Psychiatric Diagnosis in the Context of the History of Science
Introduction to Diagnosis Workshop

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Welcome, everybody to this workshop on Diagnosis in Psychiatry. Let me put it in a context. At present times a remarkable transformation of health services is under way in many countries, which we can roughly call "democratization". In other words, the voices of the consumers of health care are increasingly required, to guide the direction of services, and related medical research. This process did not start in psychiatry, nor in this part of the world – but I believe that in New Zealand and Australia, it is the area of mental health that is taking the lead, and at present probably has most momentum. For a long time I was a researcher in academia, but, as a sign of that democratization, in the last few years I have found myself as a community representative on committees of the Royal College of Psychiatrists. In the latter role, I have been scratching my head to find ways to bring together in face-to-face discussion mental health professionals, especially psychiatrists and researchers, with leaders and spokespersons for the many community mental health organizations which exist at present. In this context, the topic of diagnosis is central – it is of concern to both the deepest of research and academic thinkers, and the most practically oriented consumer groups. For different reasons all stakeholders have intense concern about the validity and use of diagnoses in psychiatry. It is an ideal focal point to bring together different groups in debate from their different perspectives, on the basis of equal status. A key objective in planning the workshop was to have a 50/50 split between community people and professionals and we have not done too badly in this regard, though there are not quite as many psychiatrists here as I would have liked, and, I think no neuroscientists, except myself.

This workshop has a number of starting points. For myself, as a neuroscientist, and one with lived experience of a psychotic illness, a long time ago I was shocked as I gradually discovered that concepts of mental illness used by the psychiatric profession were in no way established by scientific reasoning, but by the authority, and sometimes I have to say by the big boots of leaders of the profession. More recently from the community groups I now work with, I hear a lot of puzzlement and disquiet about the process of diagnosis in psychiatry, and some would want to dispense with it altogether. That is not *my* intention. However, I think we must acknowledge that there are many stakeholders here, all wanting different things from diagnosis. The idea of holding a workshop on psychiatric diagnosis came in discussion last year with Dean Manley of Auckland, former manager of the anti-stigma program, *Like Minds Like Mine;* and the idea of inviting Allen Frances as a keynote speaker came from some of the enquiries I made in December. Since he was already invited to Australia in July, it was obvious we should try to get him over here; and so, with strong backing from *Kites Trust*, and other

community organizations, it has come together. I should also say that Allen contributed to planning the workshop. My initial idea was for a one-and-a-half day event, but Allen said: "Don't attempt too much; keep it to one day, with plenty of time for discussion; but see it as the start of a process, where complex issues can be revisited, as participants work towards a consensus".

Now I've entitled this introduction "Psychiatric Diagnosis in the Context of the History of Science". Before the history bit let talk about how people in the wider community see it. Psychiatrists freely use the term "mental illness" but disease concepts in psychiatry are rather fuzzy, based on conventions, sustained, as I said, by the prestige of people in authority and the faith of their followers, rather than on scientific reasoning. I have heard endless, fruitless debates about classification since the early 1970s, debates going back to the nineteenth century. The very definition of mental illness is obviously circular in many jurisdictions: In the 2007 British Act, "Mental disorder" is defined as "any disorder or disability of the mind". Big deal. Shakespeare did it better 400 years ago*:* "To define true madness, What is't but to be nothing else but mad?". In the antipodes, we are a bit more precise than either of those in our Mental Health Acts, which actually provide a legal definition of mental illness which is *not* circular. Yet lay people, here as elsewhere, are aware of shortcomings. They are not experts in psychiatry, but they are experts in their own life experiences. What are their concerns? Here are a few examples:

[Slide 1]

(i) It is the experience of many patients that they receive a variety of different diagnoses from different psychiatrists for one disorder. Ever-more emphatic claims by psychiatrists that "mine is the *correct* diagnosis", cut no ice. This brings psychiatry into disrepute.

(ii) People in the community rightly ask: "Isn't it absurd that people be placed into mutually-exclusive, diagnostic boxes"? Surely human diversity requires something more subtle. There is concern that psychiatry is medicalizing human diversity rather than welcoming and celebrating it. There are real issues here about what constitutes mental disorder.

(iii) It is suggested that psychiatric diagnoses serve commercial interests (e.g. health insurance and pharmaceutical industries), rather than needs of patients. Diagnoses seem to be "made up" to serve such interests, with no secure rational basis.

(iv) We have seen a major movement in a number of countries, to abolish the word "schizophrenia" as a diagnosis. This is propelled in part by community concern that the diagnosis is stigmatising, that it is "more of a sentence than a diagnosis". This may again split North American from British and European psychiatry.

(v) In some parts of the Western world, there is growth of the claim that "schizophrenia is not a disease", resurgence of anti-psychiatry rhetoric popular in the 1960s and 1970s, and rejection of gains from biological approaches. In some places this has undermined major aspects of mental health care (including therapy with antipsychotic medications). It alarms psychiatrists, as it alarms me, but the profession cannot always mount an effective defence. The "biological revolution" in psychiatry thus has not gained "grass-roots" support.

(vi) For another diagnostic entity - attention deficit/hyperactivity disorder (ADHD) - it is asked: Is it really a mental disorder? . . or is it a normal personality variant, which is a disorder only in certain social environments (especially those created in schools)? Perhaps more attention should be given to unhealthy school environments as a public health initiative rather than treating ADHD as a matter for personal health care (and medication with ritalin). Another diagnosis - dyslexia - is certainly disabling, given that our culture relies heavily on the written word; yet it is well understood that people with dyslexia often have unusual talents in other areas, which enables them not only to hold their own, but even to achieve pre-eminence[1].

(vii) In Britain the government tried to foist the term "dangerous severe personality disorder" as a diagnosis, with neither a legal nor a medical basis, this to be used as a basis for pre-emptive detention of people who had committed no crime. The same was attempted in New Zealand, and – I hope I have got this right - I have been told, was stopped only when key psychiatrists put their own jobs on the line over the issue. Such political interference with psychiatry is made easier because few of its *other* diagnoses have secure scientific status. It is good that there are people with sufficient integrity to stop it, but one cannot rely on that. One needs other safeguards.

(viii) In New Zealand, the government-backed campaign "*Like Minds Like Mine*", to combat stigma and discrimination related to mental illness has received acclaim around the world. Persons with lived experience of mental illness played a major part in shaping this campaign and its implementation, yet it *avoids* diagnostic labels, preferring instead to use direct first-person accounts of lived experiences. Thus, in some areas, the idea that diagnosis is essential to define mental disorders and to guide treatment is being overtaken by events, and by public awareness.

All this points to real problems about the status of many concepts of mental disorder used in psychiatry. What has gone wrong? Is there a basic misconception? If so, what is it? I want to answer this from my perspective as a scientist. This is only one of

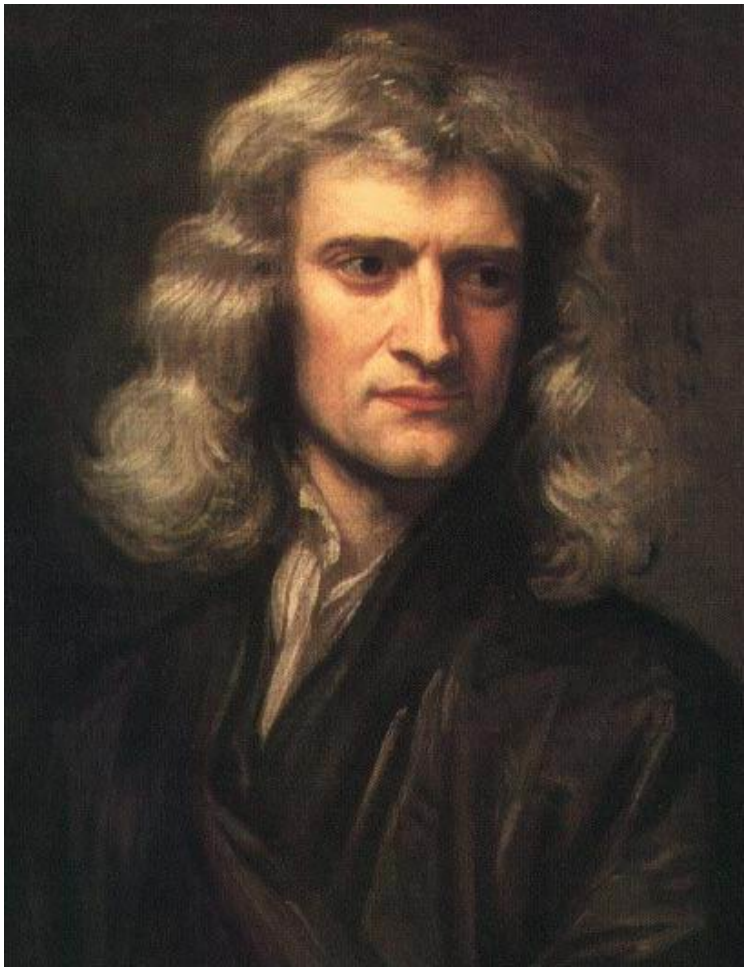
[1] Joanne Black "*In their right mind"* New Zealand Listener, May, 8-14, 2010.

several valid perspectives, and we will hear from others later today; but it allows me to give a historical slant on current debates about psychiatric diagnosis. Diagnoses should, at least in part, be based on scientific concepts of disease. To enlarge on this, and to be brief, I focus on four historical figures, none of them psychiatrists, and I apologise that they are all males.

This gentleman is Francis Bacon a contemporary of Shakespeare. He was a lawyer, statesman, and philosopher, not a scientist. In 1620 he produced a work called *Novum Organum* ("The New Instrument"). In this work he casually sets aside 2000 of scholarly tradition and debate (going back even to Pythagoras 500 years before Christ), and in the process invents a new method of approaching truth, a method which we now call "science". That work is full of quotable quotes, and is much easier to read than Shakespeare, much more modern in tone. You can down-load it from the web. I just want to quote one of his aphorisms, on the fundamental issue of validating concepts:

"If the notions themselves (which is the root of the matter) are confused and over-hastily abstracted from the facts, there can be no firmness in the superstructure."

This raises a general question: How are those notions, in this case scientific concepts, in *any* field of investigation, to be validated. To get a handle on this, jump forwards to our second figure.



No, it's not a young Billy Connolly, before his hair went white; it's 'Zac Newton – Isaac Newton, considered by many - and I think I agree with this judgment - as the greatest scientist to walk the planet. In 1688 he produced his magnum opus, *Principia Mathematica* (Mathematical Principles of Natural Philosophy). In that work, written in Latin, he expounds his laws of motion (some of which went back to Galileo eighty years earlier), and the principle of gravitational attraction. In the process he was able to

give accurate quantitative explanations of the movement of the planets (which had been described in detail in the previous century). As for concepts, he used four: length, time, mass and force. Length and time were not problematical, but for the terms mass and force, he provided new, and more precise definitions. Before Newton these two terms had no proper definition; they were as fuzzy as the term schizophrenia today. Newton defined "mass" as "resistance to acceleration", which was independent of its weight; and "force" was then what causes acceleration (or deceleration), but not needed for uniform motion. The laws of motion and gravity used these definitions, and explained planetary motion and many other things, with a precision never seen before. As a result the terms mass and force, with their new definitions, became concepts which *were* validated, in a strong way.

The key message here is that explanation and validation of concepts depend on each other.

The *only* way in which scientific concepts can be securely validated, such that they will stand the test of time, is when they are defined in such a way as to support strong explanatory arguments.

It is *exceedingly* difficult, because explanation depends on the way concepts are defined, but one doesn't know how to define the terms until the explanation is in mind. There is no short cut, no easy algorithm, no linear chain of reasoning bound to succeed; and, at risk of sounding like Margaret Thatcher, I assert there is no alternative. The process is circular: The conclusion depends on the premises and the premises depend on the conclusion. Difficult it may be; but when it works, it works like wildfire, and "feeds on its own success".

In the scientific tradition started by Newton, some of the most successful explanations have been what I call "cross-level explanations". They account for things well known at a higher level, in terms of something going on (or more often hypothesised) at a lower level. A good example is the kinetic theory of gases, by which the gas laws, relating pressure, temperature and volume of a gas, were accounted for in terms of motion and collision of hypothetical things called molecules. In biology there are some such cross-level explanations, but there are *none* yet accepted in the field of psychiatry. If there were, we might have more solid concepts of mental illness, and diagnoses which serve their purposes better than many currently in use.

This brings me to my third figure, Carl Wernicke. He is best known as a pioneer in neurology; but he was working at a time before psychiatry had split off from neurology. He actually wrote a textbook of psychiatry, whose first edition came out in 1894. Wernicke died prematurely in a cycling accident, in 1905. Had he lived

longer he might have been a serious rival to Emil Kraepelin, from whom we get our current concept of schizophrenia, and the development of psychiatry might have been very different. I have an interesting quote which wrote in the Preface to his 1894 edition, very interesting, given its date. It's longer quotation so I'll sum it up with bullet points. In 1894, so he claims:

•Psychiatry was like general medicine 100 years earlier

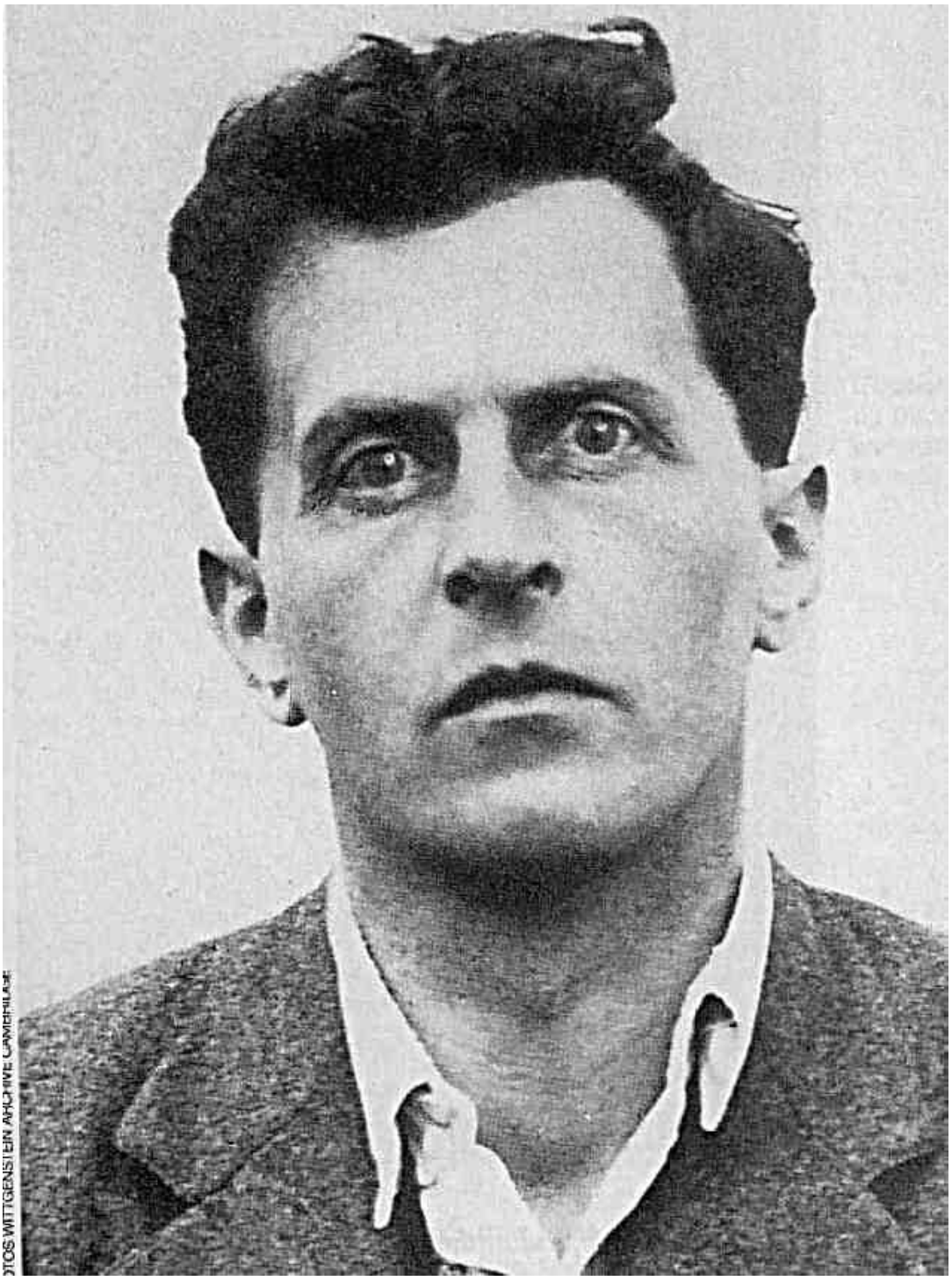
•Concepts of disease were equated to symptoms, not to known changes in specific organs of the body. So, 100 years earlier "medical knowledge of disease did not extend far beyond the knowledge that we now find disseminated among the lay public, when it treats coughing, palpitations, fever, jaundice, anaemia, and emaciation as actual illnesses. This is precisely the current attitude to psychiatry . . . For them, certain particular symptoms form the actual essence of the disease. Thus a depressed mood in the broadest sense is the essence of melancholy, an enhanced mood with an excess of movements, that of mania etc.

•Different psychiatrists grouped symptoms together in quite different ways

•Many cases do not fit neatly into any such artificial frameworks

Of course, since Wernicke's day knowledge of mental disorders has increased greatly; but I'm inclined to say that on the most fundamental issue, validating concepts of mental disorder with the sort of reasoning used elsewhere in the natural sciences, there has been no progress – none! The more it changes, the more it stays the same.

That brings me to our fourth figure, not a scientist, but a philosopher, one of the greatest in the twentieth century – Ludwig Wittgenstein. For him, psychology was "empirical investigation married to conceptual confusion"; and of course, from what I've said, and from the quotation from Wernicke, the same should apply to psychiatry. This comment is not decrying the *practical* skills of psychologists or psychiatrists. . . .yet it is saying something important; but I think it is nevertheless a bit unfair. As I already said, psychology and psychiatry are today's growing points in the whole enterprise of the natural sciences. In those areas of growth, *of course* there is conceptual confusion. That is the challenge for us, today. For myself, it is one of the things that makes it exciting; if we can address those fundamental issues we really are on to something big.



So, let's go back to that conclusion I derived from Newton's *Principia: "*The *only* way in which scientific concepts can be securely validated is when they are defined in such a way as to support strong explanatory arguments". If we are thinking of cross-level explanatory arguments, we are probably talking about explaining things at the

level of psychology, behaviour and lived experience of whole people in terms of what is going on at the level of nerve cells in their brain, their connections, their biophysics and their biochemistry. When I say that, in no way do I discount social contributions to the cause of mental disorders – the effects of immigration, social disruption, childhood abuse, famine and war. In addition, what I have said so far is about validating *scientific concepts*, but *diagnoses* are not identical with scientific concepts, though they may be related to them. Diagnoses are likely to be closely bound to particular cultures and societies, their communal experience and history. Nevertheless, if we are wanting to incorporate psychology and psychiatry fully into the domain of the natural sciences, we need to find a way of linking descriptions of mental illness to the common language of more-firmly established sciences, and that, I think, means defining them, at least in part, in terms of brain mechanisms.

Many people here may be upset by what I have just said; and others will object that those cross-level explanations of psychology, behaviour and human experience in neuronal terms are simply not possible. To the first of these objections, can I suggest that it *is* possible to be a warm-hearted compassionate individual and still be a rigorous neuroscientist, who understands fully the shattering personal consequences of severe mental illness; and I ask you to give a thought to what my own journey might have been like, when, as a student fascinated by the brain science of the day, and attempting to get a medical degree, had this brought to a sudden halt by a catastrophic psychotic breakdown, which completely change my life thereafter. To those who object that the enterprise I am advocating is simply not possible, there *are* already a few precedents, not yet accepted, I should say, where those cross-level explanations I refer to have already been constructed, linking psychology to neurobiology; and I also have myself made a few contributions in this area, both for normal psychology and for the abnormalities we call mental illness. However, I accept that a lot of the glib mechanistic talk by brash neuroscientists is disturbing and frightening, as though human beings are little more than a slight upgrade of a purpose-bred Wistar rat; but I want to foster a quite different sort of discourse, where neuroscientists, amongst many others, are accepted and welcomed.

Now, we are honoured to have Allen Frances here from Duke University. The USA has of course vastly more resources to put into fundamental aspects of research than is remotely possible in a small country like New Zealand. However I want to point out to Allen what a diverse bunch we are here today; and it may be that the sheer diversity of participants in one forum seldom occurs in larger countries. This may be something

New Zealand can do better than other countries. I don't want to hold Allen responsible for all that goes on in American psychiatry, and its influence in other countries. Nevertheless I do want, respectfully, to challenge him with a message to take back to research centres in the USA. Here, I'm not talking about the practically-focused research, on service delivery, clinical trials and the like, but fundamental research looking for root causes and explanations. The message is simple: *Stop* adding to the mountains of empirical data already available (except with rare exceptions), and *start* reading all that has been found in the last hundred years, thinking carefully and dispassionately about what it means, synthesising and integrating it into testable explanations of phenomena of mental illness. There is more than enough there to formulate those explanations, if only we knew how to pull it all together in a way that makes sense. The *exceptions* are those rare moments when, from a fully formulated disease theory, a critical prediction can be made to test the theory. *Only then* are new empirical investigations needed. In other words, take the early natural philosophy tradition as a model, where, right from the beginning, there were not only empirical investigators, but also a quite different breed - Copernicus, Kepler, Newton - those we now call *theoretical* physicists. These different but complementary types of scientist have made physics the most secure of all sciences. If a similar synergy could be set in motion in psychiatric research, in my view, progress in fundamental understanding would then go further, it would move faster, conclusions would be more secure, and overall it would be *much cheaper.*

Now you have seen the plan for the rest of the day. The general strategy is to have most of the formal presentations this morning, and as the day progresses more of our time will be devoted to discussion of issues raised. We *are* diverse in our perspectives, so there will be a lot of active listening for everyone. I hope you can all voice your own perspectives, but be respectful of the fact that there are very different perspectives which also need to be heard. When people speak from the floor, can I also ask that you give your name, and a sentence of two about your background, or what organization you represent; and for Allen's benefit, if you use Maori words, could you also give the English version.

Thank you.