known as lachrymatory factor synthase, has paved the way to develop non-
lachrymatory onions by suppressing the lachrymatory factor synthase gene with-
out affecting the production of thiosul-
phinates, the flavouring metabolite of
onions. Since no new gene will be added
from outside, it is believed that the
genetically engineered onions with the
silenced lachrymatory factor synthase
gene will be readily accepted by the
consumers. Though non-lachrymatory
onions could also be produced by down
regulating allinase enzyme it would be
at the expense of the characteristic onion
flavour. Thus the discovery of the
lachrymatory factor synthase enzyme has
opened up a new vista to develop non-
lachrymatory onion with its characteristic
flavour, which would give no cause for
tears.

1. Imai, I., Tsuge, N., Tomotake, M., Nagai-
tome, Y., Sawada, H., Nagaia, T. and
2. Adamo, I., Joseph, P. K. and Augusti,
3. Ariga, T., Oshiba, S. and Tamada, T.,
61.
2000, 48, 6254–6260.

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FROM THE ARCHIVES

Fuel research in India

The establishment of a Board of Scien-
tific and Industrial Research for India
and the appointment by it of a Fuel
Research Committee has brought more
prominently to the fore the question of
the establishment of a Fuel Research
Department or Station in India. It is too
early to say whether we may confidently
look forward to the establishment of a
separate Department but we may rea-
sonably hope that a start will at least be
made on organized research. In this mat-
ter of fuel research India lags behind
nearly all other important countries of
the world and particularly behind her
chief competitor in the field of fuel,
namely South Africa. The establishment
in that country of a Fuel Research Insti-
tute by utilizing the accumulated funds
of the formerly-existing Coal Grading
Board should be of special interest to
those concerned in this very important
matter. The Committee that has been
formed in India will presumably have to
consider what schemes should be rec-

ommended for adoption by the existing
workers or should form the basis of the
work to be undertaken in the early stages
by any Fuel Research Department that
may be established....

Finally, the writer would appeal to
enthusiastic scientists and quasi-
scientists throughout India not to fall into
the harmful error of over-stating the case
for the development of India’s mineral
(case and other) resources and their dependent
industries by the results of scientific
research. There is, in his opinion, a
regrettable tendency just at present to
paint attractive pictures of the wonderful
benefits awaiting the country if only
research is sponsored, encouraged and
financed, a tendency to assure the unin-
tiated that technical success in scientific
research will automatically be followed
by wholesale industrial development.
The coal by-product question is a case in
point. Much loose talk has been allowed
to find a place in the press in recent
months regarding the storehouse of beau-
tiful dyes, wonderful disease-curing
drugs and valuable synthetic resins
looked up in a lump of coal. Following
upon these articles there have been
appeals, mostly genuine and in the best
of good faith, to finance this and that
research, in many instances such advo-
cated researches being, upon investiga-
tion, little more than a repetition or
extension of work already excellently
and for the most part exhaustively done
in other countries and requiring little
more than intelligent application by
commercial and industrial interests. Such
popular writing is an undesirable type of
‘appealing to the gallery’.

In too many instances, it is to be
feared, have glowing accounts of the
promise given by this and that research
been followed by disappointing silence
as to the results. The consequence has
been to put into the hands of those who
have been over-persuaded additional
arguments against the encouragement of
pure and applied research.

Such a statement is not to be taken as a
wholesale stricture on the initiation of
research. On the contrary, research
should be encouraged and financed to the
utmost capacity of the country and the
writer himself has, ever since his arrival
in the country, pressed most strongly for
a sympathetic attitude on the part of gov-
ernment towards research. But we should
be honest in this matter and truthfully
say that pure research should be encour-
aged irrespective of any kind of guaran-
tee of profit arising from the results.
Research is the life-blood of the scientist
and of the educationist and a country that
persistently starves its research workers is
doomed to remain in the background scien-
tifically, educationally and industrially.

But let us be modest and dignified in
our claims as scientists, restrained in our
self-praise at scientific gatherings and in
the press, cautious (outwardly at least) in
our optimism, guarding against rushing
into print with the ill-digested results of
research work, and honestly, quietly and
sincerely persistent in effort.

Charles Forrester