

JOHANN CHRISTIAN REIL'S TRAINING SCHEME FOR MEDICAL AUXILIARIES

by

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THE GREAT importance of medical auxiliaries in primary medical care and in community health schemes is now being increasingly recognized by those who are involved in the planning of health services for developed and developing countries alike. Schemes employing very large numbers of auxiliaries are already well established in Russia¹ and in China.²

The major need for auxiliaries is, in the first place, in rural areas of developing countries.³ There is, however, also a growing interest in the extension of primary medical care by auxiliaries in countries where the problem seems to be more of maldistribution than of scarcity of medical personnel. A number of schemes are at present on trial in the U.S.A.⁴ In Canada a recently reported trial seems to have confirmed the practicability of a nurse-practitioner to provide first-contact primary clinical care.⁵ The Board of Science and Education of the British Medical Association in its report on primary health care teams came to the conclusion that trained nurses could take over certain defined areas of primary health care in developed countries. For developing countries it was suggested to establish a grade of medical assistant to "extend the physicians".⁶

Schemes for training auxiliaries to extend medical care in rural areas are by no means a new development. Linnaeus in 1751 suggested giving members of the rural clergy a short training in medicine, so that they could look after their parishioners' bodies as well as their souls.⁷ A scheme to encourage students of theology to attend

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¹ *Report on the inter-regional travelling seminar on the training and utilization of medical assistants (Feldshers) in the U.S.S.R. 29.9.-29.10. 1967.*, Geneva, World Health Organization, 1967.

² Joseph R. Quinn (ed.), *Medicine and public health in the People's Republic of China*, Bethesda, D.H.E.W., 1973.

³ Rex N. E. Fendall, *Auxiliaries in health care*, Baltimore and London, Johns Hopkins Press, 1972.

⁴ Richard A. Smith, 'Medex', *Lancet*, 1973, ii: 85-87.

⁵ Walter O. Spitzer *et al.*, 'The Burlington randomized trial of the nurse practitioner', *New Engl. J. Med.*, 1974, 290: 251-256.

⁶ *Primary health care teams*, London, British Medical Association, 1974, pp. 32-33.

⁷ Linnaeus on a journey through the Swedish province of Skånen met Probst Martin Lindevall at Everlöf in July 1747. This priest had made a considerable reputation for himself as a doctor amongst his parishioners. Linnaeus was very much impressed and in his account of his journey strongly advocated the training of prospective members of the rural clergy in some form of rudimentary medicine. See, Carl v. Linné, *Skånska Resa*, Stockholm, 1751, pp. 274-275. Also, Heinz Goerke, 'Medizinische Ausbildung von Theologiestudenten an der Universität Lund von 1813 bis 1840' in, Hans-Heinz Eulner *et al.* (ed). *Medizingeschichte in unserer Zeit*, Stuttgart, Enke, 1971, pp. 352-358, see pp. 352-353.

lectures on popular medicine and later to provide some medical care in their rural parishes was in force in Sweden for a time in the first quarter of the nineteenth century.⁸ Johann Peter Frank dealt with the subject of “priest-doctors” at considerable length, first as a theme for an academic address at the University of Vienna in 1803⁹ and later on in his monumental *Medicinische Polizey*, in the section dealing with medical education.¹⁰

A complete plan for training medical auxiliaries and for employing them in the rural and the poorer urban areas of Germany was drawn up by the German physician Johann Christian Reil (1759–1813).¹¹ His name, however is today only remembered for his contribution to the anatomy of the brain by the anatomical term, the *Insula of Reil*¹² or *insula*.

Reil recognized the very great importance of training auxiliaries for the primary medical care of the population in sparsely inhabited rural areas as well as in urban communities with a low standard of living. In these places the majority of the people would have been unable to pay for the services of qualified medical practitioners even if they had been available. In many cases people were unwilling to consult the qualified physician or surgeon, putting their trust in the quaint and often bizarre

⁸ The Swedish Diet voted in 1810 a sum of 5000 thalers to provide fifty students of theology with a grant of 100 thalers each to encourage them to take up some medical studies in addition to their lectures in theology. Thirty-four grants went to students at Uppsala and sixteen grants to students at Lund. The medical training was to consist of two courses each of two semesters' duration. See, Elis Essen-Moeller, *Bidrag till Lunds Medicinska Fakultets Historia*, Lund, Gleerup, 1947.

⁹ Johann Peter Frank, 'Ueber Priester-Aerzte, Academische Rede gehalten zu Wien, den 17. Oktober 1803' in, *Taschenbuch der Wiener Universität*, Vienna, 1804, pp. III–LX.

¹⁰ In Frank's monumental work on community health 100 pages are devoted to the concept of “priest-doctors” in the section dealing with medical education. See, Johann Peter Frank, *System einer vollständigen medicinischen Polizey*, Vol. VI, Part 2, Vienna, Schaumburg, 1817, pp. 379–478.

¹¹ Johann Christian Reil (1759–1813). Born at Haude in East-Friesland, Germany. Qualified in medicine and surgery at Halle in 1782. He practised for a time in East-Friesland, until appointed professor extraordinary of medicine at the University of Halle in 1787. The following year he was appointed full professor and in 1789 town physician for the city of Halle. His first major work was his *Memorabilia Clinica*, published at Halle in four volumes between 1790 and 1795. Reil founded together with J. H. F. Authenrieth the first journal devoted to physiology, the *Archiv für die Physiologie*, which continued to be published from 1796 to 1815. In the true spirit of German “Romantic Medicine” his contribution to the journal's first issue was an article on the “Vital Force” (*Lebenskraft*). Subsequently he used his journal mainly as a vehicle for his many papers on the anatomy of the eye and of the brain. His five-volume work *Ueber die Kenntniss und Kur der Fieber*, Halle 1799–1815, was greatly acclaimed. Reil's interest in the treatment of mental illness produced his *Rhapsodien über die Anwendung der psychischen Heilmethode auf Geisteszerrüttungen*, Halle, Curt, 1803. This work was of considerable influence on the treatment of the insane in Germany and its author was described as “Germany's Pinel”. See, Hans-Heinz Eulner, 'Johann Christian Reil, Leben und Werk', *Nova Acta Leopoldina*, Leipzig, 1960, 22: No. 144, p. 21. In 1804 Reil produced the plan for the training of medical auxiliaries, described here. In 1805 he started the short-lived *Journal für die psychische Therapie*. Napoleon closed the university of Halle from 1806 until 1808. During that time the economic condition of the town was greatly affected by the Napoleonic war. Reil tried to establish a spa in Halle to attract visitors, but was not particularly successful. In 1808 he started another medical periodical *Beiträge zur Beförderung einer Kurmethode auf psychischem Wege*, which only published a second and final volume in 1812. In 1810 Reil was appointed professor of medicine at the newly established university in Berlin and so became C. W. Hufeland's colleague there (see note 15 below). In 1813 Reil became inspector of all German military hospitals east of the river Elbe, as well as director of the hospitals in Leipzig and Halle. He died of typhus on 2 November 1813. His son-in-law edited and published posthumously Reil's *Entwurf einer allgemeinen Therapie* in 1816.

¹² Edwin Clarke and Charles D. O'Malley, *The human brain and spinal cord*, Berkley and Los Angeles, University of California Press, 1968, p. 391.

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remedies of folk medicine. Quite often they fell prey to untrained and unscrupulous quacks.

The problems involved in establishing a country-wide service of medical auxiliaries, of selecting the most suitable candidates and of devising appropriate training methods for them have, on the whole, remained astonishingly similar from the eighteenth century until the present day.¹³

In 1804 Reil published a book of 140 pages under the title, *Pepinieren zum Unterricht ärztlicher Routiniers als Bedürfnisse des Staates nach seiner Lage wie sie ist*.¹⁴ In it he sets out clearly the causes of the maldistribution of medical care and argues the case for the employment of trained medical auxiliaries. Reil suggests the setting-up of training schools for them which should be strictly separate from the medical colleges. He stresses the importance of recruiting the auxiliaries from the same strata of society among which they will eventually work. The difficulty of inducing the auxiliary to remain in outlying rural areas without resorting to compulsion is also considered. He goes into the questions of location and of the syllabus of the proposed training schools in some detail. The selection of teaching staff and the provision of suitable textbooks for teaching and reference are similarly dealt with. The duration of the training courses and the fees to be charged are discussed, as well as the remuneration of the trained auxiliary. Finally the question, to which authority the practising auxiliary should be responsible for his professional activities, is raised.

Reil's plan could, in fact, be applied with only minor alterations as a blueprint for the creation of an auxiliary medical service in almost any developing country at the present time.

The book bears the dedication: "To Dr. C. W. Hufeland, Royal Prussian Privy Councillor, Physician-in-Ordinary, Director of the Medico-surgical Collegium, etc. . .".¹⁵ In the preface Reil explains why his plan was especially dedicated to Hufeland, who was in charge of all medical matters in Prussia at the time, particularly of those pertaining to medical education. Did Hufeland think that everything possible

¹³ Katherine Elliott, 'Meeting world health needs: the doctor and the medical auxiliary', *World Hospitals*, 1973, 9, No. 3: 94-97.

¹⁴ Johann Christian Reil, *Pepinieren zum Unterricht ärztlicher Routiniers als Bedürfnisse des Staates nach seiner Lage wie sie ist*, Halle, Curt, 1804.

¹⁵ Christoph Wilhelm Hufeland (1762-1836) qualified in medicine at the University of Göttingen in 1783 and practised subsequently for ten years in Weimar. A successful physician, he counted among his patients many famous personages, The poets Herder, Wieland, Goethe and Schiller had at some time been his patients. Hufeland was appointed professor of medicine at Jena in 1793 and later became physician-in-ordinary to the King of Prussia, as well as the director of the Collegium Medico-Chirurgicum, the academy for medical education. In 1801 he was appointed chief physician at the Charité Hospital in Berlin. From 1806 to 1809 he stayed with the Prussian royal family as their court physician in exile in East Prussia. On his return he was given the post of councillor in the Prussian Ministry for Ecclesiastical Education and Medical Affairs. In 1810 he became professor of special pathology and therapy at the newly opened University of Berlin. His influence in medical matters in Germany was further increased by his position as editor of the *Journal der practischen Arzneykunde und Wundarzneykunst* from 1795 until his death in 1836. His most important and best known book was *Die Kunst das menschliche Leben zu verlängern*, first published in 1797, later known as *Makrobiotik*. It was a typical product of the German "*Aufklärung*", giving its readers good advice for simple and healthy living, thus prolonging their lives. This work enjoyed an enormous success and went into many subsequent editions up to the year 1905. It was translated into several European languages. Hufeland also published the *System der practischen Heilkunde* between 1800 and 1805 and the *Enchiridion Medicum* in 1836.

had already been done for medical education? asks Reil. Were there enough schools of higher and lower grades? Was there always only the interest of medicine taken into account without regard to private interests? That they, Hufeland and himself, both agreed about the answers to these questions did not seem to need further mention. He asked, therefore, that Hufeland should free medical education from all that was obsolete, in the interests of the State of Prussia and its subjects.

Reil begins his plan by stating that the doctor and the rich burgher attracted each other like magnetic poles. The rich man paid well and the doctor was well aware of the value of his services and charged high fees accordingly. Should one prohibit the doctor by law to make free use of his abilities? This had been tried in some places, by making the doctor take a professional oath obliging him to treat all his poor patients free of charge and to demand only moderate fees from his other patients. To do this would, in Reil's opinion, deter the good doctors from practising and would open the door to irresponsible persons. As compared with the vast number of poor people there were few citizens who were rich. The majority of the inhabitants of the large towns and most of the population of villages, especially in rural districts, were quite poor and could pay the doctor only very little or nothing at all. As a taxpayer the doctor was already contributing to the upkeep of the poor. If he, out of humanity, treated them free of charge he was already doing more than he was required by law. The state could not leave the treatment of the poor to the goodwill of the doctor. It was essential that the poor should have the medical care to which they were entitled by law. In any case, the rich would get little attention from a doctor who was obliged to visit forty to sixty patients daily.

The state might consider it its duty to arrange for a supply of well-trained doctors but could not be expected to pay them for their services, as also the state could not be expected to feed the common masses. What, then, was the current state of affairs? The common people were left to their own devices. When they were ill they consulted farriers and even the public hangman. They used traditional folk remedies. They might also turn to the lady of the manor, who would give them rhubarb rather than food to show off not only her graciousness but also her medical knowledge. The state was in a difficult position. On one hand the present conditions were considered unsatisfactory but on the other the state was unable to solve this problem radically. The existing shortage of medical personnel was, to some extent, made good by licentiates, barber surgeons and apothecaries, who were mostly paid by their patients in kind, with sausages, dried fruit and other foodstuffs. Not that these practitioners could be regarded as competent healers, but they were preferable to the vast hordes of quacks. However, the apothecaries and barber surgeons had by no means received a satisfactory training. Barber surgeons should certainly not be allowed to treat internal diseases, but in the army and in country districts there were no alternatives at that time. What could be done? An attempt had been made to burden the state with the tasks of paying for medicines for the poor and for district medical officers to treat them free of charge. Was the state really obliged to do this? If so, could it be done? If one considered that one doctor could serve about one thousand inhabitants, how many doctors and what amount of medicines would the Prussian state have to pay for, taking into account its nine million subjects? The state

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considered itself responsible for maintaining academies for the training of doctors for the well-to-do. Would it be unfair to ask for training schools where medical auxiliaries were produced to serve the masses?

The art of medicine was an entity consisting of two components: knowledge and action. It could be taught in two ways. The one was to teach medicine in its entirety at a medical academy, the other was to teach only the part requiring action, with a minimum of scientific explanation, at a training school. The latter method, owing to its restrictions, required also restrictions on the future practice of the subject. To teach both methods at the same academy Reil considers as impossible. There should, however, be no other distinction between medical schools, e.g. separate schools for medicine and for surgery, or separate ones for civil or for military medicine.

There might be objections to auxiliaries. Occasionally a patient treated by an auxiliary might die who might have been saved by a qualified doctor. Reil now comments on the tendency to feel strongly about one individual's death, while very many others died unlamented every day. Let a person be killed in a duel or die through a mistake of a doctor or a judge, then everybody would be up in arms. However, nobody lifted a finger whilst millions died in the plantations overseas or through the slave trade, through bad housing, bad food and dangerous occupations, through prostitution, venereal disease, epidemics and through the abominable abuses of wet-nurses and the neglect of poor and illegitimate children.

Reil asks his colleagues not to object to the auxiliary and his occasional failures, while so many people succumbed at present for want of trained healers. He pleads for the auxiliary as a temporary expedient who will in future give way to the fully-qualified physician. The doctors wished to have only "scientific" healers working in the state. Reil reminds them that the actual scientific medical knowledge amounted to very little, so that doctors and auxiliaries were on the same level in that respect. He asks the doctors to allow the auxiliary to occupy his modest place next to them for the sake of the multitude, which at present was not cared for at all. The doctors, however, should see to it that the auxiliaries should have better teachers than those whose only qualification was that they had been able to buy a barber's shop. The education of the auxiliaries would have to be brought up to date according to the continuous progress of knowledge. Reil repeats here his opinion that doctors should only be trained at university and auxiliaries only at training schools. He says: "The house painter does not need the schools of Corregio or Michelangelo".¹⁶

The following thirty-three pages¹⁷ of Reil's book are devoted to a discussion of the scientific education of future doctors and an exposition of Reil's own philosophy of nature based on that of Schelling.¹⁸ This part of the book need not concern us here.

Reil then deals with the problem of the division between medicine and surgery

¹⁶ Reil, *op. cit.*, note 14 above, p. 28.

¹⁷ *Ibid.*, pp. 29–63.

¹⁸ Friedrich Wilhelm Joseph von Schelling (1775–1854) taught philosophy at Jena, Würzburg, Stuttgart, Erlangen and Berlin. He developed his philosophy of nature (*Naturphilosophie*) from the works of Spinoza, Kant and Fichte. He postulated that the concepts of nature and of spirit were to be regarded as two different manifestations of an original indifferent common basis from which they were formed. Reil was obviously influenced by Schelling's four works on philosophy of nature and on the "world-soul" (*Weltseele*) which were published between 1797 and 1799.

in a further twenty pages. He declares medicine to be indivisible, stating: "Surgery is not the art to heal by means of the hands. The head has to guide the hand".¹⁹ There is only one medicine and there is only one aim, to help man when he is ill. It was a deplorable mistake to teach medicine and surgery in different institutions. There was also no real difference between civilian and military medicine. Regimental surgeons and company *Feldschers*, the only medical personnel in the army at the time, should be trained according to their functions, the surgeons to receive the full medical education and the *Feldschers* to be trained as auxiliaries.

It was difficult to define the dividing line between the spheres of activity between doctor and auxiliary. The latter owed his existence only to a temporary need of the state. Reil hoped for a golden age, a time when science had eventually disclosed all secrets of nature, when auxiliaries would receive the same training as doctors and therefore disappear by merging with them.

The training of the auxiliary should be chiefly based on sets of rules. He should be able to recognize diseases by their symptoms without really understanding them and to use the appropriate medicines without deeper knowledge of their functions. It was important to give the auxiliary a special name like "people's doctor" or "*Routinier*" to distinguish them from the country surgeons and the practising apothecaries, because these had had no specific training for their medical activities. The auxiliary should in his appearance, speech, behaviour and thinking be like the common people. He would then gain the ordinary people's confidence and be able to bridge the gulf between them and the doctor. The auxiliary would therefore be able to displace any quack without difficulty. As his field of action was a limited one, the auxiliary should soon reach a high level of professional competence and be most useful to his community, provided that skill and intelligence were being combined with appropriate training.

The state needed many more auxiliaries than doctors. The doctors could be trained abroad, if the universities of their own country could not cope. This was not possible for the training of auxiliaries and therefore there was a need for a sufficient number of schools for this purpose. Reil thinks that the training schools should, if possible, not be situated in a university town, to avoid trouble between the students of the respective schools. A place in the vicinity of the sovereign's residence would be the most desirable location. Reil next discusses the qualities which one should look for in the selection of candidates for training as auxiliaries. They should be sound in body and mind, able to read and write and should show signs of "artistic talent". This latter quality Reil considers as essential and avers that "artistic talents" were quite often found among the common people. Candidates should only be admitted to the training school if they had been found to possess this quality at a preliminary examination. Higher education beyond literacy was not particularly desirable, as it might make the student dissatisfied with his future occupation and earnings. The candidates should be between sixteen and eighteen years old. Neither unsuccessful university students nor barber apprentices should be admitted. Suitable candidates would be found among orphans, conscripted young men, sons of impoverished families, and generally among young men in similar circumstances.

¹⁹ Reil, *op. cit.*, note 14 above, p.83.

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According to Reil, a teacher at a training school needed more force and self-discipline than an academic teacher. He should be a scientific physician and philosopher in one person. The delivery and content of his lectures needed to be particularly clear. His teaching should be not critical but didactic, not learned but popular. The teachers should receive special training at university. The state would have to pay them well so as to get the best teachers. They should, however, be obliged to teach full-time without being allowed to engage in private practice.

Some subjects need not be taught at all, e.g. history of medicine, medical police, forensic medicine, comparative anatomy and veterinary medicine. Even of practical medicine only the aspects with some bearing on the auxiliary's future practice need be considered. The syllabus should begin with introductory lessons to familiarize the students with their course of studies. Further there should be taught the elements of anatomy and physiology. Some knowledge of pathology would also have to be imparted, as well as some of therapy. Suitable subjects should also be taught at the bedside. Reil then enumerates the different methods of treatment, which he divides into surgical, physico-chemical and psychological means of healing. Of the psychological treatment the future auxiliaries need to be taught only the bare outlines. They should not be led to think that they were competent to undertake treatment of this kind.

As far as the chemical method of healing was concerned, some principles of botany needed to be taught, especially the knowledge of indigenous plants and officinal herbs, toxicology and treatment of poisoning. The pupils would have to learn to prepare medicines from indigenous herbs to be able to produce cheap medicines which the common people could afford to use. A small botanical garden and a small pharmacy would have to be provided. Some pharmacy and chemistry should be taught, as well as the art of dispensing medicines and the writing of prescriptions. This should be done by the physician in charge of the hospital pharmacy, where there should be also a small laboratory.

The teaching of surgery²⁰ would have to be based on a collection of surgical instruments. However, this course should include neither difficult, dangerous operations, nor those that required costly instruments. The students should learn the treatment of wounds and ulcers, of dislocations and fractures, the reduction of hernias and the application of bandages. Of the difficult operations the auxiliaries should only know enough to be able to refer their patients to a fully-qualified surgeon in time. In midwifery the students should primarily acquire a knowledge of diagnosis and of dealing with the simpler cases. The difficult ones should be referred to a qualified accoucheur.

In all these lectures medicine should be taught as a whole. No attempt should be made to separate medicine from surgery. The principles of hygiene should be taught according to the conditions in which the common people were living and working and should aim to a large extent at eradicating common prejudices. The bad effects of bleeding and purging should be stressed particularly.

Textbooks for use at the training schools did not exist at that time. Suitable textbooks would have to be published by the authorities themselves to ensure a certain

²⁰ Reil uses here the term *acology*. "*Acology*: The doctrine of remedies, The application of the term has usually been restricted, but without reason, to surgical remedies". Robert Hooper, *Lexicon medicum*, 7th ed., London, Longman, 1839.

degree of uniformity and should preferably be written by some of the teachers at the training schools. There should be only fairly small editions, so that more frequent new editions could take into account any recent advances in medicine. The training schools should be provided with a sufficient number of textbooks for the use of the lecturers and the students, as well as for the qualified auxiliaries for reference purposes.

The teaching staff of each training school should consist of four lecturers, who would deal with the whole curriculum. The length of the course should be three years, but could possibly even be extended to five years. New students should be admitted only at the end of the three-year course. The courses at the different schools should be staggered, so that each school would start a new course in a different year. This would enable the students to commence the course as soon as they had reached the appropriate age of entry.

The training school should have a hospital attached to it for the purpose of clinical teaching and the hospital pharmacy should dispense the medicines according to the method of dispensing which the auxiliaries would have to use in their future practice. The students should also receive instruction in nursing at the hospital. This would have to include treatment by the use of baths as well as electrical treatment.

The training school should be a state institute under the authority of the state, as it would have to be maintained by the state. It could, however, also serve as an institution for the poor, in which case the local community would have to contribute to the maintenance of it. The students themselves might also have to contribute a little, as in most cases they would be subsidized by the local authority anyway. On the question of whether the students should be obliged to live in the school or whether they could be allowed to live in private quarters in the town, the author weighs up the advantages and disadvantages of both. He eventually decides in favour of letting the students live outside the school to encourage their self reliance.

The course fees should be as low as possible but the course should not be completely free. To have to pay for them, even if only very little, would make the students appreciate their studies much more. No medical academy should be allowed to accept a student who had been at a training school for auxiliaries, except in cases of outstanding ability. This would prevent what Reil calls "*Doctromania*" and desertion from training school to university.

Careful selection of candidates, as mentioned before, should take place before admission to the course. Students found to be unsuitable could be eliminated at the first half-yearly examination and their fees should be refunded. Further half-yearly examinations were to follow and at the completion of the three-year course the final examinations were to be held. The question of not finishing the course successfully at this stage should hardly arise, as all unsatisfactory students would have been eliminated already. The auxiliaries should be employed according to the results of their final examinations. The better-paid posts should be given to the people with higher grades. A solemn graduation ceremony should conclude the auxiliaries' course and at this occasion a professional oath, similar to the Hippocratic one should be taken. On finally leaving the school the auxiliary should receive a case of simple surgical instruments and bandages and some reference books on "popular medicine". For this, however, he would have to pay a small charge.

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Regarding the rights and privileges of the auxiliaries and the control of their professional activities, Reil suggests that only fully-qualified doctors and fully-qualified auxiliaries should be allowed to practise medicine in the future. Barber surgeons and apothecaries should be allowed to die out gradually.

The auxiliary was chiefly meant to practise in rural districts, but he could also work in a town and should not be confined to one particular locality. Reil then discusses the relations between doctor and auxiliary. Doctors could, if they wished, leave some of their activities in the hands of the auxiliaries. The public should be quite free to choose between doctor and auxiliary, as they were at the time free to consult a barber surgeon instead of a doctor. Reil thinks that monopolies had a paralyzing effect and that competition improved the quality of service all round. This also held good for the medical academies, which, in some respects, would have to compete with the training schools for auxiliaries.

The auxiliary could be responsible in his professional work either to the Medico-surgical Collegium, as the doctors were, or to his former training school. Reil thinks the latter to be more appropriate. He mentions that there had been some suggestion that the barber surgeons should come under the control of the District Medical Officer. To subject the auxiliaries to a similar control he considers undesirable. The auxiliary should remain independent, but should ask for help from an experienced physician or surgeon in case of difficulties. The auxiliary should receive a small salary, as he would be obliged to treat poor persons free of charge, but would be able to charge a fee from all his other patients. The auxiliary's salary should be paid by the local community, as the care of the poor was its responsibility. The auxiliary should dispense his own medicines, as the rural pharmacies were generally of a very poor standard, if any could be found at all.

Reil had dedicated this plan to Hufeland, who, at that time, was physician-in-ordinary to the Prussian royal family as well as director of the Prussian Medicinisch-chirurgischen Collegium. Hufeland was also principal physician at the Charité Hospital in Berlin. As editor of the *Journal der practischen Arzneykunde und Wundarzneykunst*, he gave his opinion on Reil's proposals in an editorial article in the volume for the year 1805.²¹ He dismissed Reil's plan out of hand. Hufeland declared that the setting-up of training schools for auxiliaries would only legalize the practice of medicine by persons who were not fully-qualified doctors. The only place to teach medicine was a proper medical school. Any person, not fully qualified, could only be allowed to practise medicine under the supervision of a fully-qualified doctor, even in country districts. It was essential that anyone who wished to practise medicine should have passed strict examinations in order to prove his fitness to follow his profession. Anyone who had not passed those examinations should therefore be subject to strict supervision. If, however, an auxiliary should have gained sufficient knowledge and proficiency by working under supervision for some years, he should have the opportunity to practise medicine independently, after having passed all the prescribed examinations.

A very detailed review of Reil's plan was published in the *Allgemeine Literaturzeitung* in November 1804.²² The anonymous author agrees with Reil that the medical

²¹ 'Ueber Aerzte und Routiniers', *J. pract. Arzneyk.* 1805, 21: 9–21.

²² *Allgemeine Literaturzeitung*, Halle, 1804, Nos. 325–326–327.

services in rural areas were in urgent need of improvement. He was also very complimentary about Reil's philosophical treatment of the role of the "scientific physician". He was, however, of the opinion that Reil should not have burdened the exposition of his plan with long passages dealing with the new "*Naturphilosophie*". He would have to convince a wide circle of persons in the administrative ranks of the civil service of the validity of his proposals. The "*Naturphilosophie*", however, had only just come into vogue and was understood by but very few. The author also takes Reil to task for his narrow view of the physician's duty to treat the poor. The reviewer's opinion was that Reil's plan deserved the full attention of the statesmen, but he could foresee some objections to it from them. The administrators would find it difficult to accept those proposals affecting the medical profession, when the profession was deeply divided within itself. There was no medical theory that had stood the test of time. Theories came and went and none was ever generally accepted. The doctors themselves had little confidence in the ability of their colleagues. Another difficulty was the present uncertainty of the political situation. The author had recently met a minister of health of one of the German states, who had told him that he would not be prepared to make any fundamental changes in the medical services at the present time owing to the rapid changes in the medical sciences and especially in view of the present political situation. Finally the reviewer was of the opinion that auxiliaries should work under medical supervision only, but he thought that this would not diminish the auxiliaries' status to any great extent.

After a long delay, due to the turbulent conditions prevailing in Germany during the Napoleonic period, Hufeland administered the *coup de grâce* to Reil's plan in 1807. He published a long editorial article of forty-eight pages in his journal.²³ After discussing Reil's book and its review in the *Allgemeine Literaturzeitung* mentioned above, Hufeland comes finally to the following conclusions:²⁴ (1) only fully-qualified physicians should be allowed to practise medicine, no empirics, no auxiliaries, no so-called "medical surgeons" (*medizinische Chirurgen*); (2) there should be a sufficient number of fully-qualified doctors in town and country alike. However, if the ratio of one doctor for every 1,000 inhabitants was considered as acceptable in town, one doctor for every 2,000, 3,000 or even 4,000 inhabitants might be sufficient in rural areas; (3) there were not enough salaried medical officers in large towns. There should be more doctors appointed for the treatment of the poor (*Armenärzte*); (4) it was the duty of the state to provide in future enough obstetricians and surgeons in addition to the physicians; (5) the barber surgeons in town should only be employed in a subordinate role for bloodletting, cupping, use of leeches, clysters etc. After suitable training they could be employed as nursing attendants; (6) the same should also apply to the country areas, but the barber surgeons might not be fully employed there. They could then also act as assistant veterinary surgeons. No costly schools for auxiliaries were necessary. The auxiliaries could learn all they needed to know from the physicians or veterinary surgeons who supervised them;

²³ 'Bemerkungen über die Reilsche Schrift: Pepinieren zum Unterrichtsärztlicher Routiniers u.s.w. . . . und ihre Recension in der Halleschen A.L.Z. im November 1804', *J. pract. Arzney.*, 1807, 26, I: 9-57.

²⁴ *Ibid.*, pp. 52-57.

J. C. Reil's training scheme for medical auxiliaries

(7) the appointment of more salaried medical officers would certainly be in the better interest of the population than the continuing existence of barber surgeons; (8) as the medical officers, appointed by the state, would be suitably paid, they would have to treat the poor free of charge. People would then no longer have to seek treatment from cheap quacks; (9) training schools for auxiliaries were *not* necessary. Therefore more money could be spent on better training for doctors. Newly-qualified practitioners should spend a certain time in hospitals and should afterwards practise under the supervision of an experienced physician for the next two to three years.

Hufeland did not seem to realize or perhaps he did not wish to admit that Reil's plan showed the way by which the urgently needed extension of medical care throughout the country could be carried out. That through this method the additional medical personnel could be provided in sufficient numbers in a fairly short time and that the trained persons were likely to remain in their often isolated locations and that they would be accepted by the communities among which they would work. It is difficult to believe that Hufeland, being the principal medical administrator and the director of medical education in the state of Prussia, could have been so remote from reality that he could not have seen the prevailing conditions in his country for whose medical services and education he was responsible and that he could not have grasped the urgency of the problem, especially in the rural areas. The nine points in his reply to Reil's suggestions represent a council of perfection which was plainly impossible to achieve under the circumstances. One can only assume that Hufeland's completely negative attitude to the training of auxiliaries resulted from his fear of the possible dilution of the medical profession and of the auxiliaries' competition with the "scientific" doctors. Reil's plan would obviously also have interfered with the existing system of medical education which Hufeland wished to preserve with as few changes as possible. Hufeland was at that time firmly in favour of the *status quo* as far as the medical profession was concerned. In complete contrast to his condemnation of Reil's auxiliaries is the position he took up in an article in his journal in 1809 under the title: *Medicinische Praxis der Landgeistlichen*.²⁵ In it he declares himself in favour of the rural clergy giving not only spiritual but also medical care to their parishioners. He makes however three provisos: (1) the clergy must give their help free of charge to their patients; (2) they should restrict their medical practice to their own, or at most, to the adjacent parishes. This, says Hufeland, would avoid extensive travelling and would leave the parish priest enough time to devote most of his energies to his real calling as a minister of the Church; (3) the minister would have to abstain from practising surgery or midwifery, as this might diminish his dignity. It would seem that Hufeland did not consider the rural clergy practising medicine within their parishes as a serious threat to the medical profession. Such a scheme would go at least a little way towards relieving the urgent need of the rural population for medical care with no cost to the state.

Subsequently Reil's little book received scant attention. Neuburger in his

²⁵ 'Medicinische Praxis der Landgeistlichen', *ibid.*, 1809, II: 1–10. It was reported that this article had influenced the adoption of a scheme to train "Priest-doctors" in Sweden. See the unsigned article 'Ueber den Zustand des Medicinalwesens in Schweden. (Aus einer schwedischen Handschrift übestzt)', *Neues J. pract. Arzneyk.* 1812, 28, XII: 120, 124.

memorial address on occasion of the centenary of Reil's death in 1913 mentions it²⁶ and devotes six pages to quoting excerpts from it.²⁷ However, Reil's schools for auxiliaries seem to have been of little interest at that time. What was quoted at length were ideas on the relations between medicine and science and Reil's opposition to keeping medicine and surgery apart as two different disciplines.

Similarly Eulner in 1959 in his important contribution to the bicentenary celebration of Reil's birthday²⁸ quotes passages from Reil's book, but gives the impression, that these had been chosen mainly as examples of the author's skill in polemical writing. The great social importance of Reil's proposals had still not been fully recognized at that time.

Even Pfeiffer in his biography of Hufeland,²⁹ published in 1968, treats the total rejection of Reil's plan by Hufeland as a matter of little significance. He says that Hufeland "could not completely agree" with Reil on that point and that Hufeland stuck to his view that medicine should only be taught as an indivisible entity and only at a medical college.

Only fairly recently has the concept of the training of medical auxiliaries been recognized to be of vital importance to underdoctored communities. It has taken more than one century and a half for the ideas contained in Reil's plan to be generally accepted as providing the solution to the problem of extending the scope of primary medical care, wherever there might be the need for it.

Reil's plan, however, has remained largely unknown and his little book is not easily available.³⁰ It was the object of this paper to present an outline of his concept to a wider audience.

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²⁶ Max Neuburger, *Johann Christian Reil 1759–1813*, Stuttgart, Enke, 1913, p. 30.

²⁷ *Ibid.*, pp. 67–72.

²⁸ Hans-Heinz Eulner, 'Johann Christian Reil', *Nova Acta Leopoldina*, 1960, 22, No. 144: 67–72

²⁹ Klaus Pfeiffer, *Christian Wilhelm Hufeland*, Halle, Niemeyer, 1968, p. 161.

³⁰ In the British Museum's *General catalogue of printed books*, London, 1963, there are listed under the entry: *Reil* (Johann Christian), the titles of twelve of Reil's publications and his journal *Archiv für die Physiologie*, as well as the titles of twenty-one dissertations published under his pupils' names. His book on auxiliaries is not listed. Enquiries at a number of German university libraries were unsuccessful. Reil's book is, however, listed in the *Catalogue of the library of the Royal College of Surgeons in London*, London, 1831, p. 451, and it was this copy which, with kind permission of the Librarian of the Royal College of Surgeons of England, was used in the preparation of this paper.