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JAMES T. ALEXANDER
PUBLIC INFORMATION OFFICER
U.S. ATOMIC ENERGY COMMISSION
OAK RIDGE OPERATIONS, OAK RIDGE, TENN.

J. T. ALEXANDER
JANUARY 17, 1969

2:30 ///

GAIL BRADSHAW
PUBLIC INFORMATION OFFICER
U. S. ATOMIC ENERGY COMMISSION
DIVISION OF PUBLIC INFORMATION
WASHINGTON, D. C.

FOLLOWING IS TEXT OF SUMMARY OF STATUS OF K-II CENTRIFUGE AS PROVIDED BY DR. NORMAN ANDERSON:

(Pick up text from attached two pages)

(add following note to message)

"NOTE: K-II's ARE IN USE AT: ELI LILLY COMPANY; ABBOTT; MERCK, SHARPE AND DOHNUE; NATIONAL DRUG; and PFHIZER. THE ONLY COMMERCIAL PRODUCERS OF K-II SYSTEMS AT THIS TIME IS ELECTRO-NUCLEONICS, INC. END REF MY:JTA 98

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Jan. 17, 1969
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Ph.3-4595

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Notes for Mr. Tape

Physics, especially nuclear physics, has experienced an enormous change during the past thirty years. To solve the complex problems, we have found that large-scale multidisciplinary efforts are required. This was not clearly foreseen by individual scientists before the Manhattan Project. The problems faced by molecular biologists are more complex than those found in physics. We are gradually beginning to realize that future progress, especially in areas specifically related to human disease, will require the large supporting base and the multidisciplinary approach which has characterized our AEC National laboratories.

The Molecular Anatomy (or MAN) Program, jointly supported by the AEC and NIH, has been organized to explore this subject. A large fraction of that program has been devoted to the development of a new class of centrifuges, termed zonal centrifuges, which allow subcellular particles and viruses to be concentrated and purified. These centrifuges are now used to purify influenza vaccines commercially. The technology and its use is very new; hence not all vaccines are at this moment made with the large Oak Ridge K-II centrifuge.

The influenza vaccine dose is set largely on the basis of the dose that could be tolerated, not on the amount necessary to protect. Hence, it is not very effective. At best only 60% of those receiving it are resistant. With the new zonal centrifuge purified vaccine, the dose has been raised in experimental groups this year, so far with negligible side effects. The degree of protection these higher doses afford is now being determined. In years to come we may expect that concentrated and purified influenza vaccines prepared by this method will substantially reduce illness and mortality from this source. In addition, other vaccines may be purified in essentially the same way.

The K-II centrifuge has recently been found useful to concentrate and purify viruses which attack inset pests specifically. Extensive testing is now being carried out in collaboration with the Forestry Service in preparation for aerial spraying of the virus. This new approach offers the hope of significantly reducing the use of chemical pesticides such as DDT.

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The centrifuge development program has involved scientists and engineers from many different disciplies and groups, largely in the Oak Ridge Gaseous Diffusion Plant.

A number of other new separations and analysis systems, also involving multidisciplinary efforts, are being developed under the MAN Program at Oak Ridge.

This new direction, new use, or new mission for AEC laboratories gives hope for faster transfer of the results of basic research, and of modern technology, into health improvements for the average citizen.

Note: K-II's are in use at

Eli Lilly Co. - 3 + one experimental

Abbott - 1

Merck, Sharpe + Dohme - 1 + maybe 2

National Drug - 1

Pfizer - 1

The only commercial producer of K-II systems at this time is Electro-Nucleonics Inc.

Norman G. Anderson
January 16, 1969

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FM JAMES T ALEXANDER USAEC OAKRIDGE TENN

TO GAIL BRADSHAW USAEC WASHDC

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UNCLAS '' NOTE CLN K-11'S ARE IN USE AT CLN ELI LILLY COMPANY; ABBOTT; MERCK, SHARPE AND DOHNUE; NATIONAL DRUG; AND PFHIZER. THE ONLY COMMERCIAL PRODUCERS OF K-II SYSTEMS AT THIS TIME IS ELECTRO-NUCLEONICS, INC.

FOLLOWING IS TEXT OF SUMMARY OF STATUS OF K-II CENTRIFUGE AS PROVIDED BY DR NORMAN ANDERSON:

PHYSICS, ESPECIALLY NUCLEAR PHYSICS, HAS EXPERIENCED AN ENORMOUS CHANGE DURING THE PAST THIRTY YEARS. TO SOLVE THE COMPLEX PROBLEMS, WE HAVE FOUND THAT LARGE-SCALE MULTIDISCIPLINARY EFFORTS ARE REQUIRED. THIS WAS NOT CLEARLY FORESEEN BY INDIVIDUAL SCIENTISTS BEFORE THE MANHATTAN PROJECT. THE PROBLEMS FACED BY MOLECULAR BIOLOGISTS ARE MORE COMPLEX THAN THOSE FOUND IN PHYSICS. WE ARE GRADUALLY BEGINNING TO REALIZE THAT FUTURE PROGRESS, ESPECIALLY IN AREAS SPECIFICALLY RELATED TO HUMAN DISEASE, WILL REQUIRE THE LARGE SUPPORTING BASE AND THE MULTIDISCIPLINARY APPROACH WHICH HAS CHARACTERIZED OUR AEC NATIONAL

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LABORATORIES.

THE MOLECULAR ANATOMY (OR MAN) PROGRAM, JOINTLY SUPPORTED BY THE AEC AND NIH, HAS BEEN ORGANIZED TO EXPLORE THIS SUBJECT. A LARGE FRACTION OF THAT PROGRAM HAS BEEN DEVOTED TO THE DEVELOPMENT OF A NEW CLASS OF CENTRIFUGES, TERMED ZONAL CENTRIFUGES, WHICH ALLOW SUBCELLULAR PARTICLES AND VIRUSES TO BE CONCENTRATED AND PURIFIED. THESE CENTRIFUGES ARE NOW USED TO PURIFY INFLUENZA VACCINES COMMERCIALLY. THE TECHNOLOGY AND ITS USE IS VERY NEW; HENCE NOT ALL VACCINES ARE AT THIS MOMENT MADE WITH THE LARGE OAK RIDGE K-II CENTRIFUGE.

THE INFLUENZA VACCINE DOSE IS SET LARGELY ON THE BASIS OF THE DOSE THAT COULD BE TOLERATED, NOT ON THE AMOUNT NECESSARY TO PROTECT. HENCE, IT IS NOT VERY EFFECTIVE. AT BEST ONLY 60 PERCENT OF THOSE RECEIVING IT ARE RESISTANT. WITH THE NEW ZONAL CENTRIFUGE PURIFIED VACCINE, THE DOSE HAS BEEN RAISED IN EXPERIMENTAL GROUPS THIS YEAR, SO FAR WITH NEGLIGIBLE SIDE EFFECTS. THE DEGREE OF PROTECTION THESE HIGHER DOSES AFFORD IS NOW BEING DETERMINED. IN YEARS TO COME WE MAY EXPECT THAT CONCENTRATED AND PURIFIED INFLUENZA VACCINES PREPARED BY THIS METHOD WILL SUBSTANTIALLY REDUCE ILLNESS AND MORTALITY FROM THIS SOURCE. IN ADDITIONA, OTHER VACCINES MAY BE PURIFIED IN

ESSENTIALLY THE SAME WAY.

THE K-II CENTRIFUGE HAS RECENTLY BEEN FOUND USEFUL TO CONCENTRATE AND PURIFY VIRUSES WHICH ATTACH INSECT PESTS SPECIFICALLY. EXTENSIVE TESTING IS NOW BEING CARRIED OUT IN COLLABORATION WITH THE FORESTRY SERVICE IN PREPARATION FOR AERIAL SPRAYING OF THE VIRUS. THIS NEW APPROACH OFFERS THE HOPE OF SIGNIFICANTLY REDUCING THE USE OF CHEMICAL PESTICIDES SUCH AS DDT.

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AND ENGINEERS FROM MANY DIFFERENT DISCIPLINES AND GROUPS, LARGELY IN THE OAK RIDGE GASEOUS DIFFUSION PLANT.

OU NUM34 SI OTHER NEW SEPARATIONS AND ANALYSIS SYSTEMS, ALSO INVOLVING MULTIDISCIPLINARY EFFORTS, ARE BEING DEVELOPED UNDER THE MAN PROGRAM AT OAK RIDGE.

THIS NEW DIRECTION, NEW USE, OR NEW MISSION FOR AEC LABORATORIES GIVES HOPE FOR FASTER TRANSFER OF THE RESULTS OF BASIC RESEARCH, AND OF MODERN TECHNOLOGY, INTO HEALTH IMPROVEMENTS FOR THE AVERAGE CITIZEN.

END REF MY JTA 098

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