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Editor: E.A.W. Slater
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Abstract
Research: From Genesis to Revelation
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Research: From Genesis to Revelation

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The inspiration of the investigator was often a matter of chance or accident. Sometimes it was a quick flash of insight, but in others like Harvey and Darwin the ideas took a decade or two to mature. The source of the idea might be odd or disreputable. Digitalis was found by Withering in the hotch-potch remedy of an old woman in Shropshire; the idea of immunisation against smallpox came from primitive African and Arabian medicine, while Jenner's method started in the farmyard.

Sometimes discoveries were made and lost through lack of interest or comprehension. Satisfactory means of cure of scurvy were known to Jacques Cartier (1536). Insulin had been made and lost before Banting, who only succeeded because the technique of blood sugar estimation had been elaborated. The effect of X-rays had been noted before Roentgen. Tyndall (1875) had observed the anti-bacterial properties of the mould penicillin, while Fleming scored a near miss twelve years before Florey succeeded. Sometimes the right discovery was made when following the wrong lines. The discovery of adrenaline was made when trying to disprove a claim that an extract of the suprarenal glands was inactive when taken by mouth. Whipple's liver extract was thought to accelerate recovery from post-haemorrhagic anaemia. The patients with pernicious anaemia to whom it was given were controls! It was they who responded so dramatically and unexpectedly.

Discoveries, the Professor pointed out, might be made and lost and made again and the invention of a catchword was often an important influence, "vitamins" being an example. The word was coined centuries after clinicians had realised the existence of some curative properties of an obscure character in the diet. The recognition of the bacterial cause of disease was a slow process extending from John Hunter to Robert Koch.

Observations of precision and accuracy might antedate the knowledge necessary to account for them. The Rev. Stephen Hales made precise measurements of expired air but as he was working half a century before the discovery of Oxygen and Carbon Dioxide he was at a loss to account for his observations.

In concluding, Professor McMichael referred to the opposition invariably encountered by new ideas. Uselessness of an observation should never destroy interest. Medicine requires maximum effort and thought, and speculation must always be subjected to the final test of experiment.

* * *

It is only possible to give here an outline of the wide range of ideas and thoughts about research which Professor McMichael elaborated in his address. In fact, it is reasonable to say that this must be one of the most comprehensive dissections ever carried out into the mechanisms of medical discovery.

Even if he wished to, no editor would be entitled to criticise an address of such outstanding scope and quality. Comment, however, is a different thing and we would like to draw attention briefly to one of several thoughts with which Professor McMichael has left us. These are the days of the biochemist and the biophysicist, of grants and scholarships, of elaborate and glamorous laboratories, and of keen competition among the drug firms, the medical schools, and the medical research centres of every sort with which the country is generously populated. Medical scientists in America are supported, as we have been told in the address, by abundant national funds.

How many of us, however, are capable of carrying out pure research on this scale? The scarcity of first-class brains with the enthusiasm and aptitude to make full use of the laboratory means that only a small proportion of medical graduates are capable of conducting full-time research. And it is by his references to Harvey, Withering, Jenner and Koch that Professor McMichael does one of his finest services in reminding us that there always has been, and there always must be, a place for the teacher, the general doctor and even the astute medical man in the street in the progress of discovery and research.

Medical Education—for the Public

In his article on the Treatment of Cancer in this issue, JOHN MCKENDRICK expresses himself forcibly in opposition to the further unrestricted dissemination of medical knowledge to the layman. While he speaks primarily about cancer, the same arguments may be applied to other medical fields, and the conclusion that over-concern with matters of health "is more likely to breed neuroticism than complacency," will find an echo in the minds of many.

There is, however, a reverse to this, as to every question, Besides the need for control of aetiologically significant factors, for which purpose an active and informed public opinion is essential, the need for earlier diagnosis, especially of malignancy, is continually being emphasised. Indeed it may well be that the most important advances of the immediate future in this field will be diagnostic rather than therapeutic.

Until such advances are made, early diagnosis must rest upon the speedy reporting of the significant symptom, and while not all those with recurrent dyspepsia can be given a Barium meal, nor all those with chronic coughs a chest X-ray, amplified investigation of those within the cancer age group with a symptom arising "de novo" might enable us to use what weapons

we have to better effect. If this is indeed so, the potential patient must at least know what the significant symptom is likely to be, and must receive every encouragement to consult medical advice with as little delay as possible.

Would this not lead to a nation which takes its temperature when it cleans its teeth, weighs itself when it washes, and castigates the waitress for bringing a portion over-rich in Cholesterol esters? The risk is there, but the public is neither so foolish nor so ignorant as some seem to believe. Already no small amount of medical information finds its way to the general public by way of the women's weeklies and the *Readers' Digest* and the results do not seem to be unduly demoralising.

Indeed, it would seem likely that most of those afflicted by uncertainty and fear by reason of medical knowledge would be such people as have a predisposition to hypochondriasis. At worst, such people might be converted to worrying about what might conceivably happen, instead of about what most decidedly will not.

Rationalising the Irrational

Visionaries are no longer in vogue. Their decline in social importance has probably been brought about by the advent of a common belief in the superiority of scientific reasoning. In so far as visions are a natural phenomenon they come within the concern of the scientist and are no longer immune to rational investigation. It is now possible to induce states of altered consciousness under controlled conditions by employing various chemical or physical methods, the classical example being the use of the drug Mescalim. The mere taking of a pill does not transform the scientist into a William Blake but it does give him some insight into the otherness of a prophet's world and the uncharted areas of his own mind.

In a fascinating account of his experience with this drug, ALDOUS HUXLEY has described the curious purposeless intensity encountered by the Mescalin taker. He supports the view that the brain is normally only concerned with what is biologically useful and that it is actively engaged in eliminating the majority of irrelevant sensations which it receives from the world at large. The drug reduces the efficiency of this mechanism and a curious state of heightened consciousness is produced. Whatever may be thought of the validity of such an explanation, the essay itself is one of great importance as a description of the impressions of a man blessed with such lucidity of expression that we are enabled, through him, to share some part of his experiences.

Of even greater significance than the scientist's subjective understanding of this detached state of mind is the objective study it enables him to make of the chemical processes which go on within the mind at such a time. The observed structural similarity between adrenaline and Mescalin set off a train of investigations which have already contributed to an understanding of the chemical basis of the mind. The immediate medical importance of this research is in developing our understanding of the schizophrenic disorders which bear some resemblance to these induced states.

As was stressed by LORD ADRIAN in his address to the B.M.A. conference in Edinburgh this year, the chief problem facing workers in this field is that of relating physiology to psychology. Whether such an understanding will ever be attained is indeed debatable. Such a discovery would be of unparalleled significance both from a practical and a philosophical point of view. It is a solemn and awe-inspiring concept that the heart would have no reasons which reason did not know.

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In June our first editor and the members of his pioneer committee disposed of the ultimate obstacle and joined the enviable ranks of the wage-earners. The Journal was conceived, produced and weaned by their enthusiasm and indulgence: it has matured strong in its adherence to their ideas and ideals. They will find the pattern of this issue almost entirely their own, little altered by subsequent tampering.

We have, however, disposed of one original institution. The introductory editorial has been replaced by a series of leaders. This is in fact the only major structural alteration the Journal has undergone since it first appeared, and we hope that it will prove acceptable. The presentation of a few items of topical comment in this way can only serve to add colour and character, qualities which are liable to disappear when a single editorial (usually reading well but saying little) consistently introduces the efforts of the contributors. The Journal of the Royal Medical Society must cling to character, beware of stereotype.

For this reason, we are confident of the support in this new move of JAMES GRAY, and also of FORRESTER COCKBURN, A. W. DELLIPIANI and C. V. RUCKLEY. It is also our hope that it will increase the value of *Res Medica*, the success of which is so exclusively their own, and which each, in reviewing his undergraduate career, must regard as an individual triumph.