellent for the health, especially in the case of men who have suffered from too much whiskey.

The establishment of post schools, where enlisted men may repair the defects of their early education, is a good thing for the Tommies and Jackies. It is quite possible for an ignorant and stoop-shouldered consumptive young fellow, scarcely knowing his A, B, C's to be turned out at the end of a term in the army a taller, bigger handsomer man, with a full chest, a good education, the habit of command as a petty officer and enough money saved to embark in some small business for himself.

EARNINGS SHARING EXPERIMENT

A Successful Result Achieved by Mr. Alfred Dolge and His Six Hundred Employes in Solving the Labor Problem.

One of the best evidences that the labor problem is on the road to solution is the fact that never before has it been the subject of such intense, anxious and universal discussion. Over this problem, in some form or other, economists, statesmen and philanthropists worry, and the press wrangles. Some people imagine and dolefully proclaim that all this ferment merely proves that the labor problem is getting farther and farther away from solution. On the contrary, ferment is the sign of progress. In China and India they have not even reached the stage of having a labor problem at all. Better, far better, a long transition period of industrial warfare, even, than the weary monotony and degradation of the industrial peace of the Orient.

But what is this labor problem, anyway, may be asked? Commonly we hear it described as the problem of how to suppress strikes and lock up strike leaders; how to put down riots, how to make laborers contented forevermore with what they now get, and so on.

Such a definition is idiotic, and to adhere to it is only to hasten the day of a possible social revolution. Strikes and riots are the manifestations of a genuine problem, which must be reached at the base. Sitting on the safety valve never yet kept the steam inside a boiler. The labor problem is the problem of how to improve the material and social condition of the wage earners, who are a large majority of us all. How to enable the workingman to raise his standard of life, broaden his social relations, educate his children, enjoy more leisure, provide for emergencies and old age without long years of stinting and sacrifice; how to guard him from enforced idleness; in short, how to increase his share of material well being—this is the labor problem.

It is acutest in England and the United States, and these countries have done the most for its solution. Efforts to deal with it have been both public and private. On the one hand we have had a long line of factory regulations and short-hour laws; on the other, numerous individual experiments by large-minded employers, interested in labor's welfare, and anxious to apply progressive ideas in a practical way.

It will be interesting to look for a moment at one of these private experiments. I refer to the system of labor insurance and pensions adopted by Mr. Alfred Dolge in his large felt making establishment, employing some 600 hands, at Dolgeville, New York.

This is not a profit-sharing scheme. Mr. Dolge recognizes the fact that profits are distinctly the employer's income, determined by economic law, and hence that any plan of sharing them can rest only on the optional good will or philanthropy of individuals, and cannot be made a permament, self-working part of the wage system. Between 1880 and 1890 Mr. Dolge experimented with various forms of profit sharing, but, in the latter year, abandoned them all and established his present famous system of pensions and life insurance, which he calls "earnings sharing." The extra allowances to his employes under this system are to be regarded merely as another form of wages. They are not taken out of wages, however, but are a definite addition to what the employes regularly receive for their services.

The system has three distinct features: Life insurance, endownment and pension.

The life insurance plan is this: Every employe entering the service at any time under 30 years of age, who has served five years continuously after the age of 21, is entitled to a life insurance policy of $1,000, and aften 10 years of service a second policy for $1,000, on both of which the firm pays the premium. Employes entering the service between 22 and 25 years of age are entitled to a third policy of $1,000 after 15 years of continuous service. Those entering when between 31 and 35 years of age receive only one policy, after five years; and those who are 36 or over when employed receive no policy, but, after five years of service the firm sets aside for them, at interest, $35 per annum for 20 years. If the application of any employe for a policy is refused by the insurance companies, the firm sets aside or deposits for him each year an amount equal to the premium on a $1,000 policy, and when he dies the sums so deposited, with interest, are payable to his heirs.

The endowment system applies equally to all employes over 21, and its purpose is to give a special reward for exceptionally good service. Whenever the annual records show that an employe has produced more than has been paid him in wages, the extra amount is credited to him on a special account; but if, by neglect or carelessness, he has caused a loss, such loss is charged against him on this same account. It is never deducted from his wages, however. The balance in any employe's favor is payable to him, with interest, only after he reaches 60 years of age. If he dies before that time, it goes to his heirs. In reality, this is very much like a pension scheme, only that it depends entirely upon faithful service. Since 1882 nothing has been credited on the endowment account owing to hard times. This endowment plan is perhaps less satisfactory than the other features, as it is dependent entirely on the state of business, and approaches so nearly to the out-and-out profit-sharing idea that it cannot easily be made an automatic part of the wages system. There are few industries in which it is practicable to figure out the exact product of each man. Necessarily, under the wages system, men must be hired and paid in groups rather than as individuals; and this has great advantages, too; it enables workingmen to combine and act with all the power of organization for better wages and conditions, besides preventing the excessive overworking and neglect of social and domestic life, which is apt to result when men are spurred along by special inducements to extra exertion.

The pension system is the most interesting of them all, and probably most significant. Every employe of Alfred Dolge & Son, over 21 years of age, and not over 50 when employed, is, in case of partial or total disability, whether due to accident, sickness or old age, entitled to a pension equal to the following proportion of the wages earned during the last year of active service:

	Per Cent.
After 10 years continuous service.....	50
After 13 years continuous service.....	60
After 16 years' continuous service.....	70
After 19 years continuous service	80
After 22 years continuous service.....	90
After 25 years continuous service.....	100

The pension lasts as long as the disability. Employes whose regular wages exceed $1,000 a year, are pensioned on a $1,000 basis; that is, if disabled after 13 years' service, they would receive $600 annually, and so on up to $1,000 after 25 years' service. Employes who have not served 10 years are nevertheless entitled to 50 per cent. of their wages during any period of disability caused by accident sustained or sickness contracted while in the performance of duties.

From 1874 to 1897, inclusive, a total of $12,725.26 has been paid out in pensions; $40,304.77 in insurance premiums and $6,901.38 in deposits for rejected applicants; and $8,169.65 credited on endowment fund.

Mr. Dolge's theory has been that if the employers would set aside each year an amount equal to only 1 per cent. of their wage rolls it would more than pay the entire expense of a pension system. His experience has more than verified this belief. Since 1874, inclusive, this 1 per cent. plan has resulted in a total contribution to pension account (including interest at 6 per cent. compounded each year), of $34,024.48. Only $12,725.36 has been paid out; so that the interest on the surplus now almost covers the annual pension payments. During 1897 pension payments amounted to $1,495; interest on surplus fund, $1,229.06.

This experiment of Mr. Dolge's has a vital bearing on the labor problem to-day. There ought to be a national system of insurance against disability and old age,

Alfred Dolge.

automatic in its operation, and Mr. Dolge has demonstrated that the thing is feasible without imposing any appreciable burden on employers. Already manufacturers pay 5 to 10 per cent. for wear and tear of plant, etc. Applying to all alike, competitors would remain in the same situation toward each other as before; and on the workingman's side the benefits of such pensions would not be lost by mere change of employment. Mr. Dolge's method is free from the paternalistic features of the German system; it simply makes pensions a part of the wages system. It in no way lessens personal independence or discourages thrift; on the contrary, the knowledge that old age is provided for increases a man's sense of freedom and enables him to direct his thrift and saving to more immediate and beneficent purposes, like home building or education of his children. This system simply removes the dreadful bugbear of possible helplessness in emergency and of old age pauperism. What this would mean to our millions of wage earners, who are unable to insure themselves except by severe stinting all through the years when their need of money is the greatest, can well be imagined.

Mr. Dolge firmly believes in the nationalization of such a system. In his annual address to his employes two years ago he said:

"The endorsements which I have received encourage me in the belief that eventually this idea, which has been born and practically demonstrated here in Dolgeville, will greatly assist in closing the chasm which now exists between capital and labor, and, as soon as we accomplish that, we will be the foremost nation of the world industrially, commercially and politically."

H. HAYES ROBBINS.

Ashamed to Show Herself.

From Pick-Me-Up.

Yes," said the cynical critic, standing before the great allegorical painting, "I suppose Truth always was nude. That may explain," he mused further, "why she always seems ashamed to show herself."