
 Arthur D. Little, Inc.

January 28, 1985

Dear Neighbor:

You probably have heard about some research being conducted in one of our analytical chemistry laboratories on highly toxic substances, referred to in the press as "nerve gases." We work with tiny quantities of toxic chemicals; some, not all, of these substances are nerve agents in liquid form. Although as liquids these agents are no more volatile than water, we realize the term "nerve gas" causes reasonable people to wonder whether the existence of such substances in the neighborhood should be cause for concern.

That is why I am writing to you. As neighbors, I would like you to know what we are doing and to be accurately informed about the safety and security precautions we have built into our new toxic materials laboratory so that you can feel as safe as my colleagues and I do when we come to work at Acorn Park each day.

In addition, because we value your good opinion and the friendship of our community, I would like to share with you the reasons we consider this research so important and why we are doing it here in Cambridge rather than in some isolated area.

We believe something must be done to reduce the threat of uncontrolled toxic chemicals in the environment. We have the professional capabilities and the resources to help solve some of the inherent problems. That is why we went to the expense of constructing a safe, secure facility for research designed to find better ways of protecting people from the effects of uncontrolled environmental hazards. Before our Levins Laboratory was constructed, we had to turn down community requests, including one from the Commonwealth of Massachusetts, for work involving dioxins and other contaminants. We did not like having to refuse to help our home state solve a potentially serious environmental problem, but felt we had no choice since we were not in a position to insure the safety of the work.

Brussels	Madrid	San Francisco	Toronto
Houston	Mexico City	São Paulo	Washington
London	Milan	Singapore	Wiesbaden
Los Angeles	Paris	Tokyo	

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Now that we have the secure facility in operation, we can use our professional resources to help society deal with hazards resulting from the use of chemicals essential to our lifestyle and quality of life, or to our national security.

The research being conducted in the Levins Laboratory on chemical and nerve agents is for defensive and protective purposes only. I have made a clear personal and corporate commitment to adhere to this policy. We are using existing substances in analytic tests in order to develop better methods of detecting minute quantities of these agents in the environment and safer, more effective means of destroying them on a large scale. We also are working to develop better protection, including clothing, for people who might be exposed to these substances.

We are doing the work here in Cambridge because this kind of chemical analysis cannot be performed in isolation. It is a key link in a chain of activities. Many other activities are required to support the work of the Levins Laboratory and, in turn, draw on the laboratory for analytic work. For all practical purposes, moving the laboratory to a remote location, would mean moving much of our technical work out of Cambridge. This we do not want to do. We have been a part of Cambridge since the beginning of this century. We have a record as good citizens of the community and a major investment here.

The measures we took to protect our own staff provide an even greater measure of protection for our neighbors. Our scientists and safety experts spent nearly a year perfecting the design of equipment, facilities and procedures for the Levins Laboratory. They visited about 40 secure, safe-handling facilities throughout the world to see what we could learn from their experience. Our objective was to make our laboratory the safest facility of its kind in the world.

We invested nearly a million dollars toward that end. In line with our usual practice, we worked closely with the Cambridge City Manager and the relevant public safety officials throughout the planning and construction of the facility, and they expressed complete confidence in its safety and security. We hired outside consultants to double-check our findings and designs. The result, experts concur, is a laboratory that advances the state of the art for the safe handling of hazardous substances.

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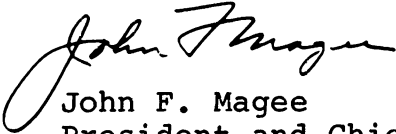
It far exceeds the standards established for such facilities by the U.S. Department of Defense, the only agency which has issued standards.

Along with this letter, I am enclosing a fact sheet which will provide you with the technical details about the safety and security measures built into our laboratory and a reprint of a story about our company that appeared a few months ago in the Cambridge Chronicle. It may give you a little better understanding of our corporate activities and goals.

If you have any comments or questions about our work with toxic materials, or any other Arthur D. Little activity, I would appreciate your sending those to: Mr. D. Reid Weedon, Jr., Senior Vice President, Arthur D. Little, Inc., 25 Acorn Park, Cambridge, MA 02140.

We are interested in your views and will do our best to answer your questions.

Sincerely,



John F. Magee
President and Chief Executive Officer

From lead balloons to nerve gas, ADL does it all

By Anthony Baldo
Staff writer

Tired of only hearing about what could not be done, Dr. Arthur Dehon Little decided in 1921 to show the world just what *could* be done.

The positive-thinking Little wanted to demonstrate what science could make possible, so he set out to dispel the belief that "you can't make a silk purse out of a sow's ear."

To do so, he ordered some of his employees to boil 1000 sow's ears into a gelatin-type material. From the material, a thread was spun, and, from there, a silk purse was woven. The purse now rests in the Smithsonian Institute in Washington, D.C.

Positive thinking was the trademark of Little, a can-do inventor who, in 1886, started a firm to apply scientific knowledge to the changing needs of industry.

Arthur D. Little Inc. today is a publicly-held firm with a workforce of 2500 in offices worldwide. It had revenues of \$192 million in 1983, and globetrotting ADL consultants logged 32 million miles last year to do work for governments, institutions, and corporations.

But for all its success, ADL still seems to be an unknown quantity in Cambridge where it has maintained its corporate headquarters since a 23-year old Little founded the company with a friend.

ADL now occupies what it calls its "campus" — Acorn Park — in North Cambridge, where the company is in the process of trying to expand its facilities. At the beginning, home to ADL was 30 Memorial Dr., which has since become a National Historic Landmark.

If it was to be put simply, ADL, according to its 1983 annual report, "is a worldwide management and technology consulting company, organized to develop and provide action-oriented information to help industry, governments and institutions adapt to and benefit from change."

In more practical terms, it means ADL has a gamut of resources to help businesses develop new products or im-

prove old ones. It means ADL has the talent to advise governments on how to plan for their people. And it means ADL can provide an independent analysis on subjects that range from health care to emerging technologies.

In Cambridge, of course, ADL's work

has also meant its testing of nerve gas and blister agents for the US Department of Defense (DOD). ADL officials euphemistically refer to the agents as "surety materials," but, just the same, the safe testing of the substances here



THE IMPOSSIBLE?—Arthur D. Little, Inc., employees release a balloon made out of lead foil which they designed and built in an effort to debunk the old saying that lead balloons can't fly.

But Haloid was different, for it was depending a marketing innovation. Instead of selling machines, they would lease machines to companies and charge them by the copy.

ADL did not recognize the profit potential of such an innovation, and, today, Haloid, renamed Xerox Corp., is a major corporate entity worldwide.

ADL deals with an average of 1000 clients and undertakes about 4,000 to 5,000 individual assignments annually, according to Alfred Wechsler. Around 75 percent of the firm's clients have contracted with ADL before, he says, noting that ADL's acceptance of assignments must first undergo an internal evaluation process.

This "lead" process generally begins with ADL staff. A prospective client will contact an ADL professional who, in turn, will draft a proposal for the project the client wants ADL to work on.

As Wechsler explains it, the proposal is submitted to a 10-member management group composed of five permanent members and five members who rotate every three months. The rotating members are junior ADL professionals, while the permanent members are senior staff.

The group meets every morning and evaluates all potential assignments according to a four-question formula.

The four questions, says Wechsler, are: Is the work something that ADL would be happy to do? Will the work create a conflict of interest with other work ADL is doing? Can the client pay the bill? And does ADL have the staff on hand to do the job?

If accepted, a budget is pre-established, and an ADL professional is given the task of assembling a team of company members that can best do the job. Wechsler says this could mean gathering ADL members from all different disciplines to perform the task, so the head member of the team is not beholden to getting approval from department managers.

Clients are given a fairly accurate indication about the cost of the project and the time it will take to complete it, Wechsler explains. In addition, the client is provided with an idea about what ADL will be able to produce.

The client also does not have to pay ADL while a contract proposal is being considered by the firm. Payment would only begin once ADL started a project.

Worldwide, ADL's work is about 25 percent government-related, and, in the United States, it is about 20 percent government-related, Wechsler says.

Eduardo Tugendhat, a member of ADL's international economics staff who specializes in Latin America and the Caribbean, says the firm works with governments and the private sectors of individual nations to develop a strategy to create jobs and encourage investment.

In Panama, for instance, the government was seeking an industrial development strategy and hired ADL as consultants.

But Tugendhat says the country's strength was in the service industry, since it is a regional hub. So ADL has recommended that Panama develop economically as a health care, educational, trade, or telecommunications center for the Latin America region instead of as an industrial state.

Government contracts, though, do not compose the majority of ADL's work. Rather, the firm does consulting mostly for the private sector, though officials say people falsely believe that ADL only does work for large corporations.

The company, with offices from Brazil to Singapore, does work for small, start-up firms. Just recently, ADL announced that it will start a venture capital firm to help fledgling companies. ADL will be a partner in the new entity, and officials feel the company's expertise in business management and technical consulting will give it an advantage over other venture capitalists.

For its own profitability, ADL also develops "intellectual properties," a term used by Dr. Little for proprietary products that the firm would create and market itself. ADL has been involved with several thousand invention patents, either for its own use or through its assistance to clients.

The company continues to grow rapidly in this area, especially through Cambridge Consultants Ltd., a Cambridge, England-based subsidiary that does technical research and development work for both the private and public sector.

When it comes to intelligence, ADL not only excels in the lab room or the boardroom, but in the classroom, as well.

The ADL Management Education Institute attracts people from all over the world to Acorn Park to study under ADL professionals in a classroom setting. Some of the students have been sent by governments, or by large corporations, to study in the 11-month program. Out of the 64 graduating members of this year's class, only two were from the United States, while 12 came from Indonesia.

ADL is in the process of a physical expansion of its Acorn Park facilities. The company is now situated on 40 acres of land off Route 2, and plans call for 200,000 square feet of additional office, conference, and other space the firm needs to centralize all its Boston-area operations in one place.

There was a time when ADL had only one building in Cambridge. But it has been a long time since Dr. Little brazenly built a building on Memorial drive solely for research, even though the so-called experts in Boston thought it ridiculous to build a large facility for such work.

ADL was the first research entity to come to Cambridge, and, company officials say, it came to the city even before MIT relocated here from Boston. To commemorate the firm's centennial anniversary in 1986, E.J. Kahn, Jr., of The New Yorker magazine, is writing a history of ADL for Little, Brown Publishers.

From the silk purse to the lead balloon to the larynx plug, with a controversy like nerve gas testing also thrown in, the history of ADL is one for the entrepreneur and scientist alike.

"It's been part of a long-standing tradition since Dr. Little for ADL to be an entrepreneur in technology," says Magee. "A tradition that science could be taken out of academia and put to work in industry."

has aroused considerable media and political attention.

The firm is doing the testing for the DOD to develop ways to detoxify the agents and to create protective clothing for government personnel to wear when disposing of the material.

The DOD expects Congress to order the agency to dispose of the nerve gas weapons the nation now has stockpiled. In preparation, the DOD awarded ADL a contract to study how disposal of the material can best be done.

Testing of the agents has continued at ADL, even though the company and the city are bogged down in court over the issue.

But nerve gas testing is only a portion of the scientific laboratory work that ADL does. What's more, lab work in general is only part of the various projects that the firm undertakes. After all, ADL's staff of consultants includes not only biologists, chemists, and toxicologists, but marketers, business planners, and packaging experts, as well.

"Just about anything is part of our business," says John Ketteringham, an ADL vice president for applied sciences. "Hardly anything is none of our business."

He notes that ADL not only advises its clients on technology, but works and develops products itself.

"We're active. Our buildings are full of labs," he explains. "We do it and don't just talk about it."

Ketteringham explains that, while technology may be fascinating, it serves no purpose unless it can be helpful.

The world of corporate management is interested in research and development these days, he adds, so "we have to respond to change. We now feel we have to respond to the technical end (of business development)."

For instance, a client will come to ADL and say that it wants its food product to stay the same, but that the product's ingredients must be less costly. ADL will then try to develop ingredients that taste the same but cost less.

Clients may also hire ADL to help plan or coordinate a company's direction. Gerald Michael, of ADL's computer integrated manufacturing staff, provides computer link-ups as an example.

He says ADL can help computer users link different computers and computer systems with one another. ADL can advise a computer user about what information should be transferred between computers or what technical problems need to be surmounted. By the same token, Michael says ADL can

define market trends for computer suppliers and then give advice about what to do.

ADL also makes its own technical breakthroughs, and has sometimes found itself in need of a market or a marketer.

In 1979, for example, the firm had an idea about a more energy-efficient refrigerator. It first went to the US Department of Energy with the concept, and the DOE agreed to supply some development funding. After development, ADL went to the Amana company, which brought the product to the market in 1980.

"With consumer products, we're doing quite well," says W. David Lee, the manager of the ADL engineering sciences and shop area. "There are many (low-tech) products that benefit from a new look."

In the spirit of its founder and namesake, ADL in 1977 decided to take a new look at another platitude of impossibility — the familiar cliché, "It went over like a lead balloon." For ADL staffers, it provided a weighty challenge.

The staff was again equal to the task. In fact, three very differently designed lead balloons were created. Curiously, the winning entry was so buoyant that it tore away from where it was tied. "It was last seen going over the Atlantic," says Alma Triner, ADL's vice president for public relations.

Silk purses, sow's ears, lead balloons, refrigerators. An odd mix for a corporate setting. But for ADL, the corporate scene is not as stuffy as one might imagine. No dress code exists, and there is no worry about how staffers decorate their offices. In many respects, ADL is eclectic: like a university, it inspires free thought, and, like a business, it demands results.

"We need fairly bright people," says Ketteringham. "We need people who are flexible, and they must be personable, pleasant, and have a sense of humor."

Staffers do not have to work on a quota of projects. In fact, according to Alfred Wechsler, an ADL senior vice president and general manager for professional operations, each staff member establishes personal goals. Moreover, no staffer is required to work on a project he or she may have moral or other objections to.

"I think we have a lot of respect for each other as individuals," says ADL President John Magee. "We have a respect for individual tastes and idiosyncrasies."

Too much individualism may breed little corporate discipline using the ADL scheme. From time to time, the firm has had a problem with the lack of corporate rigidity, but Magee does not worry. "Given the option," he says, "I'd rather deal with that problem."

His reasons for tolerating such laxity are simple: ADL provides knowledge, and that knowledge can best be found through a free-thinking atmosphere. Not for nothing has it been said that if you ask four ADL staffers their opinions, you will get seven or eight of them.

Like individuality, humor, too, has a place within ADL's corporate structure. It starts at the top with the firm's chairman of the board, Robert K. Mueller, who has written a book called, "Behind the Boardroom Door." While the book is about corporate rivalries and politics, Mueller, according to an ADL release, mostly concludes that "too few businessmen, and hardly any directors, have the ability to laugh at themselves."

Yet the relaxed attributes of ADL consultants give the firm a business edge, for ADL is able to help companies where they can't help themselves.

With the nerve gas situation, there may be misconceptions about all the work that ADL does. The company points out that it has used technology to improve the quality of food, clothing, air, and water, and the Philip L. Levins lab, where the nerve gas testing is occurring, was built to work with different types of toxins.

Magee says ADL staff can go into a company and work person-to-person with accounting clerks and field representatives as easily as with executives. "We can look them in the eye and deal with them in a way they can't deal with each other," he notes.

But while ADL can understand the inner workings and problems of other companies, there may be a misunderstanding or a lack of knowledge in Cambridge about ADL.

"When I meet people, they say, 'I know you're consulting, but I don't know much about it,'" says one ADL officer.

"We're a unique company," says Magee, a tall, soft-spoken man. "When my wife told a neighbor what I do, they thought I was with the FBI and this was a coverup."

Because its corporate activity is focused worldwide, and the work done at Acorn Park may be difficult to comprehend, Magee notes that ADL may seem a little mysterious. "We don't produce a product people can look at," he says.

Nevertheless, the Cambridge City Council was not too enamored with ADL when Magee appeared before the body last March.

Councillors were distressed about the nerve gas testing, and were perturbed that ADL got a court-ordered injunction blocking the city from enforcing its ban on the research. The council seemed particularly upset about how ADL released information about the testing in a piecemeal fashion.

It was last fall when the company first told the council about its contract with the DOD, but it provided only sketchy details about what the testing would entail.

More information about how much material was being tested and the lack of an emergency fire plan did emerge last winter, first when ADL came before the council and then when the city and ADL went to court.

A Superior Court trial in Marlborough is scheduled on the testing on Sept. 24. Again, the city will claim that Health and Hospitals Commissioner Melvin Chalfen can prohibit the testing to protect the public's welfare, while ADL will argue that it must legally abide by the conditions of its federal contract.

"We are not angry about the reaction," says Magee. "We are sometimes frustrated. But we're people, so we understand people's concerns."

The company will also now have to contend with the city's Scientific Advisory Board, which is working on a draft report which says nerve gas testing within Cambridge would be inappropriate.

Did ADL miscalculate how the city would react to the testing and why didn't the firm last fall spell out exactly what the testing would involve?

Telling the public more than they have to has never been a virtue of corporations. Yet Magee says ADL tried to be open with public health officials. He feels most of the opposition to the testing in the city has been voiced in the political arena by individuals seeking to create an issue.

The term "nerve agents," Magee contends, is a "fright" word, adding that the chemicals are not volatile, and, in the event of a fire, they would destroy themselves.

Triner, meanwhile, says that ADL has not received any calls or letters about the nerve gas work.

"It has not become a community issue," she says, though she does admit that "legitimate questions of concern were raised," during last winter's furor over the matter.

Triner says it could have been possible that ADL may have avoided the whole flap over the testing if it provided all the information it could last fall.

She points out, however, that the move also could have backfired. With an avalanche of information, Triner says people could start to panic and believe the testing was more complex — and hazardous — than it really is.

"It's hard to believe," she says, "that we would have 1400 people in Acorn Park that have a deathwish."

Some of those 1400 Acorn Park employees have expressed concern about the testing, Magee says, but they are not concerned about safety. They are worried that ADL will do work to develop nerve gas weapons, but Magee says the company does not develop any weapons and has a corporate policy against such work.

ADL corporate policy involves more than a ban on the development of weapons; it also includes just what kinds of projects the company will undertake.

The firm will not endorse any product for advertisement purposes, and it will not take on any projects where a client asks it to prove one product is better than another, according to Andrew Nighswander, the head of ADL's health and manpower staff.

The firm will take on a project where it makes an independent assessment of a market and the products in it, Nighswander says.

Also, ADL does not do work solely for large corporate clients. Though Nighswander says it is fair to say that

the bulk of ADL's work is done for major clients, the firm does do work for smaller-scale companies and individuals.

One example concerns ADL's work to develop a "larynx plug" for an ear, nose, and throat doctor at a major Boston hospital.

The doctor had perfected a technique to repair a diseased and damaged larynx, or voice box. However, a larynx plug had to be developed for insertion into the area of surgery until healing was complete. The plug had to conform to the patient's original larynx, so the doctor came to ADL.

Irving Arons and Arthur Drennan, members of ADL's product technology staff, explain that they were able to devise a system to make a simple mold to match the shape of the patient's larynx. Silicon rubber would be poured into the mold, and once hardened, the piece could be put into place. After six to eight weeks, the patient's tissue would form around the plug. Then, once healing is complete, a physician can pop the larynx plug out by just applying pressure on the adam's apple.

Another ADL triumph that Arons and Drennan speak of is the plastic pencil, which was developed for a larger corporate client, the Empire Pencil Co.

Because red cedarwood for pencils is in increasingly short supply, Empire came to ADL for help. The firm came through with a pencil made of plastic which was able to be made cheaply and through an automated process.

But ADL — despite Triner's pitch that "we're right a hell of a lot more than we're wrong" — has made some decisions that it just as soon would like to forget.

One such case occurred in the mid-1950s, when a small firm came to ADL with technology in need of a market. The company, Haloid Corp., developed a machine that produced dry and clear paper copies that could help business communications and transactions become better.

Nevertheless, as Magee tells it, ADL did not believe there was a place for such technology. Companies used carbon paper and there were other copiers on the market already.

	In all instances, the quantities of toxic materials will be the minimum essential for analytic purposes - generally no more than a few ounces.		THE LEVINS LAB
			FACT SHEET
Monitoring of Safety:	While contracts are in effect, the Department of Defense reinspects quarterly. Corporate policy requires internal review every time a new experiment is mounted - usually every four to five weeks.	Facility:	Philip L. Levins Laboratory Complex for Safe Handling of Toxic Materials
Anticipated Research Projects:	Hazardous waste materials: Identification of potentially toxic contaminants, developing better methods of isolating and disposing of those contaminants and more effective protective clothing and other shields for workers. Chemical warfare agents: Develop means of identifying, detecting, and detoxifying such agents, and protecting against them.	Location:	Arthur D. Little, Inc., Acorn Park, Cambridge, Massachusetts
Deliveries of Toxic Materials:	All research materials for use in the safe-handling laboratories will be delivered via the most direct route and in the safest manner available. Chemical warfare materials will be delivered according to established U.S. Department of Defense procedures - i.e., by armed military personnel escorted by state or local police (depending upon the road used) to handle interface with civilian population.	Operating Unit:	Chemical & Food Sciences Research Group Judith C. Harris, Ph.D., Manager
		Size:	Approximately 1300 square feet
		Opening:	October 1983
		Purpose:	To provide an up-to-date secure facility in which advanced chemical analysis can safely be performed so as to improve understanding of and develop better means of detecting potentially hazardous chemicals and protecting people from them. To expand Arthur D. Little's capabilities in analytical chemistry and continue the traditional commitment of the company to developing technology in the area. To develop and refine technologies for detecting, identifying and detoxifying hazardous chemicals and for providing protection from them.

To establish a model laboratory facility in the Northeast for the safe handling of known or potentially hazardous materials.

Research Quantities: The minimum quantities of toxic substances required for execution of chemical analysis contracts will be stored in the laboratory's vaults. These amounts are very small - i.e., a maximum of 40 ml (less than 3 table-spoons) of any one nerve agent; 100 ml (about 1/3 cup) of all nerve agents combined. Quantities used in experiments are measured in droplets.

Safety Features: Isolation of the facility from corridors and other areas of the building in which it is housed.

Noncombustible construction and furnishings.

Separation of the facility into three adjoining but independent test cells, protected against cross-contamination.

Limited access, through a single, secure, double-locked door, which cannot be opened by a single individual. Perpetual surveillance by security personnel and electronic monitors.

Emergency showers in case of spills.

Shower and clothing change area between test cells and exit.

Self-contained ventilation systems in each cell, constantly filtering and purifying the air through a series of filters. All air in the facility is completely renewed and cleansed every minute.

Automatic switchover to backup fans in case primary fans fail.

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Emergency power generator to assure ventilation in case of power failure.

Negative air pressure - i.e., air pulled into the lab rather than pushed out.

Self-contained drainage and wastewater treatment system.

On-site retention and detoxification of wastes. Off-site disposal by licensed handlers of all toxic wastes.

Six air-flow fume hoods, within which all toxic materials will be handled.

Extremely high exhaust flows within the hoods, assuring swift and thorough clearance of all fumes.

Vault for storage of all highly toxic materials.

Personnel Safety Features:

Careful selection, training and preparation of all laboratory personnel.

Enforcement of the "two-person rule" requiring that no one be allowed to work in the facility alone.

Severe limits on the number of personnel permitted to work within the facility.

Requirement that personnel be fully garbed in disposable protective gowns and gloves.

Used clothing detoxified and discarded safely as toxic waste.

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S-109

Comm. from John F. Magee, Pres. & Chief Executive Officer, Arthur D. Little, Inc. transmitting a copy of a letter sent to area residents by the firm Re: nerve gas testing & safety & security precautions taken.

In City Council,

February 4, 1985

2/4/85

Placed on File