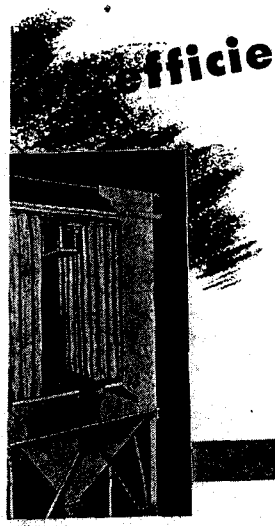
fficient



OTH LIFE. No tension, no
l contact, no coarse dusts
ubes.
AND CLOGGING PRE-
ning into filter tubes is en-
icted.
TUBE TENSION. No stretch-
equent weakening of cloth
r life.
WER COSTS. Ample expan-
luce air velocities and cut
ements.
LEAKAGE. Tubes are ex-
y into cell plate to prevent
IOROUGH SHAKING. Tubes
like a rug while limp and

ation will prove
ted facts. Write
merican's experi-
gineers will gladly
your particular
blems with you at
venience. *Send for*
No. 72-B.

tube
h bin
aker

& EQUIPMENT CORP.
Mishawaka, Indiana

AMERICAN
INDUSTRIAL HYGIENE
ASSOCIATION
QUARTERLY

Volume 13 | JUNE, 1952 | Number 2

Air Pollution Abatement by the Chemical Industry
— Review and Survey —

J. M. GILLET

A GREAT DEAL of our discussion at this conference will center on avoidance of pollution. If there were no pollution to start with, there would need to be no abatement, and our committee would have to change its name. We shall talk about what can be done before a plant is placed in operation or even built, to insure that the air that may pass through, over, or around it, will still be acceptable as the atmosphere in which our neighbors, our employees, our customers, and our shareholders can live in health, comfort, and contentment.

Evidence of the importance our industry attaches to pollution avoidance came to light recently when the board of directors of a large chemical company denied authorization to its management to start construction of a multi-million dollar project because the provisions made for suppressing fume effluents were, in their opinion, inadequate. This shows the trend in the chemical industry; processes are so designed as to reduce to a minimum the existing to the air of odors, fumes, and dusts, and then there are provided scrubbers, absorbers, furnaces, or precipitators to reduce these effluents to an unobjectionable quantity.

The Air Pollution Abatement Manual, which is being assembled under the sponsorship of this committee, is intended to make available to industry as a whole, a large quantity of information on acceptable limits for impurities, methods of analysis, the capabilities of different kinds of equipment to do various jobs, a comprehensive bibliography, and comments on how to work with the plant community to promote mutual good will and confidence.

The main objective in these air pollution studies is how to get acceptably clean air in the community at the least cost—for it does require spending large sums of money. This committee attempted a survey last year to see what our industry is spending to keep the air clean in its plant areas. Because so much of the cost is inseparable from the cost of the processing equipment and the manufacturing operations themselves, it was hard to get an accurate measure of what is being spent, but from the data reported by our member companies on plants where an accurate segregation of these costs was possible, it would appear that during the years 1946 through 1950, upward of $35,000,000 was spent on abatement equipment, and that the annual cost of operating these abatement facilities is about $9,000,000.

The cost of keeping the air clean concerns not only the manufacturer, but also the public at large, for eventually the cost is unavoidably paid by the public. If the cost is added to the manufacturer's selling price, the purchasers of the goods pay it directly; if it is taken out of industry's profits, the tax collector is the principal loser. The government takes most of the corporations' profits before the owners even

Presented at Seventh Air Pollution Abatement Conference, Manufacturing Chemists' Association, Hotel Statler, New York City, February 25 and 26, 1952.

get a look at them. What the government leaves the industry to pay out as dividends, is again taxed as income to the shareholders. Thus a reduction in company profits means a reduction in tax revenue to the government, which must be made up by raising the tax rates on all tax payers.

Industry can be reasonably expected to keep pollution from its plants to a level that will avoid injury to health and financial loss to its neighbors, and to go even further in trying to avoid any discomfort or offense to the esthetic senses of the community; a point can be reached, however, beyond which further polishing up of the air becomes exceedingly costly; the community must then decide whether it can afford this extra luxury.

Atmospheric pollution in this country has shown a marked decrease in many areas, and in the country as a whole. Part of this improvement has come about through better engineering knowledge and improved process design, part of it through an increasing awareness of responsibility. Pressure of public opinion on both industry and the private citizens has had its effect, while in some of our larger cities, legal compulsion backed by sound public opinion, has been the effective force.

The MCA believes that in principle, self-regulation is the most desirable and least wasteful method of achieving clean air, or any other desired goal, although it may be slow. Self-regulation has been well called the keystone of a free society. It has been unpopular, however, during the past thirty years, which have seen the rise of big government in this country, socialism in Britain, and Fascism and Communism in Europe and Asia. In all of these areas government controls over many phases of human activity have been substituted for individual responsibility.

I do not imply that government does not have a legitimate role to play in air pollution abatement, for it is often desirable to delegate leadership to agents of government, to focus and coordinate the community's effort to improve atmospheric conditions. Many cities and districts have pollution abatement agencies established by law and presided over by highly qualified administrators. It is particularly pleasing to us to have as our guests today so many outstanding pollution control and public health officials. We honor them for their notable achievements, and their intelligent approach to the problems involved. Their leadership has achieved much, even in many areas where the laws under which they operate are not too happily conceived. A study of much of the legislation creating pollution control authority shows that many laws contain features that are good and some that are in themselves bad. It is greatly to the credit of our officials that these laws have been so intelligently and patriotically administered as to avoid the evil consequences that could have resulted from some of these objectionable provisions.

Laws that curtail the liberties and invade the rights of a free people are evil, even though they may be excused on the plea that such curtailment is necessary to protect the public from an irresponsible fringe. It should be remembered that in all history no free society ever capitulated to a dictator who admitted his lust for power. The freedom of Rome was lost as was that of Germany and Italy in our own time to those who were granted more and more control over the people for the ostensible purpose of protecting them. Even in this country the late President Franklin D. Roosevelt campaigned for re-election in 1940 on the plea that during his first two administrations, laws had been enacted which if administered by a less benevolent executive, could be used to shackle the American people.

In drafting legal measures for effecting the abatement of air pollution, the basic principles of a free society should be ever kept in mind, and equitable treatment should be accorded to all components of the affected areas. It is difficult to persuade a manufacturer, for instance, that in these days when capital is scarce and costs are high, he should make big expenditures to keep his tall stack from smoking, while within a half-mile radius of his plant, five hundred house-holders are burning rubbish in their alleys and low grade fuel in their heating plants, while their wives cook onions and fry fish in rancid fat.

Our MCA committee has spent three years studying legislative proposals relating to air pollution abatement. For the

ution control and public
We honor them for their
ients, and their intelligent
problems involved. Their
hieved much, even in many
e laws under which they
too happily conceived. A
of the legislation creating
authority shows that many
atures that are good and
in themselves bad. It is
credit of our officials that
been so intelligently and
ministered as to avoid the
es that could have resulted
these objectionable pro-

tail the liberties and invade
free people are evil, even
ay be excused on the plea
ilment is necessary to pro-
from an irresponsible fringe.
nembered that in all history
ever capitulated to a dic-
nitted his lust for power;
Rome was lost as was that
id Italy in our own time to
re granted more and more
ie people for the ostensible
otecting them. Even in this
ate President Franklin D.
paigned for re-election in
ea that during his first two
s, laws had been enacted
nistered by a less benevolent
ld be used to shackle the
ple.
legal measures for effecting
of air pollution, the basic
free society should be ever
l, and equitable treatment
rded to all components of the
It is difficult to persuade a
for instance, that in these
pital is scarce and costs are
ld make big expenditures to
stack from smoking, while
mile radius of his plant, five
-holders are burning rubbish
and low grade fuel in their
s, while their wives cook
y fish in rancid fat.
committee has spent three
g legislative proposals relat-
ollution abatement. For the

first year the argument raged as to whether an attempt should be made to frame a so-called model law. It wasn't too hard to see that no model was likely to fit more than one situation, and the idea was abandoned.

We did, however, come to a realization that there were certain fundamental principles which are applicable to any area situation and which if used as a guide in framing legislation would avoid the most serious evils that have crept into some past legislation. These fundamentals will be discussed here this morning. We know there are differences of opinion on some of these factors, partly through a misunderstanding of what is intended, and partly as a result of different points of view. We shall welcome an airing of these differences and hope we may end up with a better understanding of the problem and of our respective beliefs.

Pulmonary and Metabolic Disturbances in Persons Exposed Industrially to Beryllium

DR. JOE W. HOWLAND
Professor of Radiation Biology and Chief of Division
Atomic Energy Project, The University of Rochester, School of Medicine and Dentistry

ABSTRACT: A review of the clinical signs and symptoms of pulmonary granulomatosis of beryllium workers (berylliosis) shows that progressive weight loss and dyspnea (in the order named) are the most consistent early findings associated with the disease. All laboratory procedures parallel the expected physiologic changes and are not pathognomonic. Excretion of beryllium in urine indicates previous exposure only. This is also apparently true of beryllium content of pulmonary tissue.

Studies of the respiratory physiology of patients on a carefully controlled metabolic regime indicate that a marked variability occurs. A large factor may be the presence of emphysema as a part of the process. A distinct increase in the arterio alveolar pO_2 gradient measured as pO_2 parallels the severity of the process. Use of oxygen raises the pO_2 in severe cases to normal levels.

Metabolic study of these patients shows a defect in their ability to store protein in the tissues. Poor absorption of protein is shown in the presence of a high fecal nitrogen. Some abnormalities of the serum protein are shown by electrophoretic analysis. Speculation on the nature of these metabolic changes was engaged in. The dissimilarity between the observed changes and those of pulmonary fibrosis suggests that they are not secondary to anoxia.

Discussion of therapeutic procedures was carried out. Current opinion as to the nature of ACTH and cortisone effects indicates that improvement may be less striking than originally reported, and that these materials only reduce the rapidity of the process. Use of dietary measures and oxygen depends on the clinical status of the patient.

Presented at a joint meeting of the Upper and Western New York Sections of the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION Saturday, December 1, 1951, at the University of Rochester School of Medicine and Dentistry.